

The (still) mysterious case of agricultural protectionism

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ABSTRACT

Existing research demonstrates why farmers demand subsidies, but remains ambiguous as to why consumers/taxpayers support or rather do not oppose such subsidies. We approach this puzzle from two angles: how sensitive are citizens to cost implications of agricultural subsidies, and what is their “value function” with respect to agricultural policy? We argue that farm subsidies, besides benefiting farmers, promise to generate an array of non-market goods that serve various interests in society and thus receive strong support overall. To test our argument, we conducted conjoint survey experiments in two countries: Switzerland and the United States. Our results show that while cost implications only marginally reduce support for subsidies, support is positively affected by the allocation of subsidies to various policy goals, such as guaranteeing food security and enhancing animal welfare. These findings suggest that individual-level support for agricultural subsidies does not result from a lack of information, but reflect genuine appreciation of the perceived multi-functionality of agricultural subsidies.

Las investigaciones existentes demuestran por qué los agricultores exigen subsidios, pero siguen siendo ambiguas en cuanto a por qué los consumidores/contribuyentes apoyan o más bien no se oponen a dichas subvenciones. Abordamos este enigma desde dos ángulos: ¿qué tan sensibles son los ciudadanos a las implicaciones de los costos de los subsidios agrícolas y cuál es su “función de valor” con respecto a la política agrícola? Sostenemos que los subsidios agrícolas, además de beneficiar a los agricultores, prometen generar una variedad de bienes no comerciales que sirven a varios intereses de la sociedad y, por lo tanto, reciben un fuerte apoyo en general. Para probar nuestro argumento, realizamos experimentos de encuestas conjuntas en dos países: Suiza y Estados Unidos. Nuestros resultados muestran que, si bien las implicaciones de costos solo reducen marginalmente el apoyo a los subsidios, el apoyo se ve afectado positivamente por la asignación de subsidios a varios objetivos políticos, como garantizar la seguridad alimentaria y mejorar el bienestar animal. Estos hallazgos sugieren que el apoyo a nivel individual a los subsidios agrícolas no se debe a la falta de

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información, sino que refleja una apreciación genuina de la multifuncionalidad percibida de los subsidios agrícolas.

Des recherches existantes démontrent les raisons pour lesquelles les agriculteurs demandent des subventions mais restent ambigus sur celles pour lesquelles les consommateurs/contribuables soutiennent, ou plutôt ne s'opposent pas à de telles subventions. Nous adoptons une approche de ce casse-tête sous deux angles : dans quelle mesure les citoyens sont-ils sensibles aux coûts impliqués par les subventions agricoles, et quelle est leur « fonction de valeur » pour ce qui est de la politique agricole ? Nous soutenons qu'en plus de profiter aux agriculteurs, les subventions agricoles promettent de générer toute une série de biens non marchands qui serviraient divers intérêts de la société et bénéficient donc globalement d'un solide soutien. Pour mettre notre argument à l'épreuve, nous avons mené des expériences d'enquête conjointes dans deux pays : la Suisse et les États-Unis. Nos résultats montrent que bien que les coûts impliqués ne réduisent que marginalement le soutien des subventions, ce soutien est positivement affecté par l'affectation de subventions à divers objectifs politiques, tels que la garantie de la sécurité alimentaire et l'amélioration du bien-être animal. Ces conclusions suggèrent que le soutien au niveau individuel des subventions agricoles ne résulte pas d'un manque d'information, mais qu'il reflète plutôt une véritable appréciation de la multifonctionnalité perçue des subventions agricoles.

“Farmers got billions from taxpayers in 2019, and hardly anyone objected.”(NPR 2020)

In this paper, we shed new light on why citizens in advanced industrialized countries support agricultural protection despite the economic disadvantages this implies for them personally. Amid the ongoing trade conflict between the world's two largest economies, China and the United States, the US Administration introduced a US\$ 16 billion package for farmers to compensate them for lost income in July 2019. This subsidy scheme was the latest of two financial support packages since the trade conflict began in January 2018 (Bown and Kolb 2018). These subsidies were intended to compensate US producers of various crops for their loss of income in light of China's import bans of these crops in retaliation for increased US tariffs. At the same time, however, other affected industries in the US, such as the chemicals industry, have not enjoyed equivalent levels of government compensation. One commentator thus noted “(...) [T]he trade war with China, a conflict that has done lasting damage to American industry – and raised farm subsidies to new heights in the process” (Moon 2019). Overall, this policy was strongly criticized by many media outlets, as the quote by National Public Radio illustrates, but hardly questioned by the general public.

However, the United States is not an outlier when it comes to subsidizing the agricultural sector. In many advanced industrialized countries, the agricultural sector enjoys strong financial assistance from the government. Despite a continuous decline in the share of agriculture in total national employment and economic output, domestic producer support in agriculture remains very high. The Organization for Economic Cooperation and Development (OECD) estimates that financial transfers to farmers, as measured by its Producer Support Estimate (PSE), amount to an average of 247 billion US\$ across all OECD countries in 2018.¹ The PSE OECD average in 2018 was 19.22% of the gross farm receipts (GFR). In other words, as much as 19 cents in each dollar of revenue of the average farmer comes from government support. This not only has implications for farmers and taxpayers in these countries, but also for consumers as well as agricultural producers in third countries. For example, the latest PSE statistics also indicate that farmers in OECD countries sell at prices that are on average 9% above international market prices.

Various public opinion surveys, however, show that a majority of citizens in industrialized countries seem to support governmental protection measures for the agricultural sector (e.g., Abele, Blumenfeld, and Imhof 2013; European Commission 2016). For example, based on data from the Eurobarometer in 2016, a majority of EU citizens considers the financial support the EU gives to farmers either about right or even as too low, while only 13% consider the financial support for farmers too high (European Commission 2016). Such public support is puzzling, considering the high costs those protective measures, such as domestic subsidies, high tariffs for foreign agricultural products, price supports, and other farm protection provisions, create for both taxpayers and consumers. Most economic analyses in fact conclude that the majority of the population in industrialized countries would economically benefit from the reduction of agricultural support for several reasons (e.g., Bale and Lutz 1981; Koo and Kennedy 2006; Minviel and Latruffe 2017). First, various price support programs effectively keep domestic prices of agricultural products above world market levels. Second, in those cases where governments subsidize agricultural production, consumers may benefit from reduced prices of agricultural goods, but at the expense of increased taxes. Third, high levels of agricultural protection are depressing world prices of agricultural commodities, which is harming agricultural exporting countries – including developing countries – and have contributed to the stagnation of multilateral trade talks (e.g., the Doha round). Compared to all of these costs, only a small subset of the population, namely the farmers, directly benefit from agricultural support in industrialized countries.

¹OECD. 2018. Producer Support Estimate. <https://stats.oecd.org/index.aspx?queryid=89908#>. The PSE is calculated as the ratio of the average price received by agricultural producers to the border price of the products concerned and include: direct monetary payments to farmers, export subsidies, and tariff barriers that the government imposes on certain imported agricultural products.

While acknowledging on one hand that the level and persistence of state support for the farming sector in industrialized countries are at least partly attributable to other factors, such as the political power of the agricultural lobby, and on the other hand that other sectors, such as the energy sector, receive (high) subsidies, in this study, we are concerned with public support for agricultural protectionism. Specifically, we are interested in why citizens in advanced industrialized countries may be in favor of agricultural protectionism, despite such policy only benefiting a small part of society (farmers) while incurring large material costs to the rest of the population. We contribute to the existing literature by theoretically arguing and experimentally testing two explanations potentially underlying this persistent public support for agricultural protectionism. The first explanation questions whether individuals are sufficiently aware of the actual economic costs of agricultural protectionism. Since consumers are a big group per capita costs of agricultural subsidies are still low despite their absolute amount. Hence, individuals may simply not make the cognitive transfer of converting these small individual costs to the large national costs they amount to in absolute terms.

