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Abstract

The 2014 CAP introduced the Small Farmers Scheme (SFS), offering small farms the option of an unconditional annual lump-sum payment per farm replacing the standard first pillar direct payments. This paper assesses the acceptability in France of an extended version of the 2014 SFS for the post-2020 CAP: it includes conditions on farmers' environmental efforts and on salaried employment. The results of a discrete choice experiment conducted at the scale of France with 608 farmers receiving less than 15,000€ in first pillar payments show that an SFS with an environmental certification prerequisite is attractive to French small farmers, notably in the market gardening sector. We provide simulated results of the uptake rate and budgetary impacts of different SFS scenarii on the population of non-retired French farmers based on the last agricultural census.

Key words: CAP, small farms, Discrete choice experiments

JEL codes: Q18

1. Introduction

The post-2020 Common agricultural policy (CAP) is expected to be in place in January 2023. The nine common objectives of the new CAP include environmental care, ensuring a viable income for European farmers, promoting employment and local development in rural areas, and simplifying the CAP by reducing bureaucracy for beneficiaries and administrative services. A new partnership between the EU and its Member States is being proposed: it puts more emphasis on delivering results and less on ensuring compliance with detailed rules set at the EU level. This so-called "new delivery model" is founded on the requirement that each Member State draws up a National Strategic Plan based on a needs assessment, mapping the CAP objectives it wants to address, describing its intervention strategy and quantifying the results and impacts it intends to reach.

France published its assessment and prioritisation of needs in February 2020 after several months of consultation with stakeholders and regional authorities. Several regions have pointed at the need to rethink the system of per-hectare direct payments in order to increase the financial support provided to farms with a high labour-to-land ratio and to small farms providing environmental services and local food. This echoes a larger movement in France, initially launched by a farm union (Confédération Paysanne, 2016) to defend the interests of a peasant agriculture model, based on small-scale, highly innovative, agro-ecological farms. A number of environmental NGOs, both in France and at the European level, argue that small farms can play a key role in accelerating Europe's agro-ecological transition and must therefore be better taken into account in Europe's agricultural policies.

Scientific evidence on the small farm sector's contributions to sustainable development is sparse. The literature indicates that small farms provide non-marketed public goods and services. They preserve landscapes and biodiversity because they usually adopt more diversified production systems (Tisenkopfs et al., 2020; Zasada, 2011). They also use less intensive techniques and substitute additional labour for chemical inputs and land (Lecole, 2020; Birol et al., 2006; Schmitzberger et al., 2005; Potter et Lobley, 1993), thus displaying higher employment rates per unit of land and lower environmental impacts (European Parliament, 2014). Public opinion has also expressed its growing distrust of intensive farming systems and a desire for higher incomes for peasant farms (Ecorys, 2017).

The question of whether small farms should be better supported by the CAP (and, if so, how), has hovered over previous reforms. The 2014 CAP marked a turning point by introducing the option for Member States of a redistributive payment (corresponding to a higher per-hectare payment for the first hectares of each farm) and a Small Farmers Scheme (SFS). The SFS was proposed by the Commission as part of the CAP's simplification effort and as a way to facilitate CAP payment access to small farm-holders. The principle was to replace all first pillar direct payments with a lump-sum payment to voluntary farms, independent of their size, production or location. Its objective was mostly to redistribute a small income to farmers (capped at 1,250€/farm/year) without obliging them to deal with all the administrative burden and controls associated with CAP declaration and cross compliance conditions (European Commission, 2016). Farmers join the scheme on a voluntary basis: it is governed by a self-selection process since larger farms will prefer to maintain the more advantageous per-hectare

payment system. According to the European Court of Auditors (2016), the SFS has reduced the administrative burden for small farmers in countries where the scheme was offered. The SFS was not chosen by France but was activated by 14 other Member States including Germany, Italy, Portugal and Romania (European Commission, 2017).

The reasons why France did not activate the SFS in 2014 have not been publicly disclosed but it is clear that the 1,250€ cap on the lump-sum payment would have only allowed enrolment by the smallest of the small farms, mostly part-time or retired farmers, whose contribution to public goods is uncertain (Lécole, 2017; Geniaux et al., 2010; Knowler and Bradshaw, 2007; Schmitzberger et al., 2005). However, the post-2020 framework allows Member States to adjust their strategy and policy instruments in order to attain their stated objectives. The trilogues between the European Parliament, the European Commission and the Council of Agricultural Ministers that took place in the summer of 2021 seem to be moving towards an application of the SFS that is Member-state specific. As of August 2021, the national strategic plans are not finalized. The final choices of Member States in terms of SFS application rules, including those of France, are not known yet.

An SFS with additional conditions and higher payments (henceforth SFS+) is a policy instrument deserving of attention: if well-designed, it can help to maintain or enhance the income of small-scale farmers and encourage them to engage in an environmental certification and to create wage jobs. This could contribute to the attainment of the French government's agro-ecological objectives.

The scientific objective of this paper is to measure the willingness of small French farmers to join an SFS+ for the post 2020 CAP and to measure in monetary terms their relative preference or aversion for attached conditions on environment and employment. For this purpose, a Discrete Choice Experiment (DCE) was designed with the policy objective to provide guidance to French policy-makers designing the CAP National Strategic Plan on the feasibility and costs of such a scheme, as well as on the type of small farmers, who would be interested in enrolling.

