Department für Agrarökonomie
und Rurale Entwicklung

2023

Lessons from the p-value debate and the replication crisis for "open Q science" – the editor's perspective *or*: will the revolution devour its children?

Silke Hüttel[a], Sebastian Hess[b]

[a] Department of Agricultural Economics and Rural Development, Göttingen University, Germany, editor of the *German Journal of Agricultural Economics*,
e-mail: silke.huettel@uni-goettingen.de

[b] Department of Agricultural Markets, University of Hohenheim, Germany,
editor of the *German Journal of Agricultural Economics*
e-mail: s.hess@uni-hohenheim.de

Department für Agrarökonomie und
Rurale Entwicklung
Universität Göttingen
D 37073 Göttingen
ISSN 1865-2697

Diskussionsbeitrag 2302

Lessons from the p-value debate and the replication crisis for "open Q science" – the editor's perspective *or*: will the revolution devour its children?

Discussion paper

Paper version: August-18, 2023

Silke Hüttel
Department of Agricultural Economics and Rural Development, Göttingen University, Germany, editor of the *German Journal of Agricultural Economics*,
e-mail: silke.huettel@uni-goettingen.de

Sebastian Hess
Department of Agricultural Markets, University of Hohenheim, Germany, editor of the *German Journal of Agricultural Economics*
e-mail: s.hess@uni-hohenheim.de

Abstract

The scientific production system is of ultimate importance for the way how humans address global challenges. Recently, scholars have begun to voice concerns about structural inefficiencies within this system, as e.g. the replication crisis, the p-value debate or the identification of various forms of publication bias have brought up. Most suggested remedies tend to address only partial aspects of the system's inefficiencies, while no unifying agenda towards an overall transformation of the system has yet emerged. We argue that a unifying agenda is even more urgently needed in light of Artificial intelligence (AI) that is arising as a tool for scientific writing services. Without appropriate reactions from the Q science community, this trend may even exponentiate present credibility problems due to limited replicability and ritual-based statistical practice, while amplifying all forms of already existing biases. Our review of these developments suggests that naïve openness in the science system alone will unlikely lead to major efficiency gains. We contribute by identifying key elements for the definition of transformation pathways towards open, democratic and conscious learning, teaching, reviewing and publishing that will be supported by openly maintained AI tools. As part of this transition, roles and incentives for reviewers will have to gain in relation to authors: Future Q scientists will have to write less, learn differently and review more.

1 Introduction

In our roles as researchers, editors, authors and referees we perhaps agree that most concerns in applied/empirical agricultural and food economics are related to adequacy of research methods and writing for answering the research questions while ensuring replicability. For these long-standing and overarching challenges in the academic way of working, learning and teaching, remedies include for instance calls for more rigor in writing and review to achieve full transparency in methods, data collection and processing (e.g., Di Fan *et al.*, 2022; Christensen and Miguel, 2018), or for better teaching "methods of writing" (e.g., Olson, 2015; Bellemare, 2022; McCloskey and Ziliak, 2019).

In this context, some scholars see the transition to an open science system with full transparency as key to address these challenges (e.g. Christensen, Freese and Miguel, 2019). In fact, the idea may be inflated by biases such as overstating positive results (Nuzzo, 2015), ritual based application of empirical methods (Gigerenzer, 2004, 2018), or the well-known cult of statistical significance (Ziliak and McCloskey, 2008) along with a non-transparent use of empirical methods (Christensen and Miguel, 2018) have led, among others, to publication bias (Brodeur *et al.*, 2016; Brodeur, Cook and Heyes, 2020). This was partly incinerated by the "replication crisis" and the "p value debate" in many fields, including agricultural and food economics (hereafter Q) domain (Ferraro and Shukla, 2022, 2020; Heckelei *et al.*, 2023; Hirschauer *et al.*, 2016).

Butler at al. (2017) mention the following reasons for these developments: *"… inadequate training of researchers, the pressures and incentives to publish in certain outlets, and the demands and expectations of journal editors and reviewers*". What we have learnt so far from the crisis is that more effort is needed to reduce ritual-based working towards "mindful" empirical research. In this regard, a cultural change for empirical research in an open science framework with pre-registration of research and replication as central elements has been proposed (Heckelei *et al.*, 2023; Finger, Grebitus and Henningsen, 2023; Arpinon and Espinosa, 2022).

However, from our perspective as editors, it seems that the (open) Q profession is one the one increasingly concerned about these developments, yet on the other hand lacks behind to defining and acting along transition pathways towards open science at equal opportunities. While few colleagues would question that the current scientific production system in the Q profession may suffer from inefficient incentives and questionable developments, we argue that this debate still remains fragmented and largely irrelevant with respect to actual change, while "ritual-based" (Gigerenzer) practices continue to dominate the academic mainstream. For instance, in the open science discussion, it appears that the final editor-only decision making in the current publication system is not subject to debate. Also, efforts for more adequate teaching with open resources seem limited, while the replication crisis and the p-value debate demonstrate the necessity of a major revision of teaching empirical methods, and their potential alignment to the training of research design and scientific writing.

While spelling this out, artificial intelligence (AI) based technologies became ready for teaching, research and paper work[1] (Sabel *et al.*, 2023). AI-based technologies were set to be the most disruptive technologies ever developed (Russell and Norvig, 2021), and availability is expected to considerably speed up by quantum computing. This makes it necessary to integrate AI literacy in the curriculum to train future researchers who must work in an AI environment (Casal-Otero *et al.*, 2023). Yet, this also re-triggers the debate on quality assurance.[2] For instance, will the new technology even foster ritual-based scientific working and use of

[1] Examples: https://openai.com/blog/chatgpt or https://www.perplexity.ai/
[2] https://www.forschung-und-lehre.de/forschung/fake-science-und-moeglichkeiten-sie-zu-erkennen-5623 (*in German*)

statistical methods despite (future) open AI? Will even more efforts be needed in the future need to demonstrate the originality and the contribution, will this become more essential since ever?

How to counteract AI-based paper-waves? The current pressure of (early career) researchers to advance their careers in the current journal system seems not be prepared yet. Still, academic careers are strongly incentivized by quantitative measures of publication work (e.g., number of publications, impact factors of journals, authorship contributions, citation index of authors). A recent study identified a notable share of AI-supported fake publications in the field of biomedical science (Sabel *et al.*, 2023). This gives a first taste of upcoming challenges.

In this paper, reflect the current research and publishing system with final editor-only decisions will suffice for a cultural change towards mindful method use in an open science framework. Our aim is to discuss the question how the demanded cultural change in data-based research with statistical inference can be effectively supported by an open science framework in a world with AI. In contrast to other discussions, we aim to highlight implications for the teaching system, also because the expected AI transformation of Q publishing will likely shift the focus from qualified authors to qualified reviewers. We therefore base our discussion on critical reflections on the publication system with final editor-only decisions based on (open) reviews, the non-open teaching system keeping economic theory, statistics and scientific writing as independent parts of the curriculum in the Q domain, and the debated implications from the p-value debate in light of newly available AI.

This paper is organized as follows: In the next section, various deficiencies in the current scientific production process are summarized and reviewed. For this, we distinguish three layers: Section 2.1 will focus on deficiencies in the peer review system, 2.2 on deficiencies in the publication system yet outside actual peer review, and 2.3 on known deficiencies in the overall scientific incentive system not necessarily tied to the publication process. In Section 2.4, we analyse how an assumed wave of AI-supported manuscripts may amplify some already existing efficiencies. In Section 3, we review the state of open teaching and AI teaching in the Q domain, and in Section 4 we conclude with a discussion of possible transition pathways towards a more efficient and less biased scientific system in our field.

2 Why the peer review process needs a major revision

2.1 Potential deficiencies in the peer review system

Peer-review is at the core of the scientific production system and aims to ensure novelty, originality and correctness of scientific findings. The system typically involves *four* actor groups: (i) authors, (ii) reviewers, (iii) readers, and (iv) editors.

i. *Authors* seek to pass the peer review process successfully as peer-reviewed publications serve as credits for researchers' contributions to the advancement of knowledge. Besides written publications, these are increasingly accompanied by graphical abstracts and video presentations in order to make core findings more accessible, but also to garner attention that could yield e.g. more citations.

ii. *Reviewer*(s), selected by editors, assess, scrutinize and comment the work of authors submitted to journals. Under single blind review, the authors do not know who their reviewers are and receive comments anonymously, yet referees now the authors' names. Under double-blind review, reviewers and authors remain anonymous to each other. Some journals offer open review on agreement with the referees (and authors for their response letters). Open peer review may in this context adopt any or all of the following elements: Non-anonymous reviews, open review reports, response letters etc, free self-selection of inclined reviewers into the review process.

iii. *Readers* as researchers use publications that have passed peer review as the most important reference for their own scientific work. Policy makers or management use publications or respectively extracted policy/management briefs as a base for scientifically informed decision-making in management or for the design of policies.

iv. *Editors* coordinate the review process by matching the work of authors with potential reviewers. Also, editors act as judges during the review process because they own the decision over which manuscripts enter peer review, who's opinion to follow in case of controversial reviewer judgements, and when to determine that a submitted work has ultimately passed the review process through the official acceptance decision (Tennant and Ross-Hellauer, 2020).

In fact, the actor groups are complemented by *publishers* and *scientific communities* of peers with their respective associations:

v. *Publishers* with a profit oriented management facilitate the scientific production process through provision of the required infrastructure: A publisher's business model consists of selling publications that have passed peer review, either as printed journals or books, or increasingly in electronic format to subscribing libraries. Costs include website, databases, licenses etc. (Da Teixeira Silva and Nazarovets, 2022). The market for commercial scientific publishing services is often described as oligopolistic with respect to *readers* and oligopsonistic with respect to *authors*.

vi. *Scientific community* or the communities of peers comprise the population from which peer reviewers are typically selected from. The rankings established within scientific communities offer decision support to editors for what is considered as relevant for assessing the quality and novelty of a manuscript.

Any form of blind review has the advantage that reviewers can act independently; double-blind review even aims to protect authors and their work from reviewers' prejudgments. However, anonymous reviews are also increasingly criticized for being in-transparent, undemocratic and therefore potentially biased (Da Teixeira Silva and Nazarovets, 2022). Some journals offer open review, which may lend credit to more constructive reviewing and decision-making (Goeva, Stoudt and Trisovic, 2020; Wolfram *et al.*, 2020); yet mixed results regarding the effectiveness in the current system based on peer review and editor-only decisions exist (Da Teixeira Silva and Nazarovets, 2022). Also in open review, decision biases, e.g. by gender (Fox and Paine, 2019; Bornmann, Mutz and Daniel, 2007) can inflate the idea.

