Data Article

Data on farmers’ acceptance of results-based agri-environmental schemes

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\textbf{A B S T R A C T}

The Data presented in this article contains information on farmers’ acceptance of results-based agri-environmental schemes (AES) collected from German farmers in an online survey in spring 2020. Acceptance is measured in the willingness to participate and the intensity of participation in terms of area willing to enroll for the scheme. Personal, farm characteristics and behavioral factors have been considered. We used a between subject design to introduce a social nudge (i.e. information treatment) for one group of participants. The data was collected via the software LimeSurvey. We chose a two-step approach e.g. participants were asked for participation first and then only those who would be willing to participate were asked for the intensity in terms of area willing to enroll. This data is related to the paper Farmers’ acceptance of results-based agri-environmental schemes: a German perspective [1].

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Specifications Table

Subject: Agricultural Economics, Behavioral Economics (Nudging)
Specific subject area: Farmers’ decision making concerning the uptake of a new sustainable farming practice
Type of data: Excel file
How data were acquired: Online survey
Data format: Raw data, partially filtered and analyzed data
Description of data collection: Online survey (LimeSurvey)

Value of the Data

• The data allows for comparison of (arable) farmers’ decision making with other case studies.
• The data allows to get special insight in the decision making concerning a newly designed-results-based agri-environmental scheme (AES) with special focus on a social information nudge.
• (Agricultural) Policy makers, social scientists using nudges and scientists in the field of agricultural economics can use the data for further studies.
• Data can serve as basis for future designs of results-based schemes, especially in the field of arable farming.
• The data allows for comparisons of participation and intensity decisions.

1. Data Description

The data includes results from an online survey sample of German farmers. A total of 564 people clicked on the link to the survey. Of those 110 continued after the introductory pages. It contains results on the farmers’ decision to participate in a hypothetically designed results-based agri-environmental scheme (AES). We introduced a social nudge (i.e. information treatment) for one half of the participants. The participants were randomly assigned to the groups. As only those who continued after the first introductory page were assigned, the groups are unequal: no nudge = 77, nudge = 62. Additionally, the preferred area the participants would be willing to enroll (intensity) and the preferred premium given a certain payment structure were stated by the farmers. In addition, information on personal and farm characteristics as well as behavioral factors have been collected. The participants reported their (dis)agreement with 30 statements concerning behavioral factors on a 5-point Likert-scale (1= I strongly disagree, 2= I disagree, 3= neither agree nor disagree, 4= I agree, 5= I strongly agree, 0= I don’t know). Further descriptions of each variable included can be found in the code book in Supplementary Material A. In this code book we provide an overview of all questions asked in the original survey (in German), the English translation, the name of the variable in short (as it entered the code) and in long as well as the scaling of each variable.
2. Experimental Design, Materials and Methods

2.1. Experimental Design

The experiment was conducted in form of a framed field experiment. As described by Harrison and List [3] this is an experiment with field context in commodity, task, stakes or information set and non-student participants. It was conducted without repetition (i.e. one shot). It is a “between-subjects” design, e.g. there is one control group and one group assigned to the special condition of the social nudge treatment. This means, that only half of the participants were treated with information (i.e. the social nudge). More specifically, the treated group received the information that other farmers in their county are very satisfied with the results-based AES proposed in the contingent valuation study.

2.2. Contingent Valuation / Scheme Design

Stated preference methods try to elicit stakeholders (monetary) valuation of cost and benefits often by conducting surveys [4]. An appropriate economic technique to value non-market resources is the contingent valuation method. By means of a hypothetical scenario the change in utility is measured. In the present case the change in the utility due to additional ecosystem services through AES is captured. In our study the hypothetical scenario consisted of a results-based agri-environmental scheme specially developed for this purpose and mainly targeted at weed species richness on intensively used arable areas. To develop the scheme, we followed the “Essential steps in the life cycle of the results-based payment scheme” that are recommended by Herzon et al. [5], Box 1, based on Allen et al. [6]. The four core steps are I Exploration and feasibility assessment, II Design, III Implementation stage, and IV Evaluation and Review. We mainly focused on steps I and II and the respective sub-steps such as sub-step 2, “Determining existence of biodiversity priorities, for which agricultural management is the key factor in ensuring the conservation of that biodiversity”. Here we refer to evidence from van Elsen [7], who found that pesticide and fertilizer use is one of the main reasons for decreasing biodiversity in weed species and that a change in agricultural production patterns towards very large open, poorly structured fields created an animal unfriendly landscape. To tackle sub-step 7 “Choosing and testing appropriate and reliable indicators of the defined environmental objective”, we followed Ulber et al. [8,9] who elicited bid prices for incentive-based payments for environmental services (PES) scheme, targeted at the conservation of arable plant diversity via auctions. We adopted their approach to only control dicotyledonous weeds. Monocotyledonous weeds are allowed to be eliminated via chemical weed control. This allows the farmer to still obtain usual yields. We focus on regional weed species rather than on red-list-weed-species to make the AES in the survey as realistic as possible. The selection of included weed species is based on the list provided by Ulber et al. [8] and expert knowledge (“Dachverband Biologische Stationen in NRW e.V.”) and the availability of good photo material to include in the survey. Hence, these three weed species were identified to serve as example indicators in the survey: Arabidopsis thaliana (Thale cress), Centaurea cyanus (Cornflower), Papaver rhoeas (Common poppy).