We show that an SFS+ should stipulate an environmental practice as a condition of eligibility. Indeed, many farmers indicate that they prefer an SFS+ imposing an environmental condition. Even farmers who do not currently meet the environmental condition presented in our DCE indicate that they would be prepared to meet it. On the contrary, adding an employment condition is not popular, as this could be quite constraining for some farmers, who would require a much higher lump-sum payment to agree to it. Finally, although it would be desirable to prevent farmers from switching from one system to another every year, it could be quite costly to require them to commit to the SFS+ for four years.
Section 2 describes the methodology. Section 3 presents the surveyed sample and essential descriptive statistics, Section 4 provides an econometric analysis of the results and Section 5 proposes policy simulations on the population of all non-retired French farmers. In Section 6 we discuss some results and make policy recommendations. Section 7 concludes.

2. Methodology: Discrete Choice Experiment

A Discrete Choice Experiment (DCE) is a stated-preference method used to assess individuals' preferences in hypothetical situations (Louviere et al., 2000). The DCE approach is a well-established methodology in economics, in line with Lancaster's theory of consumer choice (Lancaster, 1966). Since the seminal work by Ruto and Garrod (2009), this methodology has been widely used to study farmers' preferences regarding agri-environmental contract characteristics. Its interests and limits are not detailed here but can be found for example in Hanley et al, (1998) or Colen et al., (2015). We conduct a DCE to estimate ex-ante the values that farmers place on specific characteristics of different SFS+, henceforth called 'programmes'. Our DCE describes these programmes in terms of a number of characteristics or 'attributes'. The extent to which a farmer values a programme is expected to vary as a function of the 'levels' of the attributes. The DCE method allows us to explore the relative importance to a farmer of each attribute of the programme, that may influence his decision to switch to an SFS+.
Section 2.1 describes the attributes and their associated levels. Section 2.2 presents the experimental design. The econometric modelling of farmers' choices is described in Section 2.3.

2.1 Attributes and levels

Our DCE was pre-tested with 10 targeted interviews of farmers from different parts of France and with a face-to-face pilot study of 30 respondents. This process allowed us to adjust and improve the survey, as recommended in Henscher et al., (2015).

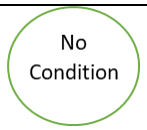
There are different versions/programmes of the SFS+, which we want to test. Each programme is characterised by four attributes summarised in Table 1. The first three attributes describe conditions to qualify for the SFS+: an environmental condition, an employment condition and a commitment condition. The fourth attribute is the monetary attribute of our DCE. This is an annual lump-sum payment independent of the size of the farm, its type of production or its location. It replaces all first pillar direct payments that the farmer could get. However, the farmer can still get the second pillar payments in addition to the lump-sum payment of the chosen programme.

The objective of the environmental condition is to guarantee that only farmers making a certified effort toward more environmentally-friendly agricultural practices are eligible for the programme. There are only two levels for this attribute. Level 0 indicates that the programme does not include any environmental condition, just like the CAP 2014 SFS. For Level 1, only farmers who have an environmental certification recognised by the French Ministry of Agriculture are eligible. Eligible environmental certifications include Organic Farming and High Natural Value certifications as well as other regional certifications (officially recognised by the French Ministry of Agriculture) covering different types of production systems. These certifications are quite heterogeneous in terms of their environmental requirements, with the organic farming label by far the most demanding one. It may be considered unfair to equally reward labels that do not require similar levels of environmental effort. Indeed, the purpose of imposing an environmental condition is to create a dynamic in favour of more agro-ecological practices, not to reward environmental benefits per se. We want to encourage farmers

to engage in a process of certified environmental improvement, even if it is not very demanding. We have chosen to include only certificates recognised by the French Ministry of Agriculture in order to reduce red tape and because they are easy to control, since farmers will only need to present their certificate to prove that they meet the environmental condition (Level 1). As meeting this condition presents an additional constraint, we expect a negative impact of the environmental condition (Level 1) on the probability of a farmer choosing the programme.

The objective of the employment attribute is to guarantee that only farmers who create or maintain paid jobs (even if only part-time) on their farm are eligible for the programme. There are three levels of this employment attribute. The "no employment" condition is Level 0 and corresponds to the 2014 SFS. Level 1 corresponds to a "low" level employment condition requiring that farmers employ at least the equivalent of two full months per year of either permanent or temporary staff. The two full month minimum can be reached by adding up several short-term contracts of different workers. The objective is to encourage farmers who need a labour force on a seasonal basis to recruit instead of overworking themselves and/or their spouse or other family members. Level 2 carries a "high" level employment condition, which requires that permanent employment on the farm reach at least the annual equivalent of 30% of a full-time position. This is a way to encourage permanent hiring, including of family-based labour. We expect a negative sign for both the low and high employment condition parameters (Levels 1 and 2) since they represent constraints. Of course, we expect the high employment condition (Level 2) to have a stronger negative impact than the low employment condition (Level 1).