Our second explanation derives from the fact that agricultural policy serves various interests or goals and is thus multi-functional. More specifically, agriculture policy is multi-functional in the sense that it provides a wide array of non-market goods and services that may be of importance to consumers and taxpayers, among them food security and food quality, environmental protection, protection of rural landscapes, or animal welfare. Given this multi-functionality agricultural subsidies can therefore cater for various interests. Some parts of society might accept high subsidies for farmers because they believe food security is an important national goal, while others consider the protection of rural landscapes to be important. Consequently, this may lead different parts of society to believe that agricultural subsidies are in line with their interests. Although motivated by different reasons, this can result in overall strong support for agricultural protectionism.

We test these two explanations using original data based on survey-embedded experiments in Switzerland and the US – two countries that grant subsidies to the agricultural sector (although with some variation in terms of the relative amount of subsidies) but differ in their political and economic characteristics. This allows us to examine the empirical validity of our arguments across different contexts. In both countries, the survey consisted of two different experiments: a priming experiment that made half of our respondents aware of the actual costs of agricultural subsidies in their country as well as a conjoint experiment showing respondents different agricultural policies that varied in how much they fulfill particular goals, such as food security or environmental protection.

Our findings show that while revealing the costs of agricultural subsidies to consumers significantly reduces their support for such policies, the substantive

effect is rather small. Hence, even if citizens in advanced industrialized countries understand the scale of such subsidies, their support for these measures is not markedly reduced. This might be due to the fact that other aspects of agricultural policies are indeed more important to citizens. As the results from our conjoint experiment show, agricultural policies tying subsidies to animal welfare, environmental protection, food quality, or food security are strongly favored by a majority of citizens. In fact, it might be these non-market related aspects of agricultural policy that motivate the persistent public support for agricultural subsidies.

Theoretical Arguments

Existing studies that seek to explain government-sponsored protection of the agricultural sector in industrialized countries predominantly focus on political institutions in general and the politics of interest groups in particular. Specifically, the prevailing explanation for why the agricultural sector in most industrialized economies receives high levels of protection rests on collective action theory, political mobilization, and structural factors inherent in the specific institutional, political, and economic conditions of countries (see Trebilcock and Pue (2015) for a comprehensive review). Following Olson (1965)'s seminal work on the logic of collective action, small social groups with homogeneous interests and high stakes per group member (concentrated interests) are usually more effective in organizing and exerting pressure on policymakers than large groups with heterogeneous interests and low stakes per group member (diffused interests). According to this logic, a high level of agricultural protectionism can be accounted for by the effective organization and political leverage of concentrated farming interests. The underlying mechanism is that each farmer can derive large per capita benefits from agricultural protection relative to diffused consumer or taxpayer interests, where each consumer or taxpayer only incurs small additional costs from transferring income from society to farmers.

Collective action arguments provide a convincing explanation for why agricultural producers are able to assert their interest and successfully lobby for agricultural subsidies, whereas consumers and taxpayers, respectively, do not organize to counteract this policy. However, this framework cannot sufficiently account for the phenomenon we are interested in in this paper, namely the widespread support for farm subsidies among citizens, or at least the lack of clear opposition to such government policies to support farmers. Inherent in collective action arguments is the idea that the large group of consumers and taxpayers does not take political action *despite* them facing a disadvantage from agricultural protectionism. To the contrary, as various opinion polls indicate (e.g., Abele, Blumenfeld, and Imhof 2013; European Commission 2016), a majority of citizens in industrialized countries seem to support subsidizing farmers, raising the question of why this is the case.

In the following, we provide two potential explanations for this phenomenon. The first, which is mostly in line with the collective action argument,

puts to test the assumption that consumers are fully aware of the scale and thus the costs of agricultural protectionism. The second, in contrast, challenges the narrow focus of the collective action argument on the costs of agricultural protectionism by arguing that agricultural subsidies can provide other non-material benefits to consumers, which potentially outweigh their costs.²

The starting point of our argument is that most consumers and taxpayers in any given country are also citizens and voters, and therefore mass public preferences over policies should have a strong impact on policy choices (Burstein 2003). The implication of this is that, presumably, agricultural protectionism reflects prevailing public opinion, that is, what most consumers, taxpayers, and citizens of a given country want. In order to align these assumptions with the observation that public opinion surveys in fact show that a majority of citizens in industrialized countries supports governmental protection measures for the agricultural sector one could question whether ordinary citizens truly understand that they are transferring parts of their income to farmers.

In line with recent literature on individual trade attitudes (Jamal and Milner 2019; Rho and Tomz 2017; Schaffer and Spilker 2016), the first argument on the cost implications challenges the assumption that ordinary citizens possess enough information or economic knowledge to fully grasp the scale of agricultural protectionism and that all consumers and taxpayers contribute to this income transfer by either paying taxes or higher consumer prices. This argument starts from the observation that agricultural protectionism, as trade protectionism, is a complex issue that is typically of little interest to most citizens (Guisinger 2009; Hiscox 2006). In the context of agricultural protectionism, Jensen and Shin (2014), for instance, argue that the complexity of agricultural policy and the limited knowledge of voters are used by politicians to generate public support for agricultural protection by framing their own agricultural policies as less generous in comparison to the policies of other countries. We extend this logic by arguing that a lack of knowledge could also be present when it comes to the economic and distributional effects of agricultural policies and not only with respect to the scale of agricultural protectionism in comparative perspective. This aligns well with the argument by Rho and Tomz (2017) who, for example, show that most voters do not understand the economic consequences of trade protectionism. Consequently, public support for farm subsidies could simply be explained by voters' economic ignorance. Conversely, support would be lower if citizens knew about the precise cost implications. The empirical implication of this argument is expressed in Hypothesis 1.

H1 All else equal, citizens become less supportive of agricultural protection when they learn about the cost implications of such protectionist measures.

²At this point, it is important for us to clarify that while we are interested in explaining the lack of opposition toward agricultural subsidies, our argument is not necessarily confined to agriculture. It might as well hold for other highly subsidized sectors in industrialized countries with perceived multi-functionality. One example that comes to mind is the energy sector. We return to this issue in greater detail in the discussion.

In contrast to the cost hypothesis, our second argument holds that protection levels truly reflect mass preferences toward the agricultural sector, which go beyond simple considerations about the material costs and benefits of agricultural protectionism. Instead, we argue that public policy preferences over agriculture may be less driven by economic rationalism but by a broader set of considerations about the various societal benefits that agricultural subsidies seek to deliver in addition to the economic benefits for farmers. As shown in a recent survey among Swiss citizens, a considerable share of the public indeed perceives financial support for farmers as fulfilling a range of goals, such as preserving rural landscapes, ensuring food quality, etc. and therefore consider agricultural protectionism to be multi-functional (Abele, Blumenfeld, and Imhof 2013). This perceived multi-functionality is grounded in the presumably exceptional nature of agriculture (Daugbjerg and Swinbank 2009; Skogstad 1998; Trebilcock and Pue 2015).

Agricultural exceptionalism embodies the notion that the agricultural sector is different from other industries because it produces food, which is a basic necessity for human survival and more inelastic in demand than other goods. Therefore, the farming sector “contributes to broader national interests and goals” (Skogstad 1998, 468). This is argued to justify government intervention and protection. Moreover, the farming sector is believed to require and deserve special support due to its unique market and production conditions that are influenced by uncontrollable factors, such as weather fluctuations and unstable market prices.

Indeed, this perceived multi-functionality is also reflected in public support for farm protection as agriculture is often viewed to provide a wide array of non-market goods and services that may be of importance to consumers and taxpayers. Moon and Saldias (2013), for example, survey US respondents’ attitudes toward the intangible benefits that agriculture may provide. They find that respondents who are concerned about the environment show greater support for government-sponsored assistance for agriculture. Another facet of the multi-functionality of agriculture concerns securing the supply of food for society. For example, Ellison, Lusk, and Briggeman (2010b) report that maintaining food security is an important determinant of respondents’ support for farm programs.

In line with these earlier studies, we start our argument by highlighting the various functions agriculture performs, such as food security and food quality, environmental protection, protection of rural landscapes, or animal welfare. Furthermore, our argument highlights the fact that these functions serve different interests. For example, citizens with green preferences, while not necessarily supporting agricultural subsidies to provide income for farmers, might support such subsidies if these are tied to environmental protection measures. In contrast, citizens with traditionalist attitudes might find exactly the financial protection for farmers and their livelihoods an important aspect of agricultural policy. Although motivated by different reasons, various parts of society might therefore believe that agricultural subsidies are in fact in line with their interests (or at least parts of their interest).