For instance, Donald and Hamermesh (2006) found e.g. that during elections for officers of the American Economic Association, not only scholarly impact had an effect, but women had a statistically higher chance to get elected than men. The authors conclude that "… *The apparent demand for more female candidates than have generally been provided may also mean that the Association's leaders have discriminated against women by failing to nominate them in numbers sufficient to satisfy the preferences of the electorate for female officers*." (Donald and Hamermesh, 2006: 1291).

Clearly, it would be more desirable to have a higher authority judging scientific quality, especially in light of different scientific communities. However, since no such higher authority exists, the peer review selection process can only partly be objective, and can never lead to better results than the best possible selection of the most qualified reviewers who were available, i.e., willing to review (Tennant and Ross-Hellauer, 2020). This will in principle also hold for all forms of open peer review: Final editor-only decisions clearly limit addressing such potential biases, yet the peer review system is also a social networking process and potentially subject to other prejudicial effects that can occur within any social group.

2.2. Potential deficiencies in the scientific publication system

A broad literature has emerged over the past decades that has assessed structural shortcomings of the scientific publication system. The overall system is known to carry at least the following biases, that are not necessarily inherent in the peer review system alone:

Gender/minority bias: single blind peer review may disadvantage female authors or authors from minority groups within the scientific community. However, in addition more subtle biases can occur. Based on a systematic review and meta-analysis, Schmaling and Gallo (2023) concluded that women were less likely to apply for grants and would receive smaller award amounts after reapplying, even though no gender difference was found for initial application rates. In contrast, Bornmann, Mutz and Daniel (2007) in their meta-analysis of gender differences in grant peer review had found men to receive a grant about 7% more likely than women. For National Science Foundation grant reviews, Broder (1993) reported that female reviewers were notably stricter on female proposals than on male proposals, and they rated female proposals on average lower than their male colleagues did. This result holds even after controlling for institution and reviewer experience. In contrast, Fox and Paine (2019) found that manuscripts submitted to journals by female authors were more likely to be rejected after peer review, and female authors were on average cited less often after publication than male authors.

Language and/or location bias: innovative ideas and original findings may not receive proportionate attention if they are not published in a language that is widely accessible to authors, e.g. English (e.g., Herrera, 1999), or if they are published in journals that are difficult to access (electronically). In addition, language bias may amplify the general publication bias, as the Cochrane handbook for systematic reviews acknowledges: When non-native English authors are more likely to publish in an international journal (in English), it has been found that they tend to submit rather statistically significant results to these journals, while seeking publication of insignificant result in local journals (Higgins *et al.*, 2019). In other words: the language bias may also represent a variation of the file drawer problem, according to which insignificant results tend to be neglected by authors and editors and may end up unpublished or published in journals of low visibility.

Publication bias comprises overstating positive results (Nuzzo, 2015), ritual based (Gigerenzer, 2004, 2018), or the well-known cult of statistical significance (Ziliak and McCloskey, 2008) along with a non-transparent use of empirical methods (Christensen and Miguel, 2018). Stanley (2005: 309) defines publication bias as "… *editors, reviewers or researchers have a preference for statistically significant results*".

As a consequence, studies that do not identify a statistically significant effect will less likely see publication, and their potential contribution to the knowledge frontier will consequently been missing (Brodeur *et al.*, 2016; Brodeur, Cook and Heyes, 2020). Stanley (2005: 313) further reports that "… *nearly all economic applications of meta-analytic methods that detect publication bias have found evidence of it*." Publication bias is especially prevalent in economics and other social sciences also because reviewers and editors (and authors) tend to stick to established paradigms, and this may imply a tendency to discard or ignore novel findings that may challenge these views (Doucouliagos, 2005).

This publication bias was partly incinerated by the "replication crisis" and the "p value debate" in many fields, including agricultural and food economics (Ferraro and Shukla, 2022, 2020; Heckelei *et al.*, 2023; Hirschauer *et al.*, 2016). The contribution of replications has received little attention so far as the question if and under which conditions previously published findings could be replicated has been judged as an inadequate (because not novel) research question. For research in applied economics, however, many studies that have analysed the replicability of other studies find that replication is typically limited, if not impossible (Finger, Grebitus and Henningsen, 2023). Such important insights on external validity of empirical findings often remain undisclosed, despite their relevance for moving the scientific frontier and maintaining trust in research in general.

The availability of software packages further facilitated the rapid (statistical) testing of alternative model specifications and/or simulation runs without in-depth knowledge of the process and coding behind. To some extent comparable to AI, such technological innovations have lowered the (time) cost of doing economic research. Based on try and error approaches, new and unexpected insights from “data mining” can be expected, yet an imbalance in method diversity against sound use of empirical methods is increasingly recognized as a reason why research findings turn out to be difficult to replicate with larger data or minor changes in the corresponding modelling approach (Butler, Delaney and Spoelstra, 2017).

2.3 Potential inefficiencies in the scientific production system

Some debated issues thus far seem less driven by biased decisions of reviewers, editors and authors. Instead, these problems would to some extent still persist in the scientific publication system even in absence of any decision bias, because they are due to underlying incentives in the academic career system with focus on the frequency of publications and the number of citations. Such indicators offer some neutral and unbiased measure of scientific productivity and a researcher’s achievements; however, they also impose some problems. Butler, Delaney and Spoelstra (2017) bring it down to the point that e.g. inadequate results in replication studies could be due to “… *inadequate training of researchers, the pressures and incentives to publish in certain outlets, and the demands and expectations of journal editors and reviewers*”. In addition, attention to publications is often traced in terms of citations and editors are credited by publishers for managing publications that receive a lot of attention from within a certain scientific community, e.g. in terms of citations.

Thus, one may argue that the scientific production system is not in the first place directed towards solving problems around a sustainable future, implying that researchers are not necessarily rewarded in proportion to their long-term service for humanity. Instead, in the absence of suitable measures, the scientific production system is driven by an incentive system that rewards authors and editors for their ability to garner attention within a scientific peer group (Frey, 2003).

Why is this potentially problematic? The basic peer review system could in principle function based on no other incentive than researchers’ and reviewers’ intrinsic motivation to achieve the best possible result for any particular research question at hand. However, in reality this would function only i) in the absence of competition between individual researchers under asymmetric information and ii) in the absence of commercial publishing companies that possess at least some market power within the market for peer-reviewed publications (Butler, Delaney and Spoelstra, 2017). In fact, both of these drivers interact and form important components of the scientific incentive system that tends to reward “attention” as a measurable yet incomplete proxy for “scientific achievements”. The question remains, whether this goes in the “right” direction if reviewer work in this system continues receiving the lowest remuneration. From basic economics, we understand that some market regulation may be warranted.

In absence of such market failure, the scientific production system would counteract undesirable developments by itself, since the group of reviewers may not be subject to the same incentives as editors, and could therefore act as a corrective. Under AI, corrective competencies may become even more important as AI is suspected to take over more parts of the research process, with an increasing number of papers to be reviewed. With an increasing number of requests for reviews and at the same time a great incentive to spend one's time as an author rather than as a reviewer—ultimately because reviewer work in this system receives the lowest remuneration—a decisive weakening of the system should be anticipated (Waltman *et al.*, 2023; Da Teixeira Silva and Nazarovets, 2022).

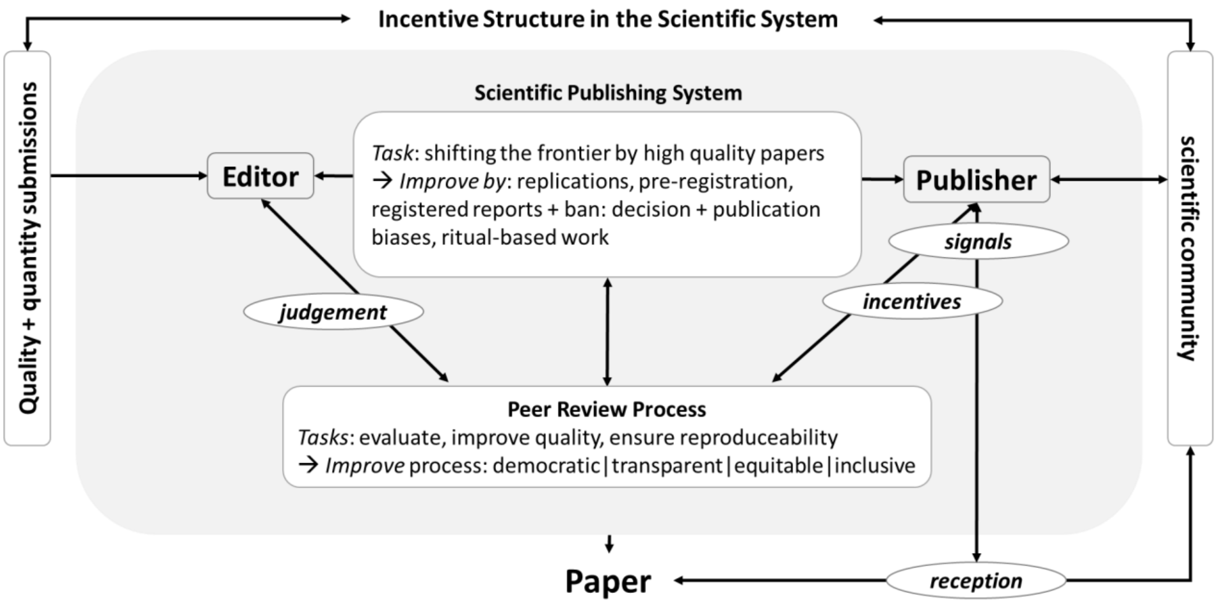

Figure 1: Major strands within the current literature on deficiencies of the scientific publication system. Source: Own based on four schools of thought to improve peer review by Waltman *et al.* (2023).