Table 1 : Description of the attributes and their levels

Attributes	Levels	
Environmental condition (*envir*)		Level 0: No environmental condition attached No control
		Level 1: Farmers must be certified with a sustainable farming label registered by the Ministry of Agriculture: several exist, by far the most demanding and well-known of which is the organic farming label
Employment condition (*empllo*) (*emplhi*)		Level 0: No employment condition No control
		Level 1 (low): Salaried employment on the farm must be the equivalent of at least 2 full-months per year (on a temporary or permanent basis)
		Level 2 (high): Salaried permanent employment must reach at least the equivalent of one third of a full-time position
Commitment condition (*4years*)		Level 0: The enrolment is annual. The farmer can return to the usual CAP support system the following year
		Level 1: The enrolment in the programme is for a minimum of 4 years
Lump-sum payment	**€/year**	1,250; 3,000; 5,000; 7,000

The commitment attribute has two levels. Level 0 corresponds to the standard annual commitment as it existed in the CAP 2014 SFS. At the end of each payment year, the farmer can return to the usual CAP support system and receive first pillar direct payments. In Level 1, enrolment in the SFS+ is for 4 years and the farmer cannot return to the usual CAP support system before the end of the 4-year commitment. The advantage of requiring a 4-year commitment from the viewpoint of the administration is that it prevents farmers from making opportunistic changes from one system to another, which creates an administrative burden and additional costs. Thus, it might be beneficial for CAP payment agencies to impose this condition. Yet farmers could see such a condition either as a constraint or as an advantage. Indeed, such a condition entails a two-way commitment: European authorities also commit to maintaining the programme (and providing the lump-sum payment) for 4 years. The advantage for a farmer of being registered for 4 years is that he will receive a guaranteed known payment for 4 years (provided he/she meets the other condition of the programme). However, farmers may be reluctant to commit to a programme for 4 years, especially if they plan to increase their eligible area and/or livestock,

and thus, to be eligible for higher first pillar direct payments in the coming years. We are therefore uncertain as to the sign of the parameter of this attribute. Some farmers may be willing to forego part of their lump-sum payment in order to participate in a guaranteed 4-year programme, whereas others may require a higher lump-sum payment to commit to such a programme.

Regardless of the commitment (annual or 4-year), if a farmer does not meet the conditions of the programme in a given year, he is warned that he will only receive a base payment set at 1,000€ for that year. If the farmer meets the programme conditions during the following year, then he will again be eligible to receive the programme's full lump-sum payment.

In accordance with feedback received in the preliminary interviews, we set 4 different levels of annual lump-sum payments for the monetary attribute (€/year): 1,250€; 3,000€; 5,000€; 7,000€. The lowest level (1,250€/year) corresponds to the 2014 SFS lump-sum payment. In our DCE, this amount is only associated with programmes that impose no environmental or employment condition on eligibility. Thanks to this monetary attribute, it is possible to determine a farmer's willingness to accept (WTA) for a given programme. The marginal WTA for a given attribute is defined here as the minimum monetary value that would be required to compensate for a unit change in the level of that attribute.

2.2 Experimental design

The different combinations of the attribute levels make up the set of possible programmes (called alternatives). The 2014 SFS corresponds to the alternative with no environmental condition (Level 0), no employment condition (Level 0), an annual enrolment (Level 0) and a lump-sum payment of 1,250€/year. We call this special alternative "programme 0".

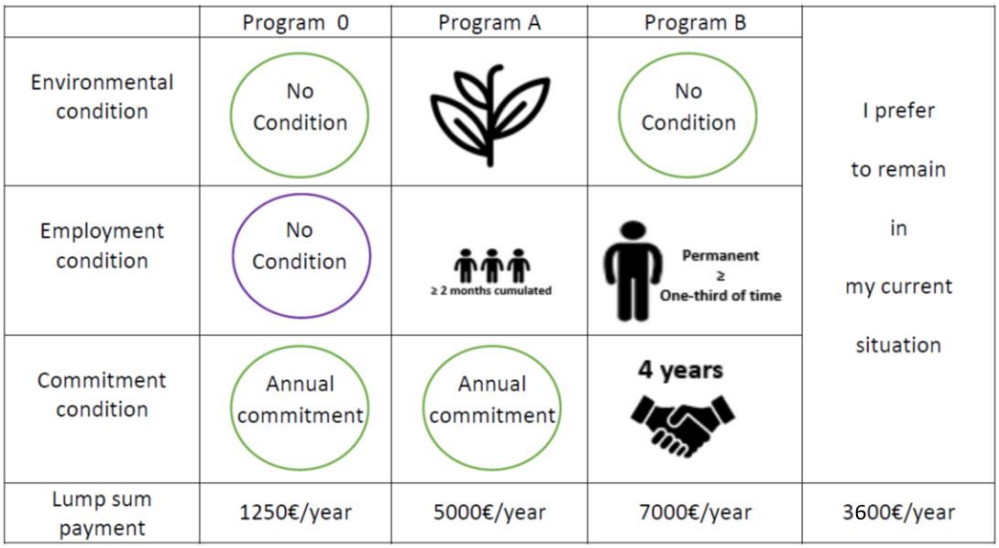
The different alternatives are grouped into choice cards, and different choice cards are successively presented to the farmers. Farmers are invited to choose their preferred programme from the alternatives proposed on the choice card. If none of the programmes is suitable for them, they can choose the status quo, i.e., their current situation (which corresponds to the first pillar direct payments, if they receive them). As shown in Figure 1, our choice cards include four options: first the 2014 SFS alternative (programme 0), then two different SFS+ alternatives that vary on each choice card in terms of attribute levels (programme A and programme B), and finally the farmer's status quo option, shown on the right hand side and identified by the sentence, "I prefer to remain in my current situation".