Thus, following the multi-functionality argument, popular support for agricultural protectionism could or rather should be much broader than if conceived only from a cost/benefit calculus as argued by the collective action argument. Furthermore, by implication, agricultural protectionism should also be rather robust as long as it satisfies the particular interest of the different groups, e.g., environmental protection/animal welfare for the greens; landscape preservation for the traditionalists; food security for conservatives etc. Viewed from this perspective, the support coalition for agricultural protectionism might in fact be very broad and, thus, agricultural subsidies are likely to persist.

H2 All else equal, citizens become more supportive of agricultural protection when they learn about the non-economic benefits of such protection for society (e.g., environmental protection, increasing food security).

This, however, still leaves open the question as to whether these potentially positive benefits of agricultural policy can offset the negative effect arising from becoming aware of the actual costs of agricultural subsidies. Hence, in the empirical analysis, we will examine whether any potential non-economic societal benefits can outweigh the cost implications of agricultural protection.

Research Design

While various surveys on agricultural protectionism exist (e.g., Abele, Blumenfeld, and Imhof 2013; European Commission 2016), they do not provide two crucial pieces of information that would be necessary to assess our argument. First, we need to know how sensitive citizens are to cost implications, that is, to learning about the economic consequences of protectionism for them personally.³ Second, we need to know how the “value function” of citizens with respect to agricultural policy looks like, in the sense of how much they value different objectives of governmental support for agriculture and how this affects public support levels. Our empirical testing strategy therefore relies on a survey-embedded experiment to identify the factors influencing citizens’ support for agricultural protectionism.

To test whether awareness of the actual costs of agricultural subsidies lowers individuals’ support for agricultural protectionism and to identify which goals of agricultural policy, e.g., land conservation vs. food security, determine public support for such protectionism, we employed a two-stage testing strategy. Specifically, to test Hypothesis 1, we implemented a priming experiment in which respondents were

³Although many actors, such as the media, international organizations, or NGOs, try to provide information on the costs of agricultural subsidies in industrialized countries, observational survey data on public opinion toward agricultural subsidies over time, if it existed, is not sufficient to test our cost argument. This is because without an experimental study design through which we can manipulate individuals’ exposure to information about the costs of such subsidies, we cannot know whether such information actually reaches the majority of the general public and is being understood as such. We therefore implemented an experimental design that allows us to isolate the effect of information about the costs of agricultural subsidies and to test its *causal* effect on individual preferences toward agricultural protectionism.

either provided with information about the costs of agricultural policy in their country or did not receive such information. In a second step, we asked all respondents to answer a conjoint experiment consisting of six different goals associated with agricultural policy to better understand what kind of agricultural policy citizens prefer. In addition, this setup allows us to test whether being aware of the costs of agricultural protectionism changes the kind of agricultural policy individuals would like their government to pursue.

We conducted our survey-embedded experiments in two OECD countries: Switzerland and the United States, which provide subsidies to its agricultural sector, but at different levels. In particular, while in Switzerland, according to the OECD, almost 54% of farmers' income came from government sources in 2018, in the US, the PSE amounted to 12.2%. More importantly, in addition to several other obvious differences, such as size, geography, and political system, the two countries vary considerably in the way the agricultural sector is structured and thus likely to be perceived in the two countries. While in the US the agricultural sector mainly consists of large-scale farms that have industrialized agricultural production and which is very remote to the experience of the average US citizens, small-scale farms are widespread in the Swiss agricultural sector and hence are more integrated into every-day life and probably the identity of average Swiss citizens. Thus, by administering our survey experiments in Switzerland and the US, we can test whether our findings travel across different country contexts.

In both countries, we ran our survey-embedded experiment as part of a nationally representative survey conducted by IPSOS with 3,000 respondents in each country in November 2017.⁴ Overall, we received valid answers for our main outcome of interest, namely citizens' support for agricultural policy, from 2,310 respondents in Switzerland and 2,605 respondents in the United States.

Priming Experiment

In the first part of our survey experiment, we provided respondents with information about the costs of agricultural subsidies. Specifically, we randomly assigned our survey respondents, after a first round of questions on their socio-economic background, to either a treatment or a control group. Accordingly, half of the respondents in each country, i.e., the treatment group, received information about the costs of agricultural subsidies, whereas the other half, the control group, did not. Both groups then answered on a five-point scale whether they thought that the amount of direct payments American farmers receive from the government is too high, appropriate, or too low.

⁴Ipsos drew a representative sample of the American and Swiss voting population aged 18 and 65 years old based on their online-access panel. The sample was drawn on quotas based on age, gender, religion, and education.

To emphasize the costs of governmental subsidies, we integrated the actual amount of total subsidies provided in Switzerland/the United States as well as the corresponding percentage of income that farmers receive from the government into the treatment text:

*As you may know, the Swiss/US government provides a total of **2.8 billion CHF/11 billion US\$ in financial support to Swiss/US farmers**. These so-called direct payments are paid from the federal government's budget to the farmers and on average account for around **62%/5% of US farmers' income**. These direct payments to farmers are financed through the government's tax revenues. In other words, **every taxpayer in Switzerland/the United States pays on average 410 CHF/78 US\$ per year to Swiss/US farmers**.*

Following the treatment text, we included a comprehension check providing respondents with three different statements on how big the contribution of government subsidies for farmers are according to the text and asking them which one of them were correct. If respondents failed to answer correctly they were redirected to the text.

Conjoint Experiment

Immediately following the priming experiment and the question on whether respondents think the amount of government support to farmers is too high or too low, each respondent answered six times a choice-based conjoint experiment in which they had to choose between two government proposals consisting of different goals for agricultural policy. The proposals randomly varied how much of the direct government payments were directed toward the six different goals listed in [Table 1](#). Following standard procedures (e.g., Hainmueller, Hopkins, and Yamamoto 2014), we randomly varied both the row in which the respective goal was displayed, e.g., food security, as well as the specific attributes of the goal (large, moderate, or none).

The specific dimensions as well as their attributes were explained to respondents in a short introduction before the conjoint experiment. Respondents also received information on how the conjoint experiment worked and were asked to read and evaluate each proposal carefully. Given the fact that our conjoint experiment consisted of only six dimensions with three attributes each, we are confident that respondents were well able to mentally process the provided information and provide meaningful choices. To further illustrate the exact conjoint task, [Table 2](#) shows a hypothetical example of such a conjoint task.

Next to asking respondents which of the two proposals they would prefer, we also asked them to rate each proposal on a seven-point scale.

Table 1. Dimensions and attributes of the conjoint experiment.

| Goals of direct payments | Amount of direct payments |
|---|---|
| <i>Environmentally friendly farming:</i> Environmentally friendly cultivation of farmland and pasture. E.g., by reducing the use of fertilizers and pesticides. | <ul style="list-style-type: none"> ● Large ● Moderate ● None |
| <i>Support small farms:</i> Support for small farms and farms that operate under difficult conditions (e.g., in geographically/climatically challenging regions). | <ul style="list-style-type: none"> ● Large ● Moderate ● None |
| <i>Food security:</i> Food supply from domestic production to prevent food shortage in periods of crises. | <ul style="list-style-type: none"> ● Large ● Moderate ● None |
| <i>Protection of countryside:</i> Preservation and maintenance of rural areas. | <ul style="list-style-type: none"> ● Large ● Moderate ● None |
| <i>Animal welfare:</i> Promoting animal health and welfare (e.g., bigger barns, more space for animals, species-appropriated feeding products). | <ul style="list-style-type: none"> ● Large ● Moderate ● None |
| <i>Food quality:</i> Cultivation of high-quality food that follows strict regulations. | <ul style="list-style-type: none"> ● Large ● Moderate ● None |

Subgroup Analyses

In addition to understanding whether information on the actual costs of agricultural subsidies affect support for such policies and the question which dimensions of agricultural policy citizens in advanced industrialized OECD countries value most, we are interested whether these two aspects differ between different societal groups. For example, Variyam, Jordan, and Epperson (1990) as well as Variyam and Jordan (1991) showed that socio-demographic characteristics, such as partisanship, gender, and age, influence the public opinion about farm support. In the United States, Democrats and women are found to be more supportive of agricultural subsidies than Republicans and men, respectively. Moreover, older as well as more educated and higher-income respondents tend to oppose farm support.