By Figure 1 our attempt is to illustrate the different layers within the process: peer review is subject to a growing literature, and this highlights the importance of the editorial judgment that could potentially act as a guard of norms within the system. Figure 1 also demonstrates that the incentives introduced by commercial publishers may discourage editors and consequently all other actors within the system to guard such norms that thrive towards an equal, fair, transparent and unbiased scientific publication process. For instance, the introduction of incentives that serve authors' personal vanity may complement commercial publishers' business model but could have detrimental effects for the overall system[3] (Da Teixeira Silva and Nazarovets, 2022).

2.4 Emerging challenges to the scientific publication process

AI-based technologies are readily available for supporting paper work, to a far larger extent than software and computing could have been expected, i.e. AI is set to be the most disruptive technologies ever developed (Russell and Norvig, 2021). This suggests that in the nearer future, the system will need to handle considerably larger amounts of paper work. But will this also lead to a "knowledge explosion"?

AI algorithms will lower the transaction cost especially for those authors who previously had difficulties to identify relevant literature and to describe the state-of-the-art regarding their specific research question. It seems plausible that a new inflationary wave of AI-supported manuscripts could challenge the scientific publication process through an adverse selection process. In this regard, Williams (2023) shows that these presently widely available AI algorithms are in no way free from prejudice, discrimination and other weaknesses that occur in social networks.

[3] Teixeira da Silva claims in the conflict of interest section in Da Teixeira Silva and Yamada (2022), that they were banned in 2015 from submitting to any Taylor & Francis journals after having criticized several of the publisher's editorial and publishing processes.

Also, Williams (2023) stresses the problem that AI as an aide to scientific writing will primarily "…associate, exacerbate, and iterate on perceived patterns…" which will inevitably also "… continue to increase the bias within them…" (Williams 2023: 207). In fact, besides amplification of existing biases, further deficiencies in the peer review process may arise: less efficient reviews, reviewer fatigue and declining average quality of reviews (Waltman *et al.*, 2023). All this will likely inflate the research production systems' efficiency in generating knowledge, while favouring an ever more "ritual based" academic culture.

To illustrate challenges whether such an increase in manuscripts would really trigger a "knowledge explosion", we rely on the concept of the "law of important articles" (Holub, Tappeiner and Eberharter, 1991). These authors refer to a belief among researchers according to which "… *the number of important articles in a field in economics would increase by the square root of the total number of articles in this field*" (Holub, Tappeiner and Eberharter, 1991: 317). Using modern growth theory as a case study of such a "field", the authors suggest to model number of important articles in this field, approximated by the number of at least *n* citations $X_{n,t}$ cumulated over all articles that can be attributed to a certain field in year t (not just the ones newly published in that year $X_{0,t}$). This gives:

$$X_{n,t} = bX_{0,t}^{\alpha} \tag{1}$$

Holub et al. (1991) chose *n*=30 citations to an article at time *t* as a minimum criterion for an article to be rated as "*important*" in the field of economic growth theory. The authors also corrected for the fact that the number of citations tends to accumulate over time, such that younger articles may c.p. have a smaller number of citations than articles that were published several years before year *t*.

In a linearized form, the assumed relationship between important articles and all articles in a field sets a base for regression-based estimation of the parameter α:

$$\log(X_{n,t}) = \log(b) + \alpha \log(X_{0,t})$$

This way, Holub et al. (1991) tested the hypothesis that this parameter would be approximately equal to 0.5 in the economic growth theory, suggesting that the "…*number of important articles would be the square root of all articles*" (Holub et al. 1991).

In their study, the authors find that the law of important articles seems to hold for general topics such as foundations of growth theory and optimal growth theory, while in more specific subsections of the literature on economic growth theory the estimated coefficient alpha could deviate statistically from 0.5 when applying a 95% confidence interval. Interestingly, these deviations were found primarily for parameter values below 0.5, which suggests that in several subtopics of economic growth theory, the number of important articles was even less than the square root of all articles.

The analysis by Holub et al. (1991) was conducted even before debates around the appropriate use of p-values, HARKing and the replication crisis came to economists' attention. Linking the idea of Holub et al. (1991) and the sum of biased and inappropriate research practices emphasized by Butler et al. (2017) to the replication crisis in economics, one can assume an over-proportional increase in the number of "unimportant" articles in the past 30 years. One should therefore assume that the parameters estimated by Holub et al. (1991) for alpha in equation 1 would constitute upper boundaries of the share of important articles within all articles e.g. in the field of agricultural economics.

Furthermore, one can assume that the availability of AI technologies will lead to a further increase in the number of scientific manuscripts. To illustrate consequences of AI-pushed increases in the number of manuscripts that will enter the publishing system, we use a stylized example based on two hypothetical journals:

The High Quality Journal of Agricultural Economics (HQJAE): we assume that this journal is a quality leader in its field and therefore the number of important articles in this journal is roughly equal to the square root of all articles that this journal has published so far. In other words, this journal has a coefficient α=0.5 according to equation 1 and we assume b = 1. We furthermore assume that this journal publishes an unbiased sample of all submitted articles. This assumption implies that we abstract away from Holub et al. (1991) who refer to important articles as the square root of published articles: We assume instead, that the number of important articles is the square root of the number of submitted manuscripts.

The Applied Field Journal of Agricultural Economics (AFJAE): we assume that this journal attracts more applied manuscripts based on already established methods and/or data from specific studies that may interest only few experts in the field. Nevertheless, some of these studies could still be "important", even though the share of these important manuscripts in all submissions to this journal is lower. Due to the lower share of important manuscripts in the submissions, this journal has a coefficient α < 0.5 according to equation 1, and we assume also b = 1 for simplicity.

Table 1 shows that the HQJAE can under these conditions achieve a share of 4.5 % of important articles in all articles published (22.36 / 500). The more applied field journal could still achieve 3.5 % important articles among all articles published (5,31 / 150) if it's coefficient of important articles in all articles were α = 0.33. Alternatively, if this coefficient were α = 0.2, Table 1 shows that this journal could at best present a share of important articles in all published articles around 1.8 %.

Table 1: Stylized scenario on the potential effect of an inflation of AI-supported manuscripts on the share of important articles in two journals.

	Assumed submissions	Assumed alpha in eq. 1	No. of 'important' articles according to eq.1	Share of 'important' articles in published articles
HQJAE	500	0.50	22.36	4.5 %
AFJAE	150	0.33	5.31	3.5 %
AFJAE	150	0.20	2.72	1.8 %
HQJAE with AI inflation	1000	0.33	10.00	1.0 %
AFJAE with AI inflation	300	0.25	4.16	1.4 %
AFJAE with AI inflation	300	0.20	3.13	1.0 %

Source: Own calculations.

Presuming that the original number of submissions doubles for each of the two journals, while the initial coefficient of important articles in all articles declines due to the larger share of shallow, weak and therefore unimportant articles has the following implications: For the high quality Journal (HQJAE), we assume that the coefficient deteriorates from α = 0.5 to α = 0.33, which means a decline from the reported parameter values in the general economic growth literature (Holub et al. 1991) to the reported values in some subfields of this literature (Holub et al. 1991); for the applied field journal (AFJAE) we arbitrarily assume lower coefficients (note that e.g. α = 0.2 is $X_{n,t} = \sqrt[5]{X_{0,t}}$ in equation 1, again b = 1).

Table 1 illustrates that a doubling of submissions may drastically decrease the share of important manuscripts within the high-quality Journal HQJAE, namely from 4.5 % to 1 %, even for a relatively mild decline of $\alpha = 0.5$ to $\alpha = 0.33$. At the same time, this would go along with a doubling of the effort for editors and reviewers. In contrast, the table shows that the relative decline in the share of important articles in the applied field journal AFJAE would be smaller, assuming that an already relatively low share of 'important' submissions in all submissions does not decline substantially further, e.g. either from 1.8 % to 1.4 %, or it might even remain around 1 % for initially low values of alpha.

In other words, especially the high-quality journal would in our stylized example get severely affected by an inflation of rather AI supported manuscripts, as long as these would primarily be "unimportant": as the cost of the review process doubles along with the number of submissions, the share of important articles in all published articles would decrease from 4.5% to 1%, a potentially severe decline in perceived average quality. In contrast, the applied field journal with an already assumed low share of important articles would rather see an expansion of volume while perceived average quality of this journal would remain rather constant.

In summary, an inflationary stream of shallow and/or "unimportant" (Holub et al. 1991) papers may lead to symptoms that are currently being debated as the replication crisis, p-value debate, or various aspects of publication biases. The rise of artificial intelligence (AI) as an emerging aide for scientific writing might amplify these problems and could add a new dimension to the already looming overall credibility-crisis in science.

3 State of (open) teaching and teaching AI in Q Science

One of the sources of publication biases, the p-value debate and the replication crisis was inadequate training of students and researchers (Butler, Delaney and Spoelstra, 2017; Gigerenzer, 2004). But what means adequate? Noted teaching implications (e.g., Heckelei *et al.*, 2023)[4] include: (i) a curriculum that rests on teaching empirical/statistical methods at Bachelor- and Master studies such that students get sustainable knowledge, are able to apply and critically reflect existing methods; (ii) implementation of experiential learning and interactive teaching methods for Master- and PhD level such that students strengthen their ability to critically reflect method choice not only for their research as authors, also as future reviewers and editors; (iii) campaigns supported by scholarly associations, journals and publishers to foster a social norm change. Ideas of how to support such a change include incentivizing investments in method learning and teaching, and transparency in an open science framework. How to include AI literacy, how to strengthen and prepare for the urgent need of reviewer competencies, and ideas for transition pathways however, remain vague.

Ultimately, we are interested how an open science framework can support such a cultural change in a world with AI, we critically reflect current teaching of writing and empirical/statistical methods, and AI literacy. We selected and reviewed 3 *curricula* of higher education from German universities in the Q-domain exemplarily. The narrow regional focus and the small number can be interpreted as a qualitative in-depth assessment. This shall offer a starting point in form a narrative pilot for a systematic review across Europe. We structure the assessment around the following questions:

[4] We would like to thank the organizers of the ICAE 2021 Organized Symposium: *Towards Open Science: Transparency in International Agricultural Economics* for the discussion of open teaching ideas.

1. At what stages (Bachelor, Master, PhD, which year) are the subjects
    a. *scientific writing* and *presenting methods*
    b. *methods for empirical research*

   covered?
2. What content is covered in the courses under 1?
3. At what stage is AI literacy covered?
4. How are the courses linked to each other?
5. How is the exchange with other places of higher education organized?