Note that in this DCE, the status quo option varies from one respondent to another. Indeed, each farmer in our sample gets a first pillar payment which varies from 0 € (for those who do not get any payments) to 15,000€ (see justifications in Section 3.1). In addition, we take into account the fact that some farmers may already meet one or both of the programme conditions (environmental and/or employment), when coding the status quo.

There are two reasons why we included programme 0 on each choice card. Firstly, we were particularly interested in this special programme corresponding to the 2014 SFS since it is open in some European

countries but not in France. Secondly, programme 0 is present on all choice cards for a strategic reason. If it was not proposed on each choice card, a respondent interested in an SFS+ but who knows that he or she will not respect the conditions could be led to choose programme A or B to receive at least 1,000€ without meeting any condition (except perhaps the commitment condition). Our data would then be of a lesser quality.

Figure 1: Example of a choice card



We used ©NGene to build an efficient fractional design (by selecting priors on the signs of attribute parameters, based on our pilot study with 30 respondents). Our design minimizing the D-error is composed of three blocks of eight choice cards. The respondents were assigned randomly to one of the three blocks and had to fill out eight choice cards. The order of the choice cards presented to each respondent was randomized.

2.3 Model specification

The random utility theory provides the microeconomic basis for discrete choice experiments. The indirect utility (U_{nit}) a farmer n obtains from choosing an alternative i in choice card t, is made of an observed component (V_{nit}), the deterministic part of the utility, and a random (unobserved) component (ε_{nit}), a stochastic error term, such that:

$$U_{nit} = V_{nit} + \varepsilon_{nit}$$

Farmers choose the alternative providing the highest expected utility for them. Thus, the probability that farmer n will choose alternative i over all other alternatives j on choice card t can be expressed as:

$$P_{nit} = Prob(V_{nit} + \varepsilon_{nit} > V_{njt} + \varepsilon_{nit}) \; \forall j \neq i$$

The conditional logit model is widely used to estimate parameters from the DCE. However, this model assumes the independence of irrelevant alternatives (IIA) and the homogeneity of all the attribute coefficients across the respondents. To relax this assumption and allow for preference heterogeneity

across farmers, we use the mixed logit (ML) model (McFadden et al., 2000).[1] The ML model allows us to estimate an individual-specific β-coefficient. The utility that farmer n obtains from choosing alternative i in choice card t can be written as:

$$U_{nit} = \beta_n \mathbf{X}_{nit} + \varepsilon_{nit}$$

where $\mathbf{X}_{nit}$ refers to the vector of the attribute levels and β_n represents their associated marginal utility for each farmer n. The error term ε_{nit} is assumed to follow an extreme value type 1 distribution (Gumbell-distribution) and observed choices are analyzed to estimate the coefficients. Vector $\mathbf{X}_{nit}$ can also include different alternative specific constants (ASCs). For example, in the following estimations we consider the ASC dummy variable ASC_prog0, which takes the value "1" in the programme 0 alternative, and "0" otherwise, but also the ASC dummy variable ASC_AB, which takes the value "1" in the programme A and B alternatives, and "0" otherwise. A statistically significant positive coefficient associated with one of these ASC dummy variables indicates a preference for the designed alternative(s).

In our DCE, the monetary attribute is the amount of the lump-sum payment given to the farmer for enrolling in the programme, so the farmers' average marginal willingness to accept (WTA) for attribute x is given by:

$$WTA_x = \frac{-\beta_x}{\beta_{payment}}$$

where β_x and $\beta_{payment}$ are the mean parameters associated with attribute x and the lump-sum payment attribute, respectively.

3. Survey and data

3.1 Questionnaire structure and survey dissemination

We designed an online questionnaire (with the software ©LimeSurvey) targeting farmers receiving payments between 0€ and 15,000€ from the first pillar. The questionnaire was divided into three parts. The first part gathered information on CAP direct payments received by respondents and on their current situation regarding environmental certification and employment statistics. Farmers declaring first pillar direct payments above 15,000€ were invited to quit the survey. Indeed, we made the assumption that no farmer getting more than 15,000€ would be willing to trade his current situation for an extended small farmers scheme offering a maximum lump-sum payment of 7,000€, even with promises of less administrative work and no conditionality.

The second part of the survey was dedicated to the choice experiment questionnaire, which consisted of eight choice cards presented to respondents. The presentation of attributes to respondents was done step-by-step and also included questions on their present situation regarding their compliance or non-compliance with the conditions presented in the environmental and employment attributes. The last part

[1] The conditional logit estimation and the Hausman test conducted on our data justify the choice of the mixed logit model. Results are available upon request.

of the survey included follow-up questions to identify protest answers, as well as questions on the social and economic status of respondents. The socioeconomic questions (age, education level and department) are mostly used to test the representativity of our sample, in relation to the entire French population of farmers receiving less than 15,000€ in first pillar direct payments. These variables are also useful to check whether certain contract preferences are linked to farmers' individual characteristics.