Furthermore, some scholars have found mass support for agricultural protection to be driven by general value systems of citizens. Ellison, Lusk, and Briggeman (2010a), for instance, explain public support for farm programs in the United States by other-regarding preferences, such as altruism and inequality aversion. Similarly, Naoi and Kume (2011) examine the effects of sympathy and

Table 2. Example of a conjoint task.

| Attribute | Proposal 1 | Proposal 2 |
|----------------------------------|------------|------------|
| Environmentally friendly farming | None | None |
| Support for small farms | None | Moderate |
| Food security | Large | Large |
| Protection of countryside | Moderate | Large |
| Animal welfare | Large | Large |
| Food quality | None | Large |
| Which proposal do you prefer? | ... | ... |

projection based on a survey experiment in Japan. They find that respondents with high job insecurity or fear of future job loss oppose liberalizing food imports but find little support for the hypothesized effect of sympathy for farmers.

Thus, in addition to testing heterogeneous treatment effects along socio-demographic cleavages, we are also interested in whether and if so, how much our results differ according to whether someone holds traditional values, considers environmental protection important, or dislikes inequality. We expect treatment heterogeneity both in the impact of cost prime and the effect of the composition of the policy proposals in our conjoint experiment. In particular, we presume that individuals with strong traditional values should be less likely to shift their opinion on agricultural subsidies when reading about their costs. As a strong agricultural sector corresponds to a traditionalist worldview cost/benefit calculations might not matter to such individuals as much as to less traditionalist respondents. In contrast, we expect environmentalists to strongly favor policy proposals emphasizing both environmentally friendly farming as well as animal welfare over other components such as food security. Finally, inequality aversion should mainly matter to both the cost experiment and the conjoint dimension of giving support to small farmers.

We provide the specific question texts for all variables used in the main analysis in the Appendix. In administering the questionnaire, we were mindful to potential order effects resulting in respondents being primed when asked questions tapping into respondents' level of traditionalism, inequality aversion and environmentalism before the experiment or introducing post-treatment bias when respondents are asked these questions after the experiment. To this end, we randomly assigned half of the respondents to answer these questions before the experiment, while the other half answered these questions after the experiment. The results were identical for the two groups.

Results

In this section, we provide the results of our two experiments and evaluate whether the results of our experiments are vary along relevant covariates, i.e., traditionalism, environmentalism, and inequality aversion. We begin with a discussion of the results of our priming experiment by comparing the mean responses to the question about the appropriate level of farm subsidies in the control and treatment group .

As shown in [Table 3](#), the findings from the priming experiment in the Swiss sample indicate that citizens are sensitive to the costs of agricultural subsidies. In particular, the information treatment significantly decreases support for agricultural subsidies among Swiss citizens. Respondents who received information about the costs of the farm subsidies were more likely to view these

Table 3. Cost experiment – difference in means test.

| | Switzerland | USA |
|----------------------------|------------------|------------------|
| Cost information treatment | 2.611 (0.027) | 3.269 (0.031) |
| Control | 2.989 (0.030) | 3.275 (0.037) |
| Difference | -0.378*** | -0.006 |

Notes: (1) In Swiss sample: the difference in means is statistically significant different to zero. $t = 9.3565$, $df = 2551.2$, $p\text{-value} < 2.2e-16$

(2) In US sample: the difference in means is not statistically significant different to zero. $t = 0.11401$, $df = 2154.9$, $p\text{-value} = 0.9092$.

(3) Standard errors in parentheses.

subsidies as too high. This may be explained by the fact that the per capita costs of the farm subsidies in Switzerland are among the highest in the world. While the results from the Swiss sample lend some support to Hypothesis 1, it needs to be noted that the size of the effect is rather small in substantive terms. Respondents who did not receive any information about the costs of agricultural protection, on average, answered that agricultural subsidies are at an appropriate level, a value of 2.99 on our five-point scale which ranges from 1, subsidies are too high, to 5, subsidies are too low. However, this was merely reduced to a mean value of 2.61 in the treatment group which received the cost information. Hence, despite this being a statistically significant difference, even if respondents are informed, on average, they do not consider agricultural subsidies as too high (which would equal a value of 2 or 1 on our five-point scale).

In the US sample, learning about the costs of the subsidies does not affect respondents' opinion about agricultural protection. The difference between the control and treatment group is hardly noticeable. Respondents receiving no information on the costs of agricultural subsidies considered subsidies as about right or even as low, a value of 3.275 on our five-point scale, while those who received the cost information have a mean value of 3.269. Hence, exposing individuals to the costs of agricultural subsidies either does not make a difference at all or makes such a small difference that not understanding the (economic)scale of agricultural subsidies can hardly be seen as the main reason for why agricultural support is persistently high in industrialized countries.

In Table 4, we use ordinary least square regression to estimate the effect of the information treatment on individuals' support for farm subsidies, controlling for a number of factors that have been identified as important predictors of public support for agricultural protection. The reported treatments effects remain robust even after controlling for a number of socio-demographic characteristics and value orientations. Column 1 shows the results for the American sample and Column 2 presents the results with Swiss respondents.

We find that in both countries, females, younger, less educated, and lower-income respondents are significantly more likely to view the current level of farm subsidies as too low. Interestingly, American respondents who have had

Table 4. Effect of cost information on evaluation for farmer subsidies.

| | <i>Dependent Variable:</i> | |
|-------------------------|-----------------------------------|---------------------------|
| | Support for farm subsidies | |
| | US sample | Swiss sample |
| Cost info | -0.033 (0.051) | -0.342*** (0.044) |
| Age | -0.003* (0.002) | -0.012*** (0.002) |
| Female | 0.330*** (0.052) | 0.261*** (0.046) |
| Education | -0.072** (0.033) | -0.075** (0.036) |
| Income | -0.021** (0.009) | -0.021** (0.010) |
| Employed | -0.070 (0.057) | -0.041 (0.055) |
| Know farmer | -0.020 (0.063) | 0.121*** (0.046) |
| Farm work | -0.252*** (0.078) | 0.082 (0.068) |
| Traditionalism | 0.051** (0.022) | 0.077*** (0.018) |
| Equality | 0.015 (0.015) | 0.022* (0.013) |
| Economic insecurity | 0.091*** (0.020) | 0.001 (0.018) |
| Environmental concern | 0.040* (0.022) | 0.120*** (0.025) |
| Nationalism | -0.054*** (0.020) | -0.002 (0.017) |
| Constant | 2.765*** (0.233) | 2.395*** (0.217) |
| Observations | 1,943 | 2,016 |
| R ² | 0.082 | 0.116 |
| Adjusted R ² | 0.076 | 0.110 |
| Residual Std. Error | 1.109 (df = 1929) | 0.984 (df = 2002) |
| F Statistic | 13.324*** (df = 13; 1929) | 20.125*** (df = 13; 2002) |

Note: *p < .1; **p < .05; ***p < .01

agricultural working experience reported significantly lower support for farm subsidies. In Switzerland, this personal experience does not have a significant effect. Instead, personal acquaintance with people working on a farm seems to make Swiss respondents view farm subsidies in a more favorable light, but has no effect on their American counterparts. As expected, the results in both samples show that people who are more strongly attached to traditional values and express greater environmental concerns are more likely to view agricultural subsidies as too low. Inequality aversion, however, is only associated with stronger support for farm subsidies among Swiss respondents, while economic insecurity only increases endorsement of agricultural protectionism in the American sample. Finally, contrary to our expectations and existing findings, we find that nationalist sentiments are negatively correlated with support for farm subsidies. However, the effect only reaches statistical significance in the US sample but not among Swiss respondents.

Overall, we believe that these results provide weak support for Hypothesis 1. Rather, we interpret our findings as an indication that strong public support for subsidies to farmers can only be partly attributed to a lack of information about the financial costs of agricultural subsidies. The effect of the information treatment is rather small and, in the US sample, even insignificant.