Bundling questions 1 and 2, we find several courses that include “scientific writing” and/or “scientific presenting” and/or “research” in their titles and descriptions. These courses cover typically formulating a research question, the paper structure, sometimes the research process itself with some philosophy of science, and the related writing parts. These courses were found to be covered in the curriculum close to the graduation theses, mostly in the last year, yet this appeared not standardized. Incentives to take these courses seem also to vary. In the Master we found writing and presenting courses sometimes linked to seminars or specific thesis preparation seminars. Such seminars cover the research process, writing, presenting but also how to give and deal with feedback. In the Master we found also research ethics covered. Respective incentives for participating in such courses vary. For instance, we found places where it can be mandatory for specific majors. At the PhD level, all reviewed places offer courses in this regard, and in addition the graduate school in agricultural economics among universities in Germany, Austria and Switzerland “*Promotionskolleg Agrarökonomik*” offers such courses; yet it appears that the publishing and review process seem not covered systematically in these offers at the PhD level.

Nearly all language centres at the respective universities offer writing and presenting classes that are accepted elective modules. However, these classes mainly focus on correct use of language, less on the alignment conducted research and storytelling in a specific discipline. Yet in our perception, also here specific offers for reviewing and feedbacking seem missing. Specific trainings for unconscious bias in language but also in decision making seem not mandatory at all.

Empirical methods for research are covered throughout the reviewed curricula. We found differences how the courses are linked to the agricultural and food economics domain: some offer rather focused applied econometrics classes, while other emphasize more the link to empirical research in the agricultural and food economics domain. Also, how qualitative research methods and data acquisition are covered, varied.

Concerning AI literacy (question 3), we found specific courses that cover methods of machine learning in specific Master and/or PhD courses. We also observe that some traditional statistics and applied econometrics classes introduce such methods, up to 50% of the course. Pure AI courses including ethical implications and impacts on society appeared not specifically covered. We however found recommendations on how to declare the use of AI for graduation theses. Yet plagiarism detection software cannot distinguish whether it was used to polish the writing as English is typically not the mother tongue (language barriers) or used for generating the content. The final decision on what can be graded as own contribution is currently left to the examiners.

A major implication of the replication crisis was that teaching of research methods must be aligned to the research process, i.e., ranging from the research question, pre-registration to methods, writing and publishing (see Heckelei et al. 2023). This motivated question 4. We identified some attempts to link the research process to empirical methods at all levels (Bachelor, Master, PhD) by offering specific lectures in the method courses but also linking the presentation of the results to appropriate use of data work, particularly the null hypothesis significance testing, in courses for writing and presenting research.

Among German-speaking places, exchange between teachers seems active, also because of the joint PhD programme. For instance, materials on courses on methods are shared among teachers from different places more based on personal relations rather than on a open teaching culture. For courses of writing, presenting and reviewing, exchange and collaboration seemed less active. None of the courses we investigated offered free and open materials.

4 Discussion: implications for the transition towards Open Q Science

The aim of this paper was to discuss the question how the demanded cultural change in data-based research with statistical inference can be effectively supported by an open science framework in a world with AI. Based on critical reflections on the publication system with final editor-only decisions based on (open) reviews, we argue yet not all deficiencies in the scientific publication process can be directly linked to peer review alone, nor can a naïve call for openness alone be expected to induce a profound efficiency gain for the scientific production system in Q science.

Overall, a removal of misleading incentives in the system has to be accompanied by adequate training and more equal and transparent structures. The transition pathway development should therefore go "*beyond make it open with wait and see*" with the following elements for the **open research system** as documented processes with responsibilities for:

Establishing and maintaining an open **infrastructure** for reviews, data, coding and publications.

Introducing **rewards** for **data** and **code** sharing following **FAIR** principles (Finable, Accessible, Interoperable, and Re-usable).

Broadening the **output** portfolio by clear incentivization or standardization of **pre-registration**, **pre-registered studies** and **replication studies**.

Strengthening the **role** of the ***reviewer*** relative to the role of the *author* with review rewarding in the academic career system.

Transparent and reliable definition of the **editor role** with code of conducts, and mandatory (regular) training for any sources of bias in language and decision-making for editors. This should be accompanied by independent complaints officers and rewarding of taking responsibility as complaint officer in the academic career system.

Rewards for all kinds of **training against unconscious biases** in language and decision making in the academic career system, rewards to taking responsibility for achieving balanced and transparent decision making.

Developing **new publication formats** with open decision processes beyond commercial publishers' journals and their success metrics in accordance with the San Francisco Declaration on Research Assessment[5].

[5] https://sfdora.org/

Mindful AI use for reviewer match, AI for technical and formal paper screening for detection and elimination of “Questionable Research Practices” (Butler, Delaney and Spoelstra, 2017) but only based on **open AI**. Mandatory declaration of AI use, clear disincentives for research done by AI. This must be accompanied by AI training and the nurturing of norms that favour open AI for the facilitation of an equitable and non-discriminatory peer review process (Williams, 2023).

Concerning the teaching system, based on the narrative review of current teaching in Germany, we find a non-open teaching system, where economic theory, statistics and scientific working (writing, reviewing, presenting) appear still in many cases as independent parts of the curriculum in the Q domain. Newly available calls to include AI literacy in the curriculum, seem not in place yet; we however found specific methods to be covered. We re-enforce the call by Heckelei et al. (2023) for a cultural change and a transition towards open science, including open teaching and open AI, at equal opportunities. We expand the implications by proposing to define transition pathways **towards open teaching with AI not by AI.**

The transition pathways should include documented processes with responsibilities for:

Revising **learning objectives** that include evaluation of the research process, statistical thinking and AI literacy, decision making under risk and uncertainty, and sources of decision biases. The coordination is necessary to share the same objectives in our domain. These shall be defined as templates with open access and ensure a flexible use for specific adjustments in the respective curricula.

Finding consensus about open recommendations for **compulsory content** in AI literacy, intertwined with empirical methods, the research process but also writing, reviewing and presenting skills with AI support, and research ethics. These recommendations may serve as standards. Standards, however, would imply to anticipate regular revision of them.

Finding consensus about **recommendations** for **teaching-methods** related to experiential learning and training of competencies for reviewing, commenting as future reviewers and editors. This includes more hands-on for problem solving, demonstration of good and bad practice examples and in-class reviewing, for instance of talks/videos, papers or wikis. This also suggests to consider **replication studies** as graduation theses, and a higher share of grading for the oral presentation/defence.

Finding consensus about **guidelines** for seminar **papers** and **presentations**, and graduation theses with clear guides for formulating research questions, literature analysis, use and documentation of AI for paper work.

Creating a **teaching infrastructure** for efficient exchange and further development of materials. This may include common pools with quality checks, specific tracks at conferences and teaching forums to foster exchange.

Defining **rewards** for **teaching** and sharing teaching materials in the academic system.

All recommendation shall appear in non-discriminating language. We acknowledge that our survey was small and should be interpreted as a starting point only. Nonetheless, we argue that this paper offers a base for defining transition pathways. We recommend further to base the transition pathway development on scientific evidence from systematic review of the teaching and publication system, potentially enriched by expert interviews to base the target definition and identifying mechanisms for change.

Our discussion has the following implications. Summarizing, more rigorous efforts are needed to reach an open science framework with minimal bias and efficient use of AI. Making reviews open and ask to declare AI use will not suffice. In our perspective, potentials of coordinated but open teaching methods for research, writing and AI literacy are currently not used. We emphasize the benefits from open but coordinated teaching resources, including AI literacy, at equal opportunities that require some investments from our community. Most promising steps include open access journals, open data, code and review enriched by transparent editor decisions. However, more efforts are needed for AI literacy and open AI for research purposes. We suggest a coordinated discussion of transformation pathways towards an open, efficient and reliable science system in the Q domain. This is necessary as the Q domain needs itself to contribute with other disciplines to ensure the transition towards sustainable food systems. It is in our hands whether AI gets the power to devour its children.

The famous quote “You get what you measure” (Hamming, 1995) suggests that the outcome of any production process would be determined by the way it’s measurable outcome indicators are being defined. The scientific production process is of ultimate importance for the way how humans identify, address and solve global challenges, for instance sustainable production of food, renewable energy and biomass against the backdrop of a rising world population. It is therefore no overstatement that the efficient functioning of the scientific production process in all scientific disciplines related to agricultural systems is crucial for a sustainable future.

References

Arpinon, T. and Espinosa, R. (2022). *A Practical Guide to Registered Reports for Economists*.

Bellemare, M. F. (2022). *Doing economics: What you should have learned in grad school, but didn't*. Cambridge, Massachusetts: The MIT Press.

Bornmann, L., Mutz, R. and Daniel, H.-D. (2007). Gender differences in grant peer review: A meta-analysis.

Broder, I. E. (1993). Review of NSF Economics Proposals: Gender and Institutional Patterns. *American Economic Review* 83(4): 964–970.

Brodeur, A., Cook, N. and Heyes, A. (2020). Methods Matter: p-Hacking and Publication Bias in Causal Analysis in Economics. *American Economic Review* 110(11): 3634–3660.

Brodeur, A., Lé, M., Sangnier, M. and Zylberberg, Y. (2016). Star Wars: The Empirics Strike Back. *American Economic Journal: Applied Economics* 8(1): 1–32.

Butler, N., Delaney, H. and Spoelstra, S. (2017). The Gray Zone: Questionable Research Practices in the Business School. *Academy of Management Learning & Education* 16(1): 94–109.

Casal-Otero, L., Catala, A., Fernández-Morante, C., Taboada, M., Cebreiro, B. and Barro, S. (2023). AI literacy in K-12: a systematic literature review. *International Journal of STEM Education* 10(1).

Christensen, G., Freese, J. and Miguel, E. (2019). *Transparent and Reproducible Social Science Research: How to Do Open Science*. University of California Press.

Christensen, G. and Miguel, E. (2018). Transparency, Reproducibility, and the Credibility of Economics Research. *Journal of Economic Literature* 56(3): 920–980.

Da Teixeira Silva, J. A. and Nazarovets, S. (2022). The Role of Publons in the Context of Open Peer Review. *Publishing Research Quarterly* 38(4): 760–781.