The first part of the questionnaire is essential in order to properly define the status quo. Indeed, we need to know how much each respondent receives from the first pillar to calibrate his status quo situation. For those declaring no CAP direct payments whatsoever, the monetary attribute value of their status quo was set to zero. For those who declared that they received CAP direct payments but were not able to state the exact amount received from the first pillar[2], we proposed that they identify the value range within which they believed their first pillar CAP direct payments to be. For respondents who were unable to state the range of payments, we included in the survey a series of questions on land use, types of production, herd size, and young farmer status and used an integrated algorithm to roughly estimate the corresponding first pillar direct payment. This information was then returned to respondents, "We've estimated your first pillar direct payment amounts to be approximately "*X*€". All choice cards were customized so as to clearly indicate the amount received by the respondent in the status quo situation.

The survey was distributed to French farmers by e-mail between March and July 2020, through various channels: we contacted farmers' associations (such as the AMAP network[3], mainly dedicated to the small farm sector) and two national farm unions (*Confédération Paysanne*, member of Via Campesina, and *Jeunes Agriculteurs*), with a short explanatory text to present the survey and indicate that it was aimed at farmers receiving less than 15,000€ in first pillar direct payments. The survey was also advertised in specialised journals for farmers such as "*La France Agricole*".

3.2 Characteristics of the sample

More than 1,000 farmers began responding to our online questionnaire and 617 respondents completed the eight choice cards. 80 respondents always chose the status quo. Out of those 80 respondents, we eliminated four of them because they indicated that they had not understood the proposed choices, and five of them as "protest no's", since they justified their choices in the follow-up question by indicating that they did not wish to get payments from the CAP, whatever the amount proposed, or because they rejected the principle of a small farmers scheme. Our final sample consists therefore of 608 respondents from all regions of France, of which only 2% are retired farmers. The socio-economic and production characteristics of our sample are different in proportion to what can be inferred of the population of French farms receiving less than 15,000€ of direct payments (excluding retired farmers). The comparison is made difficult by the absence of up-to-date data on small farms in French statistics. The

[2] From our preliminary interviews, it has become clear that many small farmers have only a rough idea of the difference between first pillar and second pillar payments and, since payments are made in two annual installments, they are not fully aware of the amounts they've received.

[3] http://www.reseau-amap.org/amap.php

latest agricultural census dates back to 2010 and the annual FADN survey does not include farms with a standard output that is less than 25,000€ per year. As

Table 2 indicates, the most flagrant bias is an over-representation in our sample of organic farms, young farmers, and market gardeners.

Table 2 : Descriptive statistics of French farms with first pillar direct payments of less than 15,000€

French farms with first pillar direct payments < 15,000€	Our sample: 608 farmers	2010 agricultural census*: 222,398 farmers
Total utilised area /farm	17 ha *(26.8)*	19 ha *(17.9)*
Direct aid /farm	2,700€ *(3,932)*	4,600€ *(4,715)*
Organic farms	81%	9%
Market gardeners	39%	6%
Fruit orchards and vineyards	20%	30%
Breeders	35%	45%
Crop farms	6%	20%
Age < 40 years	41%	20%
% of farmers with higher education	75%	29%
% of farmers working full time	79%	53%

**Figures and percentages are calculated on the basis of the 2010 census, excluding retired farmers. Direct payments are estimated with the algorithm used in our survey (2014 CAP rules for direct payment calculation) but with 2010 production and surface data. Standard deviations are in brackets.*

Intuitively, we expect that respondents' choices can be explained for the most part by their status quo situation: the amount of direct payments received in their current situation, and whether or not they already meet the environmental and employment conditions stipulated. Table 3 summarises the number (and %) of respondents fulfilling the conditions for various ranges of status quo direct payments. We consider four subsamples regarding this variable: farmers who do not receive any first pillar payments (35% of our respondents), farmers who receive less than 1,250€ in first pillar direct payments (24%), farmers who receive between 1,250€ and 7,000€ (25%) and finally farmers who receive more than 7,000€ in first pillar direct payments (16%). We have excluded farmers who receive more than 15,000€ in first pillar direct payments. The first threshold of 1,250€ corresponds to the programme 0's lump-sum payment, and the second threshold corresponds to the highest lump-sum payment proposed in our DCE.

Table 3 can be compared to
Table 4 showing the percentage for the overall population of French farms receiving less than 15,000€ in first pillar direct support (excluding retired farmers). The 2010 French agricultural census does not include information on CAP payments, so we estimated the first pillar direct payment of each farmer using the same algorithm as in our survey.

Table 3: Number (and %) of respondents fulfilling the conditions according to status quo first pillar payments

Range of first pillar direct payments in euros (status quo)	0	]0; 1,250]	]1,250; 7,000]	]7,000; 15,000]	**Total**
No condition fulfilled	31	11	13	17	**72 (12%)**
Environmental condition fulfilled (only)	132	85	81	33	**331 (54 %)**
Low employment condition fulfilled (only)	4	1	5	4	**14 (2 %)**
Low and high employment conditions fulfilled (only)	4	1	2	4	**11 (2 %)**
Environmental and low employment conditions fulfilled (only)	20	23	24	17	**84 (14 %)**
Environmental condition and both employment conditions (low and high) fulfilled	22	27	25	22	**96 (16 %)**
TOTAL	**213 (35 %)**	**148 (24%)**	**150 (25%)**	**97 (16%)**	**608**

The comparison shows that the proportion of French farms that do not fulfil any conditions is very high compared to our sample (70% against 12%). However, note that the proportion of 70% is overestimated, due to the fact that only the organic label certification is registered in the census. We cannot identify the number of French farmers having other environmental certifications. Consequently, the proportion of farms complying with the environmental condition is much higher in our sample (54%) than in the overall population (6%). The comparison also shows that employment conditions are proportionally more frequently met in the overall farm population (8% and 12%) than in our sample (2% and 2%).