Next, we examine the explanatory power of the argument concerning the multi-functionality of the agricultural sector as captured in Hypothesis 2. Farm subsidies do not only serve one policy goal but (in principle) cater for multiple purposes. As such, with the transfer of financial assistance to farmers, the government seeks to achieve several goals. The conjoint experiment allows us to examine the relative appeal of each of these goals to voters. We selected the six most common goals associated with agricultural subsidies to include as our conjoint attributes: 1) environmental protection, 2) support for small farmers, 3) protection of countryside landscape, 4) food quality, 5) food security, and 6) animal welfare.

In addition to the conjoint task, we also asked survey participants to allocate a fixed budget of 100 million (US\$/CHF) to each of these goals. The idea was to allow respondents to, more or less, create their ideal agricultural policy. While this endeavor is mainly descriptive, we still consider it to provide important insights into the relevance of the selected policy goals and the extent to which respondents see agricultural policy as multi-functional. Thus, before we present the results from the conjoint experiment, we first describe in [Figure 1](#) how, on average, respondents preferred to distribute the money.

To begin with, in both countries, there seems to be a high willingness to allocate the fixed budget relatively fairly across the six goals, thus supporting the notion that agricultural policy serves multiple functions. The shares range from 12% (at the lower end) to 23% (at the higher end). Hence, from the citizens' perspective, there is no single goal that deserves all the funding, and there is no single goal that does not seem to be worth being funded at all. While respondents in both samples seem to consider the support for small farmers as the policy goal that warrants the smallest share of funding, they differ in their view about which area deserves the largest funding.

Swiss citizens seem most keen to provide agricultural subsidies to promote animal welfare (23.3%), whereas their American counterparts would rather allocate the biggest share to secure high-quality food (23%). The results further suggest that Americans are generally more concerned about food issues: according to American respondents, the second biggest share (21.2%) of the subsidies budget should be allocated to secure food supply from domestic American production to prevent food shortages in periods of crises. In Switzerland, people consider this goal to be of lower priority and would assign 15.8% of the budget to this particular policy goal. In contrast, Swiss respondents view environmental protection to be more important and would allocate 18.6%

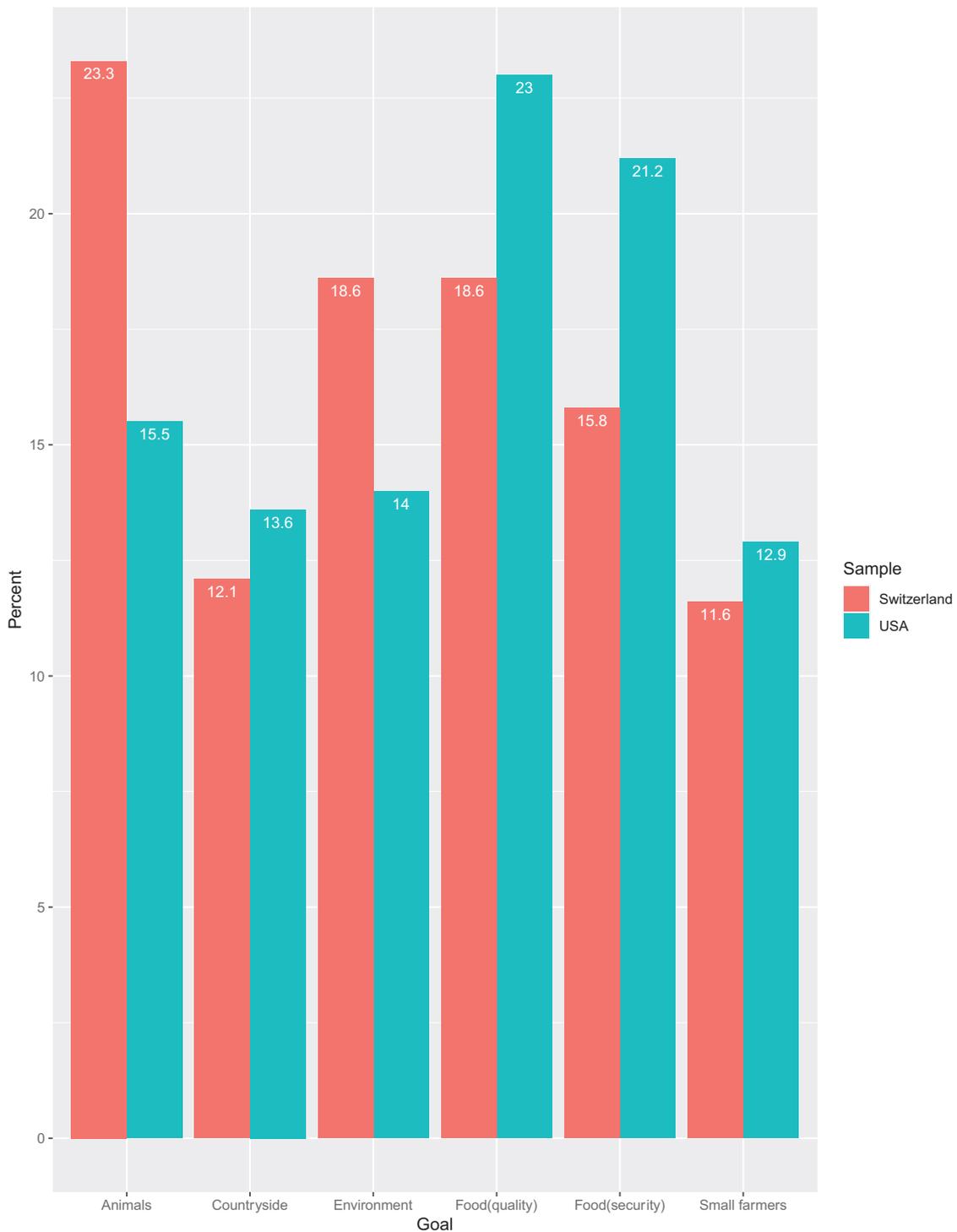


Figure 1. Allocation preferences of budget for agricultural subsidies. Note: (1) Graph is based on responses to the following question: Imagine you could decide on the US/Swiss agricultural policy according to your own likings. Also imagine that to do so you have 100 million US\$/CHF at your disposal. How would you allocate this amount to promote the various goals of agricultural policy?

of the budget to achieve this goal; in the United States, only 14% should be distributed to protecting the environment. Overall, however, the results from Figure 1 suggest that individuals consider each of the various goals

of agricultural protectionism to be legitimate and worthy of funding. We further probe the argument concerning the multi-functionality of agricultural subsidies in the analysis of our conjoint experiment.

Figures 2 and 3 plot the estimated average marginal component effects (AMCEs) of all conjoint attributes using our binary choice task for the American and the Swiss sample. Consistent with the findings from the