Da Teixeira Silva, J. A. and Yamada, Y. (2022). Accelerated Peer Review and Paper Processing Models in Academic Publishing. *Publishing Research Quarterly* 38(3): 599–611.

Di Fan, Breslin, D., Callahan, J. L. and Iszatt-White, M. (2022). Advancing literature review methodology through rigour, generativity, scope and transparency. *International Journal of Management Reviews* 24(2): 171–180.

Donald, S. G. and Hamermesh, D. S. (2006). What Is Discrimination? Gender in the American Economic Association, 1935–2004. *American Economic Review* 96(4): 1283–1292.

Doucouliagos, C. (2005). Publication Bias in the Economic Freedom and Economic Growth Literature. *Journal of Economic Surveys* 19(3): 367–387.

Ferraro, P. J. and Shukla, P. (2020). Feature—Is a Replicability Crisis on the Horizon for Environmental and Resource Economics? *Review of Environmental Economics and Policy* 14(2): 339–351.

Ferraro, P. J. and Shukla, P. (2022). Credibility crisis in agricultural economics. *Applied Economic Perspectives and Policy*.

Finger, R., Grebitus, C. and Henningsen, A. (2023). Replications in agricultural economics. *Applied Economic Perspectives and Policy* 45(3): 1258–1274.

Fox, C. W. and Paine, C. E. T. (2019). Gender differences in peer review outcomes and manuscript impact at six journals of ecology and evolution. *Ecology and evolution* 9(6): 3599–3619.

Frey, B. S. (2003). Publishing as Prostitution? – Choosing Between One's Own Ideas and Academic Success. *Public Choice* 116(1/2): 205–223.

Gigerenzer, G. (2004). Mindless statistics. *The Journal of Socio-Economics* 33(5): 587–606.

Gigerenzer, G. (2018). Statistical Rituals: The Replication Delusion and How We Got There. *Advances in Methods and Practices in Psychological Science* 1(2): 198–218.

Goeva, A., Stoudt, S. and Trisovic, A. (2020). Issue 2.4, Fall 2020. *Harvard Data Science Review* 2(4).

Heckelei, T., Hüttel, S., Odening, M. and Rommel, J. (2023). The p-Value Debate and Statistical (Mal)practice – Implications for the Agricultural and Food Economics Community. *German Journal of Agricultural Economics* 72(1): 47–67.

Herrera, A. J. (1999). Language bias discredits the peer-review system. *Nature* 397(6719): 467.

Higgins, J. P., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J. and Welch, V. A. (2019). *Cochrane Handbook for Systematic Reviews of Interventions*. Wiley.

Hirschauer, N., Sven, G., Musshoff, O., Ulrich, F., Insa, T. and Peter, W. (2016). Die Interpretation des p-Wertes – Grundsätzliche Missverständnisse. *Journal of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik)* 236(5): 557–575.

Holub, H. W., Tappeiner, G. and Eberharter, V. (1991). The Iron Law of Important Articles. *Southern Economic Journal* 58(2): 317.

McCloskey, D. N. and Ziliak, S. T. (2019). *Economical writing: Thirty-five rules for clear and persuasive prose*. Chicago: University of Chicago Press.

Nuzzo, R. (2015). How scientists fool themselves - and how they can stop. *Nature* 526(7572): 182–185.

Olson, R. (2015). *Houston, we Have a Narrative : Why Science Needs a Story*. The University of Chicago Press.

Russell, S. and Norvig, P. (2021). Artificial Intelligence, global edition a modern approach. Pearson Deutschland.

Sabel, B. A., Knaack, E., Gigerenzer, G. and Bilc, M. (2023). Fake Publications in Biomedical Science: Red-flagging Method Indicates Mass Production. *medRxiv*: 2023-05.

Schmaling, K. B. and Gallo, S. A. (2023). Gender differences in peer reviewed grant applications, awards, and amounts: a systematic review and meta-analysis. *Research integrity and peer review* 8(1): 2.

Stanley, T. D. (2005). Beyond Publication Bias. *Journal of Economic Surveys* 19(3): 309–345.

Tennant, J. P. and Ross-Hellauer, T. (2020). The limitations to our understanding of peer review. *Research integrity and peer review* 5: 6.

Waltman, L., Kaltenbrunner, W., Pinfield, S. and Woods, H. B. (2023). How to improve scientific peer review: Four schools of thought. *Learned Publishing*.

Williams, D. (2023). Bias Optimizers. *American Scientist* 111(4): 204.

Wolfram, D., Wang, P., Hembree, A. and Park, H. (2020). Open peer review: promoting transparency in open science. *Scientometrics* 125(2): 1033–1051.

Ziliak, S. and McCloskey, D. (2008). *The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives*. Ann Arbor, MI: University of Michigan Press.

Diskussionspapiere
2000 bis 31. Mai 2006
Institut für Agrarökonomie
Georg-August-Universität, Göttingen

	2000	
0001	Brandes, W.	Über Selbstorganisation in Planspielen: ein Erfahrungsbericht, 2000
0002	von Cramon-Taubadel, S. u. J. Meyer	Asymmetric Price Transmission: Factor Artefact?, 2000
	2001	
0101	Leserer, M.	Zur Stochastik sequentieller Entscheidungen, 2001
0102	Molua, E.	The Economic Impacts of Global Climate Change on African Agriculture, 2001
0103	Birner, R. et al.	‚Ich kaufe, also will ich?': eine interdisziplinäre Analyse der Entscheidung für oder gegen den Kauf besonders tier- u. umweltfreundlich erzeugter Lebensmittel, 2001
0104	Wilkens, I.	Wertschöpfung von Großschutzgebieten: Befragung von Besuchern des Nationalparks Unteres Odertal als Baustein einer Kosten-Nutzen-Analyse, 2001
	2002	
0201	Grethe, H.	Optionen für die Verlagerung von Haushaltsmitteln aus der ersten in die zweite Säule der EU-Agrarpolitik, 2002
0202	Spiller, A. u. M. Schramm	Farm Audit als Element des Midterm-Review : zugleich ein Beitrag zur Ökonomie von Qualitätsicherungssytemen, 2002
	2003	
0301	Lüth, M. et al.	Qualitätssignaling in der Gastronomie, 2003
0302	Jahn, G., M. Peupert u. A. Spiller	Einstellungen deutscher Landwirte zum QS-System: Ergebnisse einer ersten Sondierungsstudie, 2003
0303	Theuvsen, L.	Kooperationen in der Landwirtschaft: Formen, Wirkungen und aktuelle Bedeutung, 2003
0304	Jahn, G.	Zur Glaubwürdigkeit von Zertifizierungssystemen: eine ökonomische Analyse der Kontrollvalidität, 2003

2004		
0401	Meyer, J. u. S. von Cramon-Taubadel	Asymmetric Price Transmission: a Survey, 2004
0402	Barkmann, J. u. R. Marggraf	The Long-Term Protection of Biological Diversity: Lessons from Market Ethics, 2004
0403	Bahrs, E.	VAT as an Impediment to Implementing Efficient Agricultural Marketing Structures in Transition Countries, 2004
0404	Spiller, A., T. Staack u. A. Zühlsdorf	Absatzwege für landwirtschaftliche Spezialitäten: Potenziale des Mehrkanalvertriebs, 2004
0405	Spiller, A. u. T. Staack	Brand Orientation in der deutschen Ernährungswirtschaft: Ergebnisse einer explorativen Online-Befragung, 2004
0406	Gerlach, S. u. B. Köhler	Supplier Relationship Management im Agribusiness: ein Konzept zur Messung der Geschäftsbeziehungsqualität, 2004
0407	Inderhees, P. et al.	Determinanten der Kundenzufriedenheit im Fleischerfachhandel
0408	Lüth, M. et al.	Köche als Kunden: Direktvermarktung landwirtschaftlicher Spezialitäten an die Gastronomie, 2004
2005		
0501	Spiller, A., J. Engelken u. S. Gerlach	Zur Zukunft des Bio-Fachhandels: eine Befragung von Bio-Intensivkäufern, 2005
0502	Groth, M.	Verpackungsabgaben und Verpackungslizenzen als Alternative für ökologisch nachteilige Einweggetränkeverpackungen? Eine umweltökonomische Diskussion, 2005
0503	Freese, J. u. H. Steinmann	Ergebnisse des Projektes ‘Randstreifen als Strukturelemente in der intensiv genutzten Agrarlandschaft Wolfenbüttels’, Nichtteilnehmerbefragung NAU 2003, 2005
0504	Jahn, G., M. Schramm u. A. Spiller	Institutional Change in Quality Assurance: the Case of Organic Farming in Germany, 2005
0505	Gerlach, S., R. Kennerknecht u. A. Spiller	Die Zukunft des Großhandels in der Bio-Wertschöpfungskette, 2005
2006		

0601	Heß, S., H. Bergmann u. L. Sudmann	Die Förderung alternativer Energien: eine kritische Bestandsaufnahme, 2006
0602	Gerlach, S. u. A. Spiller	Anwohnerkonflikte bei landwirtschaftlichen Stallbauten: Hintergründe und Einflussfaktoren; Ergebnisse einer empirischen Analyse, 2006
0603	Glenk, K.	Design and Application of Choice Experiment Surveys in So-Called Developing Countries: Issues and Challenges,
0604	Bolten, J., R. Kennerknecht u. A. Spiller	Erfolgsfaktoren im Naturkostfachhandel: Ergebnisse einer empirischen Analyse, 2006 (entfällt)
0605	Hasan, Y.	Einkaufsverhalten und Kundengruppen bei Direktvermarktern in Deutschland: Ergebnisse einer empirischen Analyse, 2006
0606	Lülfs, F. u. A. Spiller	Kunden(un-)zufriedenheit in der Schulverpflegung: Ergebnisse einer vergleichenden Schulbefragung, 2006
0607	Schulze, H., F. Albersmeier u. A. Spiller	Risikoorientierte Prüfung in Zertifizierungssystemen der Land- und Ernährungswirtschaft, 2006
2007		
0701	Buchs, A. K. u. J. Jasper	For whose Benefit? Benefit-Sharing within Contractural ABC-Agreements from an Economic Prespective: the Example of Pharmaceutical Bioprospection, 2007
0702	Böhm, J. et al.	Preis-Qualitäts-Relationen im Lebensmittelmarkt: eine Analyse auf Basis der Testergebnisse Stiftung Warentest, 2007
0703	Hurlin, J. u. H. Schulze	Möglichkeiten und Grenzen der Qualitäts-sicherung in der Wildfleischvermarktung, 2007
Ab Heft 4, 2007:		**Diskussionspapiere (Discussion Papers), Department für Agrarökonomie und Rurale Entwicklung Georg-August-Universität, Göttingen (ISSN 1865-2697)**
0704	Stockebrand, N. u. A. Spiller	Agrarstudium in Göttingen: Fakultätsimage und Studienwahlentscheidungen; Erstsemesterbefragung im WS 2006/2007
0705	Bahrs, E., J.-H. Held u. J. Thiering	Auswirkungen der Bioenergieproduktion auf die Agrarpolitik sowie auf Anreizstrukturen in der Landwirtschaft: eine partielle Analyse bedeutender Fragestellungen anhand der Beispielregion Niedersachsen