Table 4: Estimation of the number (and %) of non-retired farmers fulfilling the conditions according to first pillar payments (data from the 2010 agricultural census, first payment calculations made with 2014 CAP rules)

Range of first pillar direct payments in euros (status quo)	0	]0; 1,250]	]1,250; 7,000]	]7,000; 15,000]	**Total**
No condition fulfilled	17,022	34,813	54,320	50,339	**156,494 (70%)**
Environmental condition fulfilled (only)*	1,120	3,081	4,696	3,979	**12,876 (6%)**
Low employment condition fulfilled (only)	4,396	3,840	5,026	4,770	**18,032 (8%)**
Low and High employment condition fulfilled (only)	7,706	6,278	6,956	6,007	**26,947 (12%)**
Environmental and low employment conditions fulfilled (only)	516	822	1,038	661	**3,037 (1%)**
Environmental condition and both employment conditions (low and high) fulfilled	1,361	1,270	1,468	913	**5,012 (2%)**
TOTAL	**32,121 (14%)**	**50,104 (23%)**	**73,504 (33%)**	**66,669 (30%)**	**222,398**

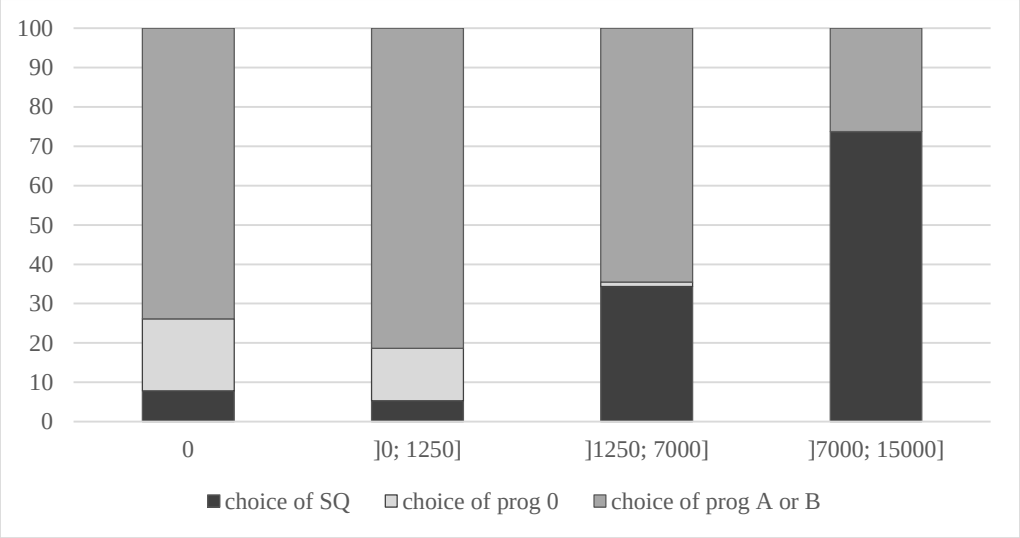
**The environmental condition concerns organic farming only. Other environmental certifications are not available in the agricultural census.*

4. Results

4.1 Mixed logit results

We expect that, when asked to choose between 2014 SFS option (programme 0), SFS+ options (programmes A or B) and their status quo situation (SQ), respondents will first compare the amount of CAP support they receive currently, with the amounts proposed in the experiment. Figure 2 shows respondents' choices according to their status quo first pillar direct payments.

Figure 2: Respondents' choices according to first-pillar payments



What we observe in Figure 2 is logical and reassuring. Programme 0 is almost exclusively chosen by farmers who receive less than 1,250€ in their status quo situation. We also see that the proportion of respondents who choose to remain in the status quo increases as their status quo payments increase. It should be noted that even farmers who currently receive more than 7,000€ sometimes choose (25% of the responses on average) one of the two SFS+ (programme A or B). This shows that at least some farmers would be willing to enrol in a simplified payment system with lower payments than their status quo payments. This is a first indication of farmers' preferences for a simplified lump-sum system.

As explained in Section 2.3, we use a mixed logit model to take into account farmers' heterogeneity of preferences. In Table 5, we present the mixed logit estimations for three specifications, each estimated on the whole sample: 608 farmers who have responded to eight choice cards with four alternatives resulted in 19,456 observations (608*8*4). The first specification (ML) includes no alternative specific constant (ASC). However, it is preferable to include an ASC to capture potential characteristics of the proposed programmes (0, A and B) which are not included in the attributes of the DCE but which may also weigh in the decisions to choose those alternatives rather than the status quo option. We add such a dummy (ASC_0AB) in the second model (ML_0AB). This ASC is equal to 1 for the three alternatives corresponding to programmes 0, A or B, and is equal to 0 for the status quo option. As we can see from Table 5, the coefficient associated to the dummy ASC_0AB is positive and highly significant, which means that on average farmers have a preference for the lump-sum payment programmes (0, A or B).