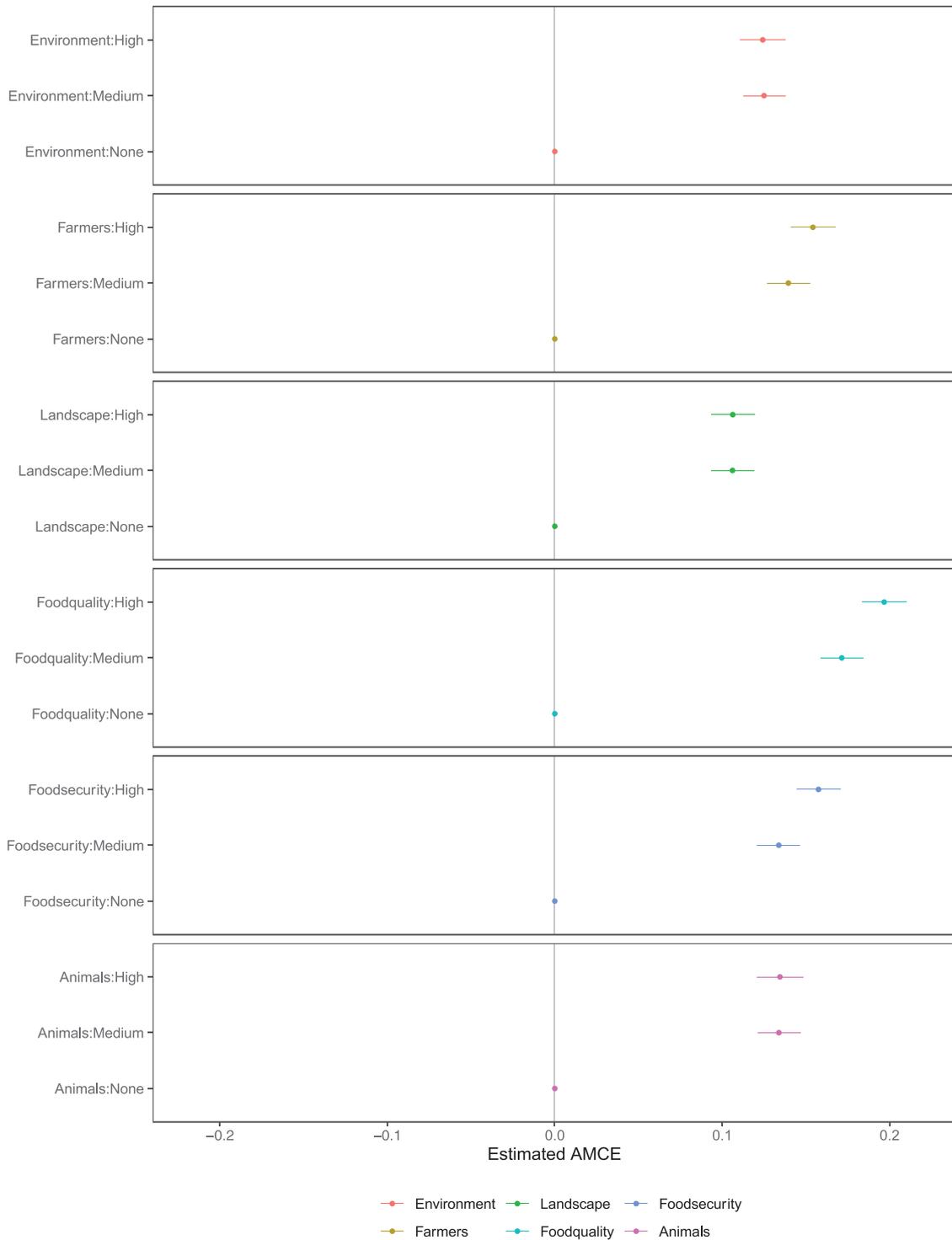


Figure 2. AMCEs of all conjoint attributes using choice task (US sample).

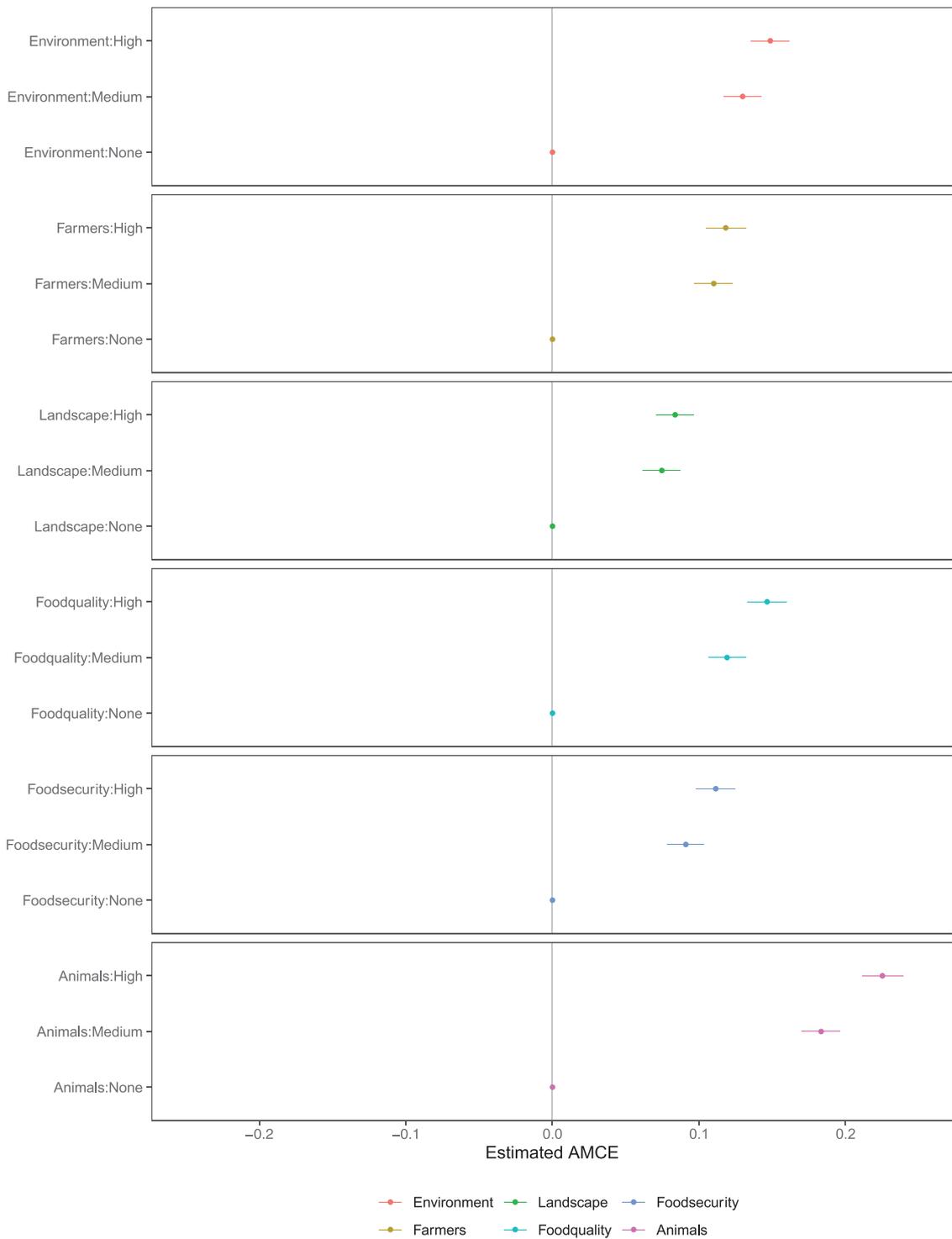


Figure 3. AMCEs of all conjoint attributes using choice task (Swiss sample).

descriptive analysis of the budget allocation task (Figure 1), all policy goals have a significant effect on respondents' choice, i.e., policy proposals, which serve any of the goals have a positive effect on individuals' support level; however, there are no statistically significant differences between high and medium levels of support. In other words, intensifying