0706	Yan, J., J. Barkmann u. R. Marggraf	Chinese tourist preferences for nature based destinations – a choice experiment analysis
	2008	
0801	Joswig, A. u. A. Zühlsdorf	Marketing für Reformhäuser: Senioren als Zielgruppe
0802	Schulze, H. u. A. Spiller	Qualitätssicherungssysteme in der europäischen Agri-Food Chain: Ein Rückblick auf das letzte Jahrzehnt
0803	Gille, C. u. A. Spiller	Kundenzufriedenheit in der Pensionspferdehaltung: eine empirische Studie
0804	Voss, J. u. A. Spiller	Die Wahl des richtigen Vertriebswegs in den Vorleistungsindustrien der Landwirtschaft – Konzeptionelle Überlegungen und empirische Ergebnisse
0805	Gille, C. u. A. Spiller	Agrarstudium in Göttingen. Erstsemester- und Studienverlaufsbefragung im WS 2007/2008
0806	Schulze, B., C. Wocken u. A. Spiller	(Dis)loyalty in the German dairy industry. A supplier relationship management view Empirical evidence and management implications
0807	Brümmer, B., U. Köster u. J.-P. Loy	Tendenzen auf dem Weltgetreidemarkt: Anhaltender Boom oder kurzfristige Spekulationsblase?
0808	Schlecht, S., F. Albersmeier u. A. Spiller	Konflikte bei landwirtschaftlichen Stallbauprojekten: Eine empirische Untersuchung zum Bedrohungspotential kritischer Stakeholder
0809	Lülfs-Baden, F. u. A. Spiller	Steuerungsmechanismen im deutschen Schulverpflegungsmarkt: eine institutionenökonomische Analyse
0810	Deimel, M., L. Theuvsen u. C. Ebbeskotte	Von der Wertschöpfungskette zum Netzwerk: Methodische Ansätze zur Analyse des Verbundsystems der Veredelungswirtschaft Nordwestdeutschlands
0811	Albersmeier, F. u. A. Spiller	Supply Chain Reputation in der Fleischwirtschaft
	2009	
0901	Bahlmann, J., A. Spiller u. C.-H. Plumeyer	Status quo und Akzeptanz von Internet-basierten Informationssystemen: Ergebnisse einer empirischen Analyse in der deutschen Veredelungswirtschaft
0902	Gille, C. u. A. Spiller	Agrarstudium in Göttingen. Eine vergleichende Untersuchung der Erstsemester der Jahre 2006-2009

0903	Gawron, J.-C. u. L. Theuvsen	„Zertifizierungssysteme des Agribusiness im interkulturellen Kontext – Forschungsstand und Darstellung der kulturellen Unterschiede”
0904	Raupach, K. u. R. Marggraf	Verbraucherschutz vor dem Schimmelpilzgift Deoxynivalenol in Getreideprodukten Aktuelle Situation und Verbesserungsmöglichkeiten
0905	Busch, A. u. R. Marggraf	Analyse der deutschen globalen Waldpolitik im Kontext der Klimarahmenkonvention und des Übereinkommens über die Biologische Vielfalt
0906	Zschache, U., S. von Cramon-Taubadel u. L. Theuvsen	Die öffentliche Auseinandersetzung über Bioenergie in den Massenmedien - Diskursanalytische Grundlagen und erste Ergebnisse
0907	Onumah, E. E.,G. Hoerstgen-Schwark u. B. Brümmer	Productivity of hired and family labour and determinants of technical inefficiency in Ghana's fish farms
0908	Onumah, E. E., S. Wessels, N. Wildenhayn, G. Hoerstgen-Schwark u. B. Brümmer	Effects of stocking density and photoperiod manipulation in relation to estradiol profile to enhance spawning activity in female Nile tilapia
0909	Steffen, N., S. Schlecht u. A. Spiller	Ausgestaltung von Milchlieferverträgen nach der Quote
0910	Steffen, N., S. Schlecht u. A. Spiller	Das Preisfindungssystem von Genossenschaftsmolkereien
0911	Granoszewski, K.,C. Reise, A. Spiller u. O. Mußhoff	Entscheidungsverhalten landwirtschaftlicher Betriebsleiter bei Bioenergie-Investitionen - Erste Ergebnisse einer empirischen Untersuchung -
0912	Albersmeier, F., D. Mörlein u. A. Spiller	Zur Wahrnehmung der Qualität von Schweinefleisch beim Kunden
0913	Ihle, R., B. Brümmer u. S. R. Thompson	Spatial Market Integration in the EU Beef and Veal Sector: Policy Decoupling and Export Bans
2010		
1001	Heß, S., S. von Cramon-Taubadel u. S. Sperlich	Numbers for Pascal: Explaining differences in the estimated Benefits of the Doha Development Agenda
1002	Deimel, I., J. Böhm u. B. Schulze	Low Meat Consumption als Vorstufe zum Vegetarismus? Eine qualitative Studie zu den Motivstrukturen geringen Fleischkonsums
1003	Franz, A. u. B. Nowak	Functional food consumption in Germany: A lifestyle segmentation study

1004	Deimel, M. u. L. Theuvsen	Standortvorteil Nordwestdeutschland? Eine Untersuchung zum Einfluss von Netzwerk- und Clusterstrukturen in der Schweinefleischerzeugung
1005	Niens, C. u. R. Marggraf	Ökonomische Bewertung von Kindergesundheit in der Umweltpolitik - Aktuelle Ansätze und ihre Grenzen
1006	Hellberg-Bahr, A., M. Pfeuffer, N. Steffen, A. Spiller u. B. Brümmer	Preisbildungssysteme in der Milchwirtschaft -Ein Überblick über die Supply Chain Milch
1007	Steffen, N., S. Schlecht, H-C. Müller u. A. Spiller	Wie viel Vertrag braucht die deutsche Milchwirtschaft?- Erste Überlegungen zur Ausgestaltung des Contract Designs nach der Quote aus Sicht der Molkereien
1008	Prehn, S., B. Brümmer u. S. R. Thompson	Payment Decoupling and the Intra – European Calf Trade
1009	Maza, B., J. Barkmann, F. von Walter u. R. Marggraf	Modelling smallholders production and agricultural income in the area of the Biosphere reserve “Podocarpus - El Cóndor”, Ecuador
1010	Busse, S., B. Brümmer u. R. Ihle	Interdependencies between Fossil Fuel and Renewable Energy Markets: The German Biodiesel Market
	2011	
1101	Mylius, D., S. Küest, C. Klapp u. L. Theuvsen	Der Großvieheinheitenschlüssel im Stallbaurecht - Überblick und vergleichende Analyse der Abstandsregelungen in der TA Luft und in den VDI-Richtlinien
1102	Klapp, C., L. Obermeyer u. F. Thoms	Der Vieheinheitenschlüssel im Steuerrecht - Rechtliche Aspekte und betriebswirtschaftliche Konsequenzen der Gewerblichkeit in der Tierhaltung
1103	Göser, T., L. Schroeder u. C. Klapp	Agrarumweltprogramme: (Wann) lohnt sich die Teilnahme für landwirtschaftliche Betriebe?
1104	Plumeyer, C.-H., F. Albersmeier, M. Freiherr von Oer, C. H. Emmann u. L. Theuvsen	Der niedersächsische Landpachtmarkt: Eine empirische Analyse aus Pächtersicht
1105	Voss, A. u. L. Theuvsen	Geschäftsmodelle im deutschen Viehhandel: Konzeptionelle Grundlagen und empirische Ergebnisse

1106	Wendler, C., S. von Cramon-Taubadel, H. de Haen, C. A. Padilla Bravo u. S. Jrad	Food security in Syria: Preliminary results based on the 2006/07 expenditure survey
1107	Prehn, S. u. B. Brümmer	Estimation Issues in Disaggregate Gravity Trade Models
1108	Recke, G., L. Theuvsen, N. Venhaus u. A. Voss	Der Viehhandel in den Wertschöpfungsketten der Fleischwirtschaft: Entwicklungstendenzen und Perspektiven
1109	Prehn, S. u. B. Brümmer	"Distorted Gravity: The Intensive and Extensive Margins of International Trade", revisited: An Application to an Intermediate Melitz Model
	2012	
1201	Kayser, M., C. Gille, K. Suttorp u. A. Spiller	Lack of pupils in German riding schools? – A causal-analytical consideration of customer satisfaction in children and adolescents
1202	Prehn, S. u. B. Brümmer	Bimodality & the Performance of PPML
1203	Tangermann, S.	Preisanstieg am EU-Zuckermarkt: Bestimmungsgründe und Handlungsmöglichkeiten der Marktpolitik
1204	Würriehausen, N., S. Lakner u. Rico Ihle	Market integration of conventional and organic wheat in Germany
1205	Heinrich, B.	Calculating the Greening Effect – a case study approach to predict the gross margin losses in different farm types in Germany due to the reform of the CAP
1206	Prehn, S. u. B. Brümmer	A Critical Judgement of the Applicability of 'New New Trade Theory' to Agricultural: Structural Change, Productivity, and Trade
1207	Marggraf, R., P. Masius u. C. Rumpf	Zur Integration von Tieren in wohlfahrtsökonomischen Analysen
1208	S. Lakner, B. Brümmer, S. von Cramon-Taubadel J. Heß, J. Isselstein, U. Liebe, R. Marggraf, O. Mußhoff, L. Theuvsen, T. Tscharntke, C. Westphal u. G. Wiese	Der Kommissionsvorschlag zur GAP-Reform 2013 - aus Sicht von Göttinger und Witzenhäuser Agrarwissenschaftler(inne)n
1209	Prehn, S., B. Brümmer u. T. Glauben	Structural Gravity Estimation & Agriculture