The ML_0AB specification is not entirely satisfying since programme 0 is a special programme in this choice experiment. First, it corresponds to the 2014 SFS with no conditions attached and with a relatively low lump-sum payment (1,250€). Second, programme 0 is a fixed alternative presented on each choice card. Therefore, in the last specification we choose to keep the reference to the status quo, but the ASC referring to the programmes is broken down by distinguishing an ASC for programme 0 (ASC_prog0) and an ASC for the SFS+, i.e., for programmes A and B (ASC_AB). ASC_prog0 is equal to 1 for the programme 0 alternative and 0 in all other cases. ASC_AB is equal to 1 for programmes A and B, and 0 both for programme 0 and for the status quo option. With this specification, we show that on average,

farmers prefer their status quo to programme 0: the coefficient associated to ASC_prog0 is negative and significant at 5%. However, we will show later in our analysis by sub samples that this result is not robust. There is strong heterogeneity on this dummy across the respondents. The positive impact of the ASC_0AB in the ML_0AB estimation is mainly due to a strong positive preference for programmes A and B: the coefficient associated to ASC_AB in ML_0_AB is positive and significant at 1%. In the rest of the paper, we will keep this last model (ML_0_AB) as our best specification for this DCE.

Regarding the results on attribute levels, Table 5 shows stable qualitative results across the different specifications. All the coefficients are significant at 1%. As expected, the sign associated to the lump-sum payment is positive. To obtain a bigger coefficient we have converted the variable payment in k€ (*kpayment*). The probability of a farmer choosing an alternative increases as payment increases.

The most striking result is the positive sign of the coefficient associated to the environmental attribute ($envir$). Programmes which include the environmental condition are preferred on average to programmes with no environmental condition. This somehow surprising result is essentially due to our particular sample. Indeed, as seen in Section 3, 81% of the respondents are organic farmers and 84% already fulfil the environmental condition. We could have expected farmers who already fulfil the environmental condition to choose to overlook this attribute (this would have led to a coefficient not significantly different from zero) but they actually do take it into consideration and their choices indicate their strong preference for programmes which impose the environmental condition to all farmers entering an SFS+.

For the employment attribute, the coefficients associated with the low and high employment conditions, $empllo$ and $emplhi$, respectively, are both negative, and the coefficient for the low level condition is lower than the coefficient for the high level condition (the most demanding level), the reference level having no employment condition. This is in line with what we expected.

Finally, Table 5 shows that, on average, farmers dislike the 4-year commitment ($4years$).

The lower part of Table 5 shows that the standard deviation of the mean coefficients are all significant, which means there is a large heterogeneity across respondents for all the attributes.

Table 5: Mixed logit results

	(1) ML	(2) ML_0AB	(3) ML_0_AB
Mean coefficients			
kpayment	0.676***	0.737***	0.641***
	(0.0191)	(0.0255)	(0.0250)
envir	1.345***	2.004***	1.793***
	(0.125)	(0.151)	(0.129)
empllo	-1.091***	-1.455***	-1.489***
	(0.159)	(0.173)	(0.155)
emplhi	-2.381***	-2.797***	-2.629***
	(0.168)	(0.188)	(0.166)
4years	-0.382***	-0.783***	-0.732***
	(0.0868)	(0.0938)	(0.0816)
ASC_prog0			-0.621**
			(0.287)
ASC_AB			1.976***
			(0.191)
ASC_0AB		2.756***	
		(0.241)	
S.D. of mean coefficients			
envir	2.434***	2.739***	2.096***
	(0.133)	(0.155)	(0.140)
empllo	3.190***	2.957***	2.624***
	(0.185)	(0.187)	(0.227)
emplhi	2.873***	3.074***	2.467***
	(0.190)	(0.195)	(0.163)
4years	1.361***	1.229***	0.844***
	(0.113)	(0.120)	(0.129)
ASC_prog0			3.210***
			(0.295)
ASC_AB			2.965***
			(0.174)
ASC_0AB		4.081***	
		(0.259)	
Observations	19,456	19,456	19,456
Nb. of farmers	608	608	608

*** p<0.01, ** p<0.05, * p<0.1; Standard errors in parentheses

4.2 Analysis of willingness to accept (WTA)

As explained in Section 2, we use the estimated coefficient of the monetary attribute to compute the average marginal WTA for the different attribute levels. The mean and the 95% confidence of the WTA shown in
Table 6 are calculated from the ML_0_AB results of Table 5.

Table 6: Average marginal willingness to accept (WTA) of the 608 farmers in our sample

	$envir$	$empllo$	$emplhi$	$4years$
Mean WTA (€)	-2,799	2,323	4,103	1,142
Lower confidence limit	-3,193	1,852	3,628	901
Upper confidence limit	-2,404	2,794	4,578	1,383

All the WTA amounts in Table 6 are significantly different from zero at a 95% confidence level. Across the whole sample, we find that, on average, respondents would be willing to pay 2,799€ (or equivalently willing to forgo 2,799€ per farm, per year) to join a programme that imposes the environmental condition, rather than an equivalent programme without the environmental condition. Remember that this counter-intuitive result mainly comes from the large proportion of respondents who already fulfil the environmental condition. On the contrary, farmers require 2,323€ (resp. 4,103€) to agree to enrol in a programme with a low-level (resp. high-level) employment condition. As seen previously, farmers do not like the commitment condition. They want to receive an extra 1,142€, on average, to commit to a 4-year programme instead of a programme based on a standard annual commitment.