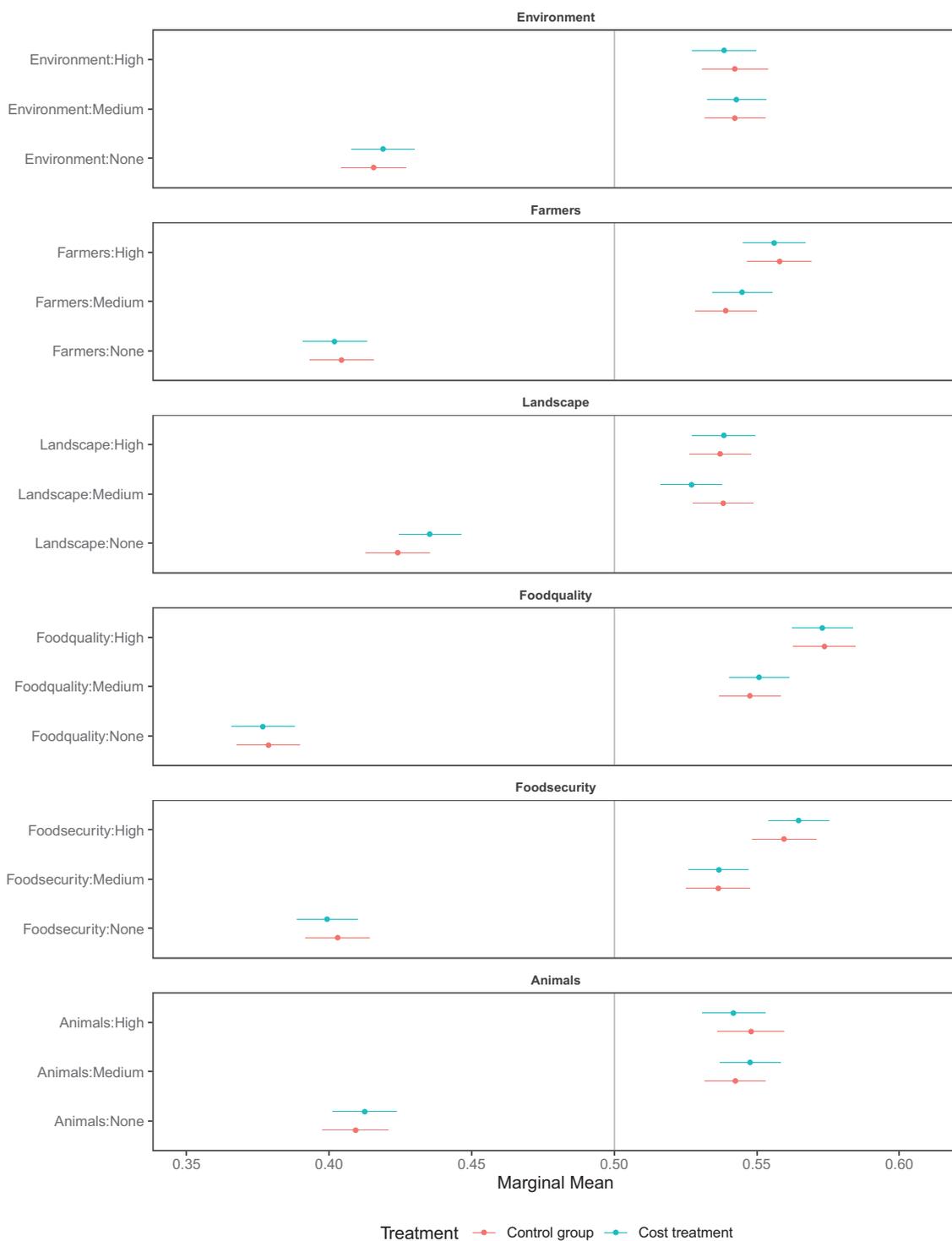


Figure 4. Marginal means for all conjoint attributes by cost prime assignment (US sample).

efforts in a certain policy target, such as increasing support for small farmers from medium to high, generally does not generate more public support for the policy proposal.⁵ It rather seems that as long as some

⁵There is one exception: In the Swiss sample, high level of animal protection generates a statistically significant higher level of support for the policy proposal than a medium level of animal protection.

support is provided it does not matter whether this is a high amount or just a medium amount. Overall, these findings lend empirical support to Hypothesis 2, namely that support for agricultural protection arises due to its multi-functionality in that citizens strongly value the non-material aspects of agricultural policy. As a robustness check, we conduct the same analysis using the rating task. The results (Figures A1 and A2 of the Appendix) are consistent with the analysis based on the choice task.

Finally, we examine whether learning about the financial costs of agricultural protectionism influences the importance of the policy targets on respondents' policy choice. This allows us to evaluate which of the two arguments might be more important in practice. If the financial costs (and the lack of information thereof) were to outweigh considerations about the multi-functionality of agricultural subsidies, then we should observe the AMCEs of the conjoint attributes to be smaller in size among respondents who received the priming treatment about the costs that farm subsidies incur to society writ large and to their own pocketbooks. Following Leeper, Hobolt, and Tilly (2020), we estimate the marginal means of each conjoint attribute level for each subgroup to compare whether respondents who received the cost framing and those who did not differ in their evaluation of agricultural policy.⁶

Figure 4 plots the results for the American sample and Figure 5 presents the results for Switzerland. As indicated by the overlap of the confidence intervals, there are no statistically significant differences between respondents who are informed about the costs of farm subsidies and respondents from the control group who did not receive this information prior to completing the conjoint tasks. These findings, thus, lend further support to the argument on the perceived multi-functionality of farm subsidies on citizens' support. Unlike many other policy issues where we observe cost considerations to play a significant role in determining public support (e.g., Bechtel and Scheve 2013), mass attitudes toward agricultural subsidies do not seem to be strongly driven by cost considerations but rather by the multiple (non-material) functions this kind of protectionism is believed to achieve.

To what extent do these findings vary across different societal groups? As shown in Table 4, a number of individual socio-demographic characteristics and value perceptions have a statistically significant effect on respondents' views about the level of farm subsidies. In order to examine heterogeneous treatment effects, we therefore conducted a number of relevant subgroup analyses accounting for respondents' gender, education, and income levels, respondents' personal attachment to and experience with the agricultural sector as well as their perceived

⁶According to Leeper, Hobolt, and Tilly (2020), it is important to rely on marginal means instead of average marginal component effects because differences in support levels in the subgroups might differ and can make any evaluation relying on relative comparisons futile.

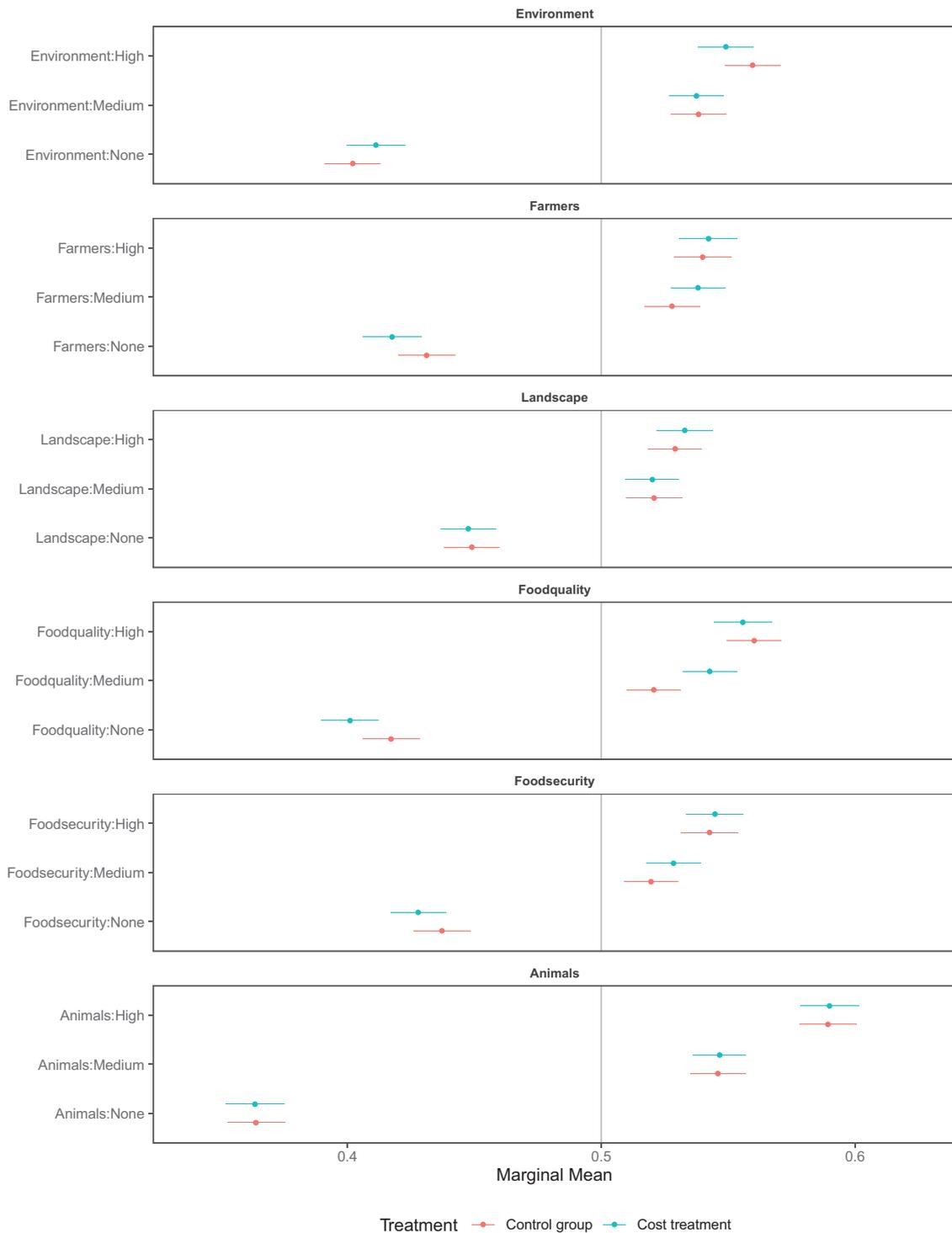


Figure 5. Marginal means for all conjoint attributes by cost prime assignment (Swiss sample).

economic insecurity, inequality level, nationalist, and traditionalist sentiments. The results are shown in subsection 6.2 of the Appendix (Figures A3 to A22). With very few exceptions, the findings indicate a remarkable level of treatment homogeneity across different societal groups.