1210	Prehn, S., B. Brümmer u. T. Glauben	An Extended Viner Model: Trade Creation, Diversion & Reduction
1211	Salidas, R. u. S. von Cramon-Taubadel	Access to Credit and the Determinants of Technical Inefficiency among Specialized Small Farmers in Chile
1212	Steffen, N. u. A. Spiller	Effizienzsteigerung in der Wertschöpfungskette Milch ? -Potentiale in der Zusammenarbeit zwischen Milcherzeugern und Molkereien aus Landwirtssicht
1213	Mußhoff, O., A. Tegtmeier u. N. Hirschauer	Attraktivität einer landwirtschaftlichen Tätigkeit - Einflussfaktoren und Gestaltungsmöglichkeiten
2013		
1301	Lakner, S., C. Holst u. B. Heinrich	Reform der Gemeinsamen Agrarpolitik der EU 2014 - mögliche Folgen des Greenings für die niedersächsische Landwirtschaft
1302	Tangermann, S. u. S. von Cramon-Taubadel	Agricultural Policy in the European Union : An Overview
1303	Granoszewski, K. u. A. Spiller	Langfristige Rohstoffsicherung in der Supply Chain Biogas : Status Quo und Potenziale vertraglicher Zusammenarbeit
1304	Lakner, S., C. Holst, B. Brümmer, S. von Cramon-Taubadel, L. Theuvsen, O. Mußhoff u. T.Tscharntke	Zahlungen für Landwirte an gesellschaftliche Leistungen koppeln! - Ein Kommentar zum aktuellen Stand der EU-Agrarreform
1305	Prechtel, B., M. Kayser u. L. Theuvsen	Organisation von Wertschöpfungsketten in der Gemüseproduktion : das Beispiel Spargel
1306	Anastassiadis, F., J.-H. Feil, O. Musshoff u. P. Schilling	Analysing farmers' use of price hedging instruments : an experimental approach
1307	Holst, C. u. S. von Cramon-Taubadel	Trade, Market Integration and Spatial Price Transmission on EU Pork Markets following Eastern Enlargement
1308	Granoszewki, K., S. Sander, V. M. Aufmkolk u. A. Spiller	Die Erzeugung regenerativer Energien unter gesellschaftlicher Kritik : Akzeptanz von Anwohnern gegenüber der Errichtung von Biogas- und Windenergieanlagen

2014		
1401	Lakner, S., C. Holst, J. Barkmann, J. Isselstein u. A. Spiller	Perspektiven der Niedersächsischen Agrarpolitik nach 2013 : Empfehlungen Göttinger Agrarwissenschaftler für die Landespolitik
1402	Müller, K., Mußhoff, O. u. R. Weber	The More the Better? How Collateral Levels Affect Credit Risk in Agricultural Microfinance
1403	März, A., N. Klein, T. Kneib u. O. Mußhoff	Analysing farmland rental rates using Bayesian geoadditive quantile regression
1404	Weber, R., O. Mußhoff u. M. Petrick	How flexible repayment schedules affect credit risk in agricultural microfinance
1405	Haverkamp, M., S. Henke, C., Kleinschmitt, B. Möhring, H., Müller, O. Mußhoff, L., Rosenkranz, B. Seintsch, K. Schlosser u. L. Theuvsen	Vergleichende Bewertung der Nutzung von Biomasse : Ergebnisse aus den Bioenergieregionen Göttingen und BERTA
1406	Wolbert-Haverkamp, M. u. O. Musshoff	Die Bewertung der Umstellung einer einjährigen Ackerkultur auf den Anbau von Miscanthus – Eine Anwendung des Realoptionsansatzes
1407	Wolbert-Haverkamp, M., J.-H. Feil u. O. Musshoff	The value chain of heat production from woody biomass under market competition and different incentive systems: An agent-based real options model
1408	Ikinger, C., A. Spiller u. K. Wiegand	Reiter und Pferdebesitzer in Deutschland (Facts and Figures on German Equestrians)
1409	Mußhoff, O., N. Hirschauer, S. Grüner u. S. Pielsticker	Der Einfluss begrenzter Rationalität auf die Verbreitung von Wetterindexversicherungen : Ergebnisse eines internetbasierten Experiments mit Landwirten
1410	Spiller, A. u. B. Goetzke	Zur Zukunft des Geschäftsmodells Markenartikel im Lebensmittelmarkt
1411	Wille, M.	‚Manche haben es satt, andere werden nicht satt' : Anmerkungen zur polarisierten Auseinandersetzung um Fragen des globalen Handels und der Welternährung
1412	Müller, J., J. Oehmen, I. Janssen u. L. Theuvsen	Sportlermarkt Galopprennsport : Zucht und Besitz des Englischen Vollbluts

2015		
1501	Hartmann, L. u. A. Spiller	Luxusaffinität deutscher Reitsportler : Implikationen für das Marketing im Reitsportsegment
1502	Schneider, T., L. Hartmann u. A. Spiller	Luxusmarketing bei Lebensmitteln : eine empirische Studie zu Dimensionen des Luxuskonsums in der Bundesrepublik Deutschland
1503	Würriehausen, N. u. S. Lakner	Stand des ökologischen Strukturwandels in der ökologischen Landwirtschaft
1504	Emmann, C. H., D. Surmann u. L. Theuvsen	Charakterisierung und Bedeutung außerlandwirt-schaftlicher Investoren : empirische Ergebnisse aus Sicht des landwirtschaftlichen Berufsstandes
1505	Buchholz, M., G. Host u. Oliver Mußhoff	Water and Irrigation Policy Impact Assessment Using Business Simulation Games : Evidence from Northern Germany
1506	Hermann, D.,O. Mußhoff u. D. Rüther	Measuring farmers‘ time preference : A comparison of methods
1507	Riechers, M., J. Barkmann u. T. Tscharntke	Bewertung kultureller Ökosystemleistungen von Berliner Stadtgrün entlang eines urbanen-periurbanen Gradienten
1508	Lakner, S., S. Kirchweger, D. Hopp, B. Brümmer u. J. Kantelhardt	Impact of Diversification on Technical Efficiency of Organic Farming in Switzerland, Austria and Southern Germany
1509	Sauthoff, S., F. Anastassiadis u. O. Mußhoff	Analyzing farmers‘ preferences for substrate supply contracts for sugar beets
1510	Feil, J.-H., F. Anastassiadis, O. Mußhoff u. P. Kasten	Analyzing farmers‘ preferences for collaborative arrangements : an experimental approach
1511	Weinrich, R., u. A. Spiller	Developing food labelling strategies with the help of extremeness aversion
1512	Weinrich, R., A. Franz u. A. Spiller	Multi-level labelling : too complex for consumers?
1513	Niens, C., R. Marggraf u. F. Hoffmeister	Ambulante Pflege im ländlichen Raum : Überlegungen zur effizienten Sicherstellung von Bedarfsgerechtigkeit
1514	Sauter, P., D. Hermann u. O. Mußhoff	Risk attitudes of foresters, farmers and students : An experimental multimethod comparison

2016		
1601	Magrini, E., J. Balie u. C. Morales Opazo	Price signals and supply responses for stable food crops in SSAS countries
1602	Feil, J.-H.	Analyzing investment and disinvestment decisions under uncertainty, firm-heterogeneity and tradable output permits
1603	Sonntag, W. u. A. Spiller	Prozessqualitäten in der WTO : Ein Vorschlag für die reliable Messung von moralischen Bedenken
1604	Wiegand, K.	Marktorientierung von Reitschulen – zwischen Vereinsmanagement und Dienstleistungsmarketing
1605	Ikinger, C. M. u. A. Spiller	Tierwohlbewusstsein und –verhalten von Reitern : Die Entwicklung eines Modells für das Tierwohlbewusstsein und –verhalten im Reitsport
1606	Zinngrebe, Yves	Incorporating Biodiversity Conservation in Peruvian Development : A history with different episodes
1607	Balié, J., E. Magrini u. C. Morales Opazo	Cereal Price Shocks and Volatility in Sub-Saharan Africa : what does really matter for Farmers‘ Welfare?
1608	Spiller, A., M. von Meyer-Höfer u. W. Sonntag	Gibt es eine Zukunft für die moderne konventionelle Tierhaltung in Nordwesteuropa?
1609	Gollisch, S., B. Hedderich u. L. Theuvsen	Reference points and risky decision-making in agricultural trade firms : A case study in Germany
1610	Cárcamo, J. u. S. von Cramon-Taubadel	Assessing small-scale raspberry producers’ risk and ambiguity preferences : evidence from field-experiment data in rural Chile
1611	García-Germán, S., A. Romeo, E. Magrini u. J. Balié	The impact of food price shocks on weight loss : Evidence from the adult population of Tanzania
2017		
1701	Vollmer, E. u. D. Hermann, O. Mußhoff	The disposition effect in farmers‘ selling behavior – an experimental investigation
1702	Römer, U., O. Mußhoff, R. Weber u. C. G. Turvey	Truth and consequences : Bogus pipeline experiment in informal small business lending
1703	Römer, U. u. O. Mußhoff	Can agricultural credit scoring for microfinance institutions be implemented and improved by weather data?
1704	Gauly, S., S. Kühl u. A. Spiller	Uncovering strategies of hidden intention in multi-stakeholder initiatives : the case of pasture-raised milk