Based on a large existing body of literature (e.g.: [10–13]), we use a hybrid approach to choose indicators and payment criteria e.g. to combine an (existing) process-based scheme with a results-based (top-up) scheme. Concerning the payment structure this means, that the payment is done by rows of 100 m length and 50 m width that are not sown and thereby allow the indicator species to grow. To keep the results-based character of the scheme, the farmer could choose the number of rows to include and the preferred row-width. To develop the concrete amount of the premium we considered similar existing schemes such as one within the framework of contractual nature conservation in NRW where the farmer receives a payment for doubling the seed row distance in winter and summer cereals [14] or the existing AES of flowering stripes [15] as well as contribution margins for soft wheat in the harvest period 2018/2019
in NRW [16]. By means of these reference payments we identified a minimum amount of 5 – 7 € the farmer would need to cover the opportunity costs (OC). As the premium should not only cover these OC but also compensate for other costs such as transaction costs, these numbers indicate the minimal compensation level. The drop-down-payment ladder from which the participants can choose starts at 6 € and increases in two-euro-steps up to 20 € per row and year. Based on results from existing literature (see e.g. [17]) the willingness to accept (WTA) is included as a range in the survey. To provide a realistic scenario for the survey participants have been informed, that the chamber of agriculture NRW will monitor the existence of weeds at a certain point in the enrolled field by counting the rows left not sown. As there is evidence in literature that farmers prefer a rather flexible time horizon for these schemes, a funding period of two years was set [18,19].

2.3. Materials and Methods

The survey was conducted online, it was open for a period of four weeks (9th of April 2020 – 7th of May 2020). Before launching the survey, the structure, wording and understandability were tested in two face-to-face interviews (one farmer and one agricultural student) and one telephone interview (agricultural PhD student with family background in farming) as well as two online pre-tests (one agricultural student with family background in farming and one scientific expert from the Chair of Production Economics, ILR, University of Bonn) . In the first week advertisements were published in two agricultural, weekly published magazines (LZ Rheinland, Landwirtschaftliches Wochenblatt) as well as online for a period of four weeks (top agrar online, LZ Rheinland online, What’s app, Facebook). The advertisements in the print versions of the magazines included a QR-code which led to the online survey. The survey was structured in 6 main parts. Before starting the participants were made aware of the anonymized data processing procedure and had to accept the data security statement of the University of Bonn. The first part contained screening questions in which the two conditions for participation were checked: location of the farm in North Rhine-Westphalia and a minimum amount of arable area (own or rented) of 2 ha. Then questions concerning AES in general (knowing about existence, former scheme implementation) and an introduction to the results-based approach followed. In the core part the results-based AES that had been developed especially for the survey was presented. To the presentation of the scheme we added the following social information nudge for the treated group: “Imagine two farmers in your county told you, that they’re very satisfied with this scheme”. Beneath the scheme presentation the participants had to decide if they can imagine to participate in the scheme and if so, how much land they would be willing to enroll. Additionally, more concrete scheme attributes could be stated (minimum premium, preferred row width and number of rows unsown). To reduce biases arising from the endowment effect, loss aversion and the hypothetical characteristic of the scheme we introduced a cheap talk script sentence. This reminded the participants to answer honestly and realistically. Then the participants were asked to evaluate statements on a 5-point Likert-scale concerning different behavioral factors that have been chosen based on Déssart et al. [20].

In part 5 of the survey the participants answered questions concerning their farm and their personal background. Lastly the participants could state if they would receive a summary of the results once the data is analyzed and if they would like to participate in the lottery with the chance to win one of three 50 € vouchers for the clothing brand “Engelbert Strauss” as this workwear was popular during the survey period among farmers in the region and therefore served as incentive for participation. The three winners have been chosen randomly once the survey was closed (7th of May 2020) and were informed via email. After having received their addresses, the vouchers were sent out via post (26th of May 2020). Additionally, all participants were made aware of the anonymized data processing procedure again after the end of the data collection.
Ethics Statement

Before the survey could be started all participants were made aware of the anonymized data processing procedure and had to accept the data security statement of the University of Bonn, informed consent was obtained from all participants. There was no ethics approval required.

CRediT Author Statement

Anna Massfeller: Conceptualization, Methodology, Software, Validation, Formal analysis, Data Curation, Writing – Original Draft, Writing – Review & Editing, Visualization; Manuela Meraner: Conceptualization, Methodology, Validation, Writing – original draft, Writing – review & editing, Supervision; Silke Hüttel: Conceptualization, Methodology, Validation, Resources, Writing – review & editing, Supervision; Reinhard Uehleke: Conceptualization, Methodology, Validation, Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

Data Availability

Data on farmers’ acceptance of results-based agri-environmental schemes (Original data) (Open Science Framework).

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Supplementary Materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dib.2022.108642.

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