Discussion

Despite agriculture's modest macro-economic relevance in terms of employment and share in national economic output in most of today's advanced industrialized economies, many of these countries consistently provide high levels of government subsidies to this sector. In many cases, these subsidies implicate a significant income transfer from consumers and taxpayers to agricultural producers. The most common political economy explanation for this policy choice relies on Olson's theory of collective action. High per capita/farm economic stakes as well as homogeneous interests and rather small group size motivate and enable farmers to organize politically and push policymakers toward choices that serve agricultural interests. The cost implications of agricultural subsidies are imposed on consumers, who then pay higher than world market food prices, and taxpayers, whose taxes are used for farm support programs. Because the cost implications per consumer or taxpayer are (relative to farmers' policy benefits) small, their interests heterogeneous, and group size very large (essentially the population of the country), they absorb these costs without putting up much political resistance.

While the Olsonian logic offers convincing arguments for why (utility maximizing) farmers seek subsidies, it is less convincing with respect to why citizens would accept to foot the bill and the large income transfer that comes with it. A number of surveys shows that a majority of citizens in most industrialized countries either do not mind the high levels of agricultural subsidies or even support them (e.g., European Commission 2016). In this paper, we offer two explanations for this puzzling observation. The first questions whether citizens indeed understand the scale of agricultural subsidies and thus the income transfer from consumers/taxpayers to farmers as a result of farm subsidies. The second explanation challenges the idea that the value function of consumers and taxpayers is one-dimensional, i.e., exclusively determined by the costs of subsidies. Instead, we argue that agricultural policy (in principle) serves multiple purposes from environmental protection to food security. This multi-functionality allows very different types of citizens to consider agricultural policy to be in their interest and thus results in a very broad coalition in support of farm subsidies.

Our empirical analysis provides strong support for the latter and little support for the first argument. Concerning the cost implication argument, our results show that in Switzerland, where each Swiss taxpayer pays on average US\$ 400 per year to Swiss farmers, the national total being US\$ 2.7 billion, exposure to (high) cost implications of subsidies does not reduce support below the threshold of status-quo maintenance. In the United States, where each American taxpayer pays on average US\$ 78 per year to US farmers, the national total being US\$ 11 billion, exposure to information on the cost implications has no significant effect at all. These results indicate that (non-)awareness about the cost implications does not explain high levels of public support for agricultural subsidies. Moreover, the very nature of the

cost information itself makes it very unlikely that the economic stakes per citizen/consumer are too low to matter to them.

In contrast, the results from our choice-based experiment show that all of the six types of benefits that agricultural subsidies aim to generate, including those that benefit farmers and not society overall, have a strong effect on support, with rather small differences between the different types of benefits. Overall, these findings demonstrate that in both countries the majority of citizens is willing to pay for agricultural subsidies at current levels, based on the broad public consensus about the multi-functionality associated with these subsidies. This means that not only are farmers probably very successful in lobbying for an income transfer in their favor, in line with an Olsonian logic of collective action, but a majority of citizens seems quite satisfied with this situation, although maybe for different reasons, varying from environmental and landscape protection to animal welfare and food security.

An interesting question that arises in light of these findings is whether our argument also applies to other sectors or to other country contexts. With respect to the application of our argument to other sectors, we believe that, in principle, the multi-functionality logic can be extended to any sector that can credibly claim to generate various desirable benefits to society and therefore considered to be deserving of protection. One example that comes to mind is the energy sector, which beyond its alleged positive role to economic output and job security also claims to contribute to national security by guaranteeing a society's energy security. Nevertheless, to what extent this logic is applicable to other sectors in practice, as demonstrated for the agricultural sector in this study, is in our view more of an empirical question for future research.

We consider the agricultural sector as a prime example for which our argument should hold, namely a sector that is highly subsidized in most industrialized countries, and which can credibly claim to serve very different functions thereby achieving a broad societal support coalition, but it is likely not the only example. Furthermore, whether our results imply that agriculture is therefore special, is somewhat outside the scope of this article. Since our experimental design only focuses on variation within the support function for agricultural subsidies, we cannot make statements as to whether agriculture is indeed different. To examine the potential uniqueness of agriculture compared to other sectors requires a research design that allows for comparison across different sectors. We hope, however, that our study serves as an important first step toward a more general research agenda.

Moreover, another interesting avenue for future research to which our study points to is concerned with public opinion about agriculture in developing countries. Examining public attitudes toward agricultural protectionism in two advanced industrialized economies, we argue and find that the perceived multi-functionality of the agricultural sector is a key driver of public support for farm subsidies. While this logic may operate in a similar fashion for other sectors, we warrant that our argument is limited to country contexts in which a considerable level of subsidies for

the relevant sector already exists. As far as the agricultural sector is concerned, this is true mainly of industrialized countries. Yet, we see at least two aspects in which our study could be complemented.

First, it would be interesting to see how the high level of protectionism affects public opinion (toward agriculture and/or toward industrialized countries more generally) in developing countries. Based on Jensen et al. (2014), who argue that public opinion toward agriculture partly depends on how politicians frame their domestic policy vis-à-vis other countries, it would be interesting to see what (adverse) consequences high subsidy levels in industrialized countries have on how citizens in developing countries view industrialized countries more generally and whether this then leads to higher demands for more protectionism in these countries as well.

Second, in our conjoint experiment we only focus on the various benefits agriculture seeks to deliver to the respondents' own society. However, these benefits can have negative externalities for farmers in other, mostly developing, countries. Hence, while we make (parts of) our respondents aware of the fact that agricultural protectionism comes at economic costs for them personally, we do not highlight any additional costs, such as for farmers in third countries. This could potentially alter our results and reduce the support for such subsidies thus constituting another avenue for future research.

Building on this last aspect, we want to emphasize that while our findings suggest that the multi-functionality of agriculture in part explains widespread support for agricultural subsidies despite the (obvious) economic costs it incurs, we do not claim that agricultural subsidies only deliver positive outcomes for society. As noted in the introduction, the high subsidies for agriculture in industrialized countries have several negative consequences, which go beyond the pure economic costs of the subsidies. These include, among others, higher prices for consumers in industrialized countries and the negative consequences for farmers in third countries. In addition to these obvious negative consequences, there are negative externalities, which might even be reinforced by agriculture being considered multi-functional. For example, high commodity prices, such as those in Switzerland, can encourage farmers to apply more fertilizer than in other countries, to boost yields as much as possible thereby leading to less, not more environmental protection. Consequently, while landscape and environmental protection is a key goal of agricultural subsidies, peculiar economic incentives of such subsidies might lead to even more environmental degradation. This aspect, in our view, underlines the importance of our research question in order to obtain a better understanding of why support for agricultural subsidies is so high among the general public in industrialized countries despite the many costs associated with it.

Finally, our findings also offer some implications for policymaking. While our study design does not allow for empirically grounded suggestions on how exactly governments could overcome resistance by farmers to particular agricultural policy reforms, it does show that obtaining public support for various alternative

agricultural policy designs seems possible. For example, several environmental problems, from biodiversity loss to water pollution, are related to the way the agricultural sector is governed and operates. For instance, in the context of biodiversity, it is often proposed, as currently in many German federal states, that farmers should be obliged to reserve a certain proportion of their land to “nature” so that plants and animals can find areas to recover. While it might be hard to convince farmers to follow such policies without providing additional subsidies, our results suggest that citizens, i.e., those who in the end would need to pay for such policy support, would most likely support such subsidies.

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