1705	Gauly, S., A. Müller u. A. Spiller	New methods of increasing transparency : Does viewing webcam pictures change peoples‘ opinions towards modern pig farming?
1706	Bauermeiser, G.-F. u. O. Mußhoff	Multiple switching behavior in different display formats of multiple price lists
1707	Sauthoff, S., M. Danne u. O. Mußhoff	To switch or not to switch? – Understanding German consumers‘ willingness to pay for green electricity tariff attributes
1708	Bilal, M., J. Barkmann u. T. Jamali Jaghdani	To analyse the suitability of a set of social and economic indicators that assesses the impact on SI enhancing advanced technological inputs by farming households in Punjab Pakistan
1709	Heyking, C.-A. von u. T. Jamali Jaghdani	Expansion of photovoltaic technology (PV) as a solution for water energy nexus in rural areas of Iran; comparative case study between Germany and Iran
1710	Schueler, S. u. E. M. Noack	Naturschutz und Erholung im Stadtwald Göttingen: Darstellung von Interessenskonflikten anhand des Konzeptes der Ökosystemleistungen
	2018	
1801	Danne, M. u. O. Mußhoff	Producers’ valuation of animal welfare practices: Does herd size matter?
1802	Danne, M., O. Mußhoff u. M. Schulte	Analysing the importance of glyphosate as part of agricultural strategies – a discrete choice experiment
1803	Fecke, W., M. Danne u. O. Mußhoff	E-commerce in agriculture – The case of crop protection product purchases in a discrete choice experiment
1804	Viergutz, Tim u. B. Schulze-Ehlers	The use of hybrid scientometric clustering for systematic literature reviews in business and economics
1805	Schulze Schwering, D. u. A. Spiller	Das Online-Einkaufsverhalten von Landwirten im Bereich landwirtschaftlicher Betriebsmittel
1806	Hänke, H. et al.	Socio-economic, land use and value chain perspectives on vanilla farming in the SAVA Region (north-eastern Madagascar) : The Diversity Turn Baseline Study (DTBS)
1807	Wille, S. C., B. Barklage, A. Spiller u. M. von Meyer-Höfer	Challenging Factors of Farmer-to-Consumer Direct Marketing : An Empirical Analysis of German Livestock Owners
1808	Wille, S. C., A. Spiller u. M. von Meyer-Höfer	Lage, Lage, Lage? : Welche Rolle spielt der Standort für die landwirtschaftliche Direktvermarktung?

1809	Peth, D. u. O.. Mußhoff	Comparing Compliance Behaviour of Students and Farmers : Implications for Agricultural Policy Impact Analysis
1810	Lakner, S.	Integration von Ökosystemleistungen in die I. Säule der Gemeinsamen Agrarpolitik der EU (GAP) – die Wirkung der ökologischen Vorrangfläche als privates oder öffentliches Gut?
1811	Fecke, W.	Online-Einkauf von Pflanzenschutzmitteln: Ein Discrete Choice Experiment mit landwirtschaftlichen Unternehmern in Deutschland
1812	Schulze-Ehlers, B.	Schlussbericht des Projekts „TransKoll“ - „Transparenz und Transformation in der regionalen Ernährungswirtschaft. Kollaborative Ansätze für mehr Nachhaltigkeit vom Rohstoff bis zum Endkonsumenten
1813	Buchholz, M., D. Peth u. O. Mußhoff	Tax or Green Nudge? An Experimental Analysis of Pesticide Policies in Germany
2019		
1901	Schaak, H. u. O. Mußhoff	Public preferences for livestock presence in pasture landscapes – A Latent Class Analysis of a Discrete Choice Experiment in Germany
1902	Möllmann, J., M. Buchholz, W. Kölle u. O. Mußhoff	Do remotely-sensed vegetation health indices explain credit risk in agricultural microfinance?
1903	Schütz, A., W. Sonntag u. Achim Spiller	Environmental Enrichment in pig husbandry – Consumer comparative assessment of different housing elements based on a pictorial survey
1904	Vollmer, T. u. S. von Cramon-Taubadel	The influence of Brazilian exports on price transmission processes in the coffee sector: a Markov-switching approach
1905	Michels, M., V. Bonke u. O. Mußhoff	Understanding the adoption of crop protection smartphone apps - An application of the Unified Theory of Acceptance and Use of Technology
1906	Reithmayer, C., M. Danne u. O. Mußhoff	Societal attitudes towards in ovo gender determination as an alternative to chick culling
1907	Reithmayer,C., M. Danne u. O. Mußhoff	Look at that! – The effect pictures have on consumer preferences for in ovo gender determination as an alternative to culling male chicks

1908	Aragie, E., J. Balié u. E. Magrini	Does productivity level influence the economic impacts of price support policies in Ethiopia?
	<u>2020</u>	
2001	Busch, G. u. A. Spiller	Warum wir eine Tierschutzsteuer brauchen - Die Bürger-Konsumenten-Lücke
2002	Huchtemann, J.-P.	Unternehmerische Neigung in der Landwirtschaft – Einstellungen von Studierenden der Agrarwissen-schaften in Deutschland
2003	Busch, G., E. Bayer, A. Gunarathne et al.	Einkaufs- und Ernährungsverhalten sowie Resilienz des Ernährungssystems aus Sicht der Bevölkerung Ergebnisse einer Studie während der Corona-Pandemie im April 2020
2004	Busch, G., E. Bayer, S. Iweala, C. Mehlhose, C. Rubach, A. Schütz, K. Ullmann u. A. Spiller	Einkaufs- und Ernährungsverhalten sowie Resilienz des Ernährungssystems aus Sicht der Bevölkerung : Eine Studie während der Corona-Pandemie im Juni 2020 ; Ergebnisse der zweiten Befragung
2005	Lemken, D.	When do defaults stick and when are they ethical? – taxonomy, systematic review and design recommendations
	<u>2021</u>	
2101	Graskemper, V., J.-H. Feil	Values of Farmers – Evidence from Germany
2102	Busch, G., E. Bayer, S. Iweala, C. Mehlhose, A. Risius, C. Rubach,, A. Schütz, K. Ullmann u. A. Spiller	Einkaufs- und Ernährungsverhalten sowie Resilienz des Eernährungssystems aus Sicht der Bevölkerung: Eine Studie während der Corona-Pandemie im
2103	Steinhübel, L., A. Wenzel, P. Hulamani, S. von Cramon-Taubadel u. N. M. Mason	The role of space and time in the interaction of farmers' management decisions and bee communities: Evidence from South India
2104	Purushotham, A., A. Aiyar u. S. von Cramon-Taubadel	Dietary transition and its relationship with socio-economic status and peri-urban obesity
2105	Berger, J., B. Brümmer, D.-D. Doe Fionka u. T. Kopp	Sugar Market Policies in the EU and International Sugar Trade
	<u>2023</u>	
2301	Duden, C., F. Offermann u. O. Mußhoff	Comparing experiments for modelling farm risk management decisions with a focus on extreme weather losses

Diskussionspapiere
2000 bis 31. Mai 2006:
Institut für Rurale Entwicklung
Georg-August-Universität, Göttingen)
Ed. Winfried Manig (ISSN 1433-2868)

32	Dirks, Jörg J.	Einflüsse auf die Beschäftigung in nahrungsmittelverabeitenden ländlichen Kleinindustrien in West-Java/Indonesien, 2000
33	Keil, Alwin	Adoption of Leguminous Tree Fallows in Zambia, 2001
34	Schott, Johanna	Women's Savings and Credit Co-operatives in Madagascar, 2001
35	Seeberg-Elberfeldt, Christina	Production Systems and Livelihood Strategies in Southern Bolivia, 2002
36	Molua, Ernest L.	Rural Development and Agricultural Progress: Challenges, Strategies and the Cameroonian Experience, 2002
37	Demeke, Abera Birhanu	Factors Influencing the Adoption of Soil Conservation Practices in Northwestern Ethiopia, 2003
38	Zeller, Manfred u. Julia Johannsen	Entwicklungshemmnisse im afrikanischen Agrarsektor: Erklärungsansätze und empirische Ergebnisse, 2004
39	Yustika, Ahmad Erani	Institutional Arrangements of Sugar Cane Farmers in East Java – Indonesia: Preliminary Results, 2004
40	Manig, Winfried	Lehre und Forschung in der Sozialökonomie der Ruralen Entwicklung, 2004
41	Hebel, Jutta	Transformation des chinesischen Arbeitsmarktes: gesellschaftliche Herausforderungen des Beschäftigungswandels, 2004
42	Khan, Mohammad Asif	Patterns of Rural Non-Farm Activities and Household Acdess to Informal Economy in Northwest Pakistan, 2005

43	Yustika, Ahmad Erani	Transaction Costs and Corporate Governance of Sugar Mills in East Java, Indovesia, 2005
44	Feulefack, Joseph Florent, Manfred Zeller u. Stefan Schwarze	Accuracy Analysis of Participatory Wealth Ranking (PWR) in Socio-economic Poverty Comparisons, 2006

Die Wurzeln der **Fakultät für Agrarwissenschaften** reichen in das 19. Jahrhundert zurück. Mit Ausgang des Wintersemesters 1951/52 wurde sie als siebente Fakultät an der Georgia-Augusta-Universität durch Ausgliederung bereits existierender landwirtschaftlicher Disziplinen aus der Mathematisch-Naturwissenschaftlichen Fakultät etabliert.

1969/70 wurde durch Zusammenschluss mehrerer bis dahin selbständiger Institute das **Institut für Agrarökonomie** gegründet. Im Jahr 2006 wurden das Institut für Agrarökonomie und das Institut für Rurale Entwicklung zum heutigen **Department für Agrarökonomie und Rurale Entwicklung** zusammengeführt.

Das Department für Agrarökonomie und Rurale Entwicklung besteht aus insgesamt neun Lehrstühlen zu den folgenden Themenschwerpunkten:

- Agrarpolitik
- Betriebswirtschaftslehre des Agribusiness
- Internationale Agrarökonomie
- Landwirtschaftliche Betriebslehre
- Landwirtschaftliche Marktlehre
- Marketing für Lebensmittel und Agrarprodukte
- Soziologie Ländlicher Räume
- Umwelt- und Ressourcenökonomik
- Welternährung und rurale Entwicklung

In der Lehre ist das Department für Agrarökonomie und Rurale Entwicklung führend für die Studienrichtung Wirtschafts- und Sozialwissenschaften des Landbaus sowie maßgeblich eingebunden in die Studienrichtungen Agribusiness und Ressourcenmanagement. Das Forschungsspektrum des Departments ist breit gefächert. Schwerpunkte liegen sowohl in der Grundlagenforschung als auch in angewandten Forschungsbereichen. Das Department bildet heute eine schlagkräftige Einheit mit international beachteten Forschungsleistungen.

Georg-August-Universität Göttingen
Department für Agrarökonomie und Rurale Entwicklung
Platz der Göttinger Sieben 5
37073 Göttingen
Tel. 0551-39-4819
Fax. 0551-39-12398
Mail: biblio1@gwdg.de
Homepage : http://www.uni-goettingen.de/de/18500.html