4.3 Analysis of the heterogeneity

Many socio demographic variables may explain some of the heterogeneity of farmers' preferences for a simplified lump-sum payment system: age, education, type of production, location, etc. We have conducted several estimations to test the impact of these variables. As it is not easy to interpret interaction term parameters in mixed logit models (Ai and Norton, 2003), we conduct estimations on more homogenous subsamples. Our analysis shows that the most important factors explaining farmers' preferences are status quo payments and whether or not farmers already fulfil the environmental and/or employment conditions. Thus, in the remainder of the paper, we conduct estimations on subsamples based on these criteria[4]. Another reason for focusing on status quo payments and compliance is that these criteria seem more relevant from a public policy perspective than any socio-demographic variable. Indeed, the backbone of the 2014 SFS is simplification and self-selection since it is intended to be open to all farms on a voluntary basis, regardless of their type of production, size, or farmer characteristics.

We conduct mixed logit estimations on four subsamples, splitting our 608 respondents into four classes of first pillar payments (see Table 7). Most results on attribute levels stay qualitatively the same across the four subsample estimations ($envir$, $emplhi$, $4years$). Only $empllo$ is no longer significant for the subsample of farmers receiving more than 7,000€ from the first pillar. Contrary to the three other

[4] Results from sub-sample estimations (based on criteria such as types of production) are available upon request.

subsamples, on average these farmers are not sensitive to this attribute level. As expected, the strongest impacts concern the signs and values of ASC parameters. Farmers who receive less than 1,250€ in first pillar payments have a significant preference for both programme 0 and the SFS+, compared to their status quo situation. On the contrary, farmers receiving more than 1,250€ do not like programme 0 and farmers who receive more than 7,000€ have a strong preference for their current situation (the coefficient for the ASC_AB is negative and significant at 5% confidence level). However, since farmers who receive more than 7,000€ from the first pillar almost never choose programme 0 and very often choose the status quo, this specification with the two ASCs is not satisfactory for this sub-sample.

The positive sign of the *ASC-prog0* estimates for respondents who receive less than 1,250€ in their status quo situation indicates that they have a strong preference for the 2014 SFS. The average WTA for respondents who do not get any first pillar CAP payments is 2,300€ (1.1556/0.4893). This can be interpreted as the amount that the standard CAP system would have to offer to get them to renounce the 2014 SFS. The difference between 2,300€ and the 1,250€ associated with programme 0 is the monetary equivalent of their preference for the unconditional 2014 SFS compared to the standard per hectare payment of the existing CAP.

As already mentioned, the positive sign of the coefficient associated to the environmental attribute is related to the fulfilment of the environmental condition. Yet farmers who do not fulfil the environmental condition do not display any strong preference regarding this attribute (the coefficient is not significantly different from zero, see the first estimation of Table 8 and the first graph of Figure 3). This important result reveals that farmers are not discouraged by this condition, which provides strong arguments in favour of the overall acceptability of an SFS+ with an environmental condition attached to it.

Results are different for the employment condition (see the last four estimations of Table 8 and the last two graphs of Figure 3). Farmers who already fulfil the employment conditions (low or high) are indifferent. They are not particularly favourable to adding an employment condition, and those who do not fulfil employment conditions strongly reject it. This result indicates that imposing employment conditions on an SFS+ would be a risky policy option, susceptible to enrolling very few farmers.

Table 7: Mixed logit results on subsamples according to first pillar payments

	(1)	(2)	(3)	(4)
	0	]0; 1250]	]1250; 7000]	]7000; 15000]
Mean coefficients				
kpayment	0.489***	0.620***	0.731***	0.455***
	(0.0425)	(0.0630)	(0.0552)	(0.0800)
envir	1.515***	1.969***	2.053***	2.223***
	(0.197)	(0.269)	(0.270)	(0.411)
empllo	-2.038***	-1.668***	-1.609***	-0.546
	(0.255)	(0.391)	(0.258)	(0.353)
emplhi	-3.384***	-2.917***	-2.285***	-0.774**
	(0.338)	(0.378)	(0.292)	(0.345)
4years	-0.889***	-0.819***	-0.338**	-0.640**
	(0.131)	(0.190)	(0.152)	(0.294)
ASC_prog0	1.156***	1.815***	-3.353***	-22.97
	(0.347)	(0.528)	(0.751)	(18,022)
ASC_AB	3.687***	4.368***	0.499**	-1.718**
	(0.419)	(0.539)	(0.232)	(0.834)
S.D. of mean coefficients				
envir	2.169***	2.543***	2.122***	1.865***
	(0.229)	(0.334)	(0.302)	(0.433)
empllo	2.550***	3.135***	2.074***	0.885
	(0.291)	(0.437)	(0.308)	(0.837)
emplhi	2.801***	3.198***	2.132***	-1.164**
	(0.338)	(0.419)	(0.295)	(0.484)
4years	0.813***	1.340***	0.749***	1.007**
	(0.194)	(0.283)	(0.219)	(0.405)
ASC_prog0	2.709***	2.949***	2.642***	0.0572
	(0.311)	(0.483)	(0.630)	(18,217)
ASC_AB	3.009***	2.872***	1.868***	6.506***
	(0.309)	(0.427)	(0.269)	(1.117)
Observations	6,816	4,736	4,800	3,104
Nb. of farmers	213	148	150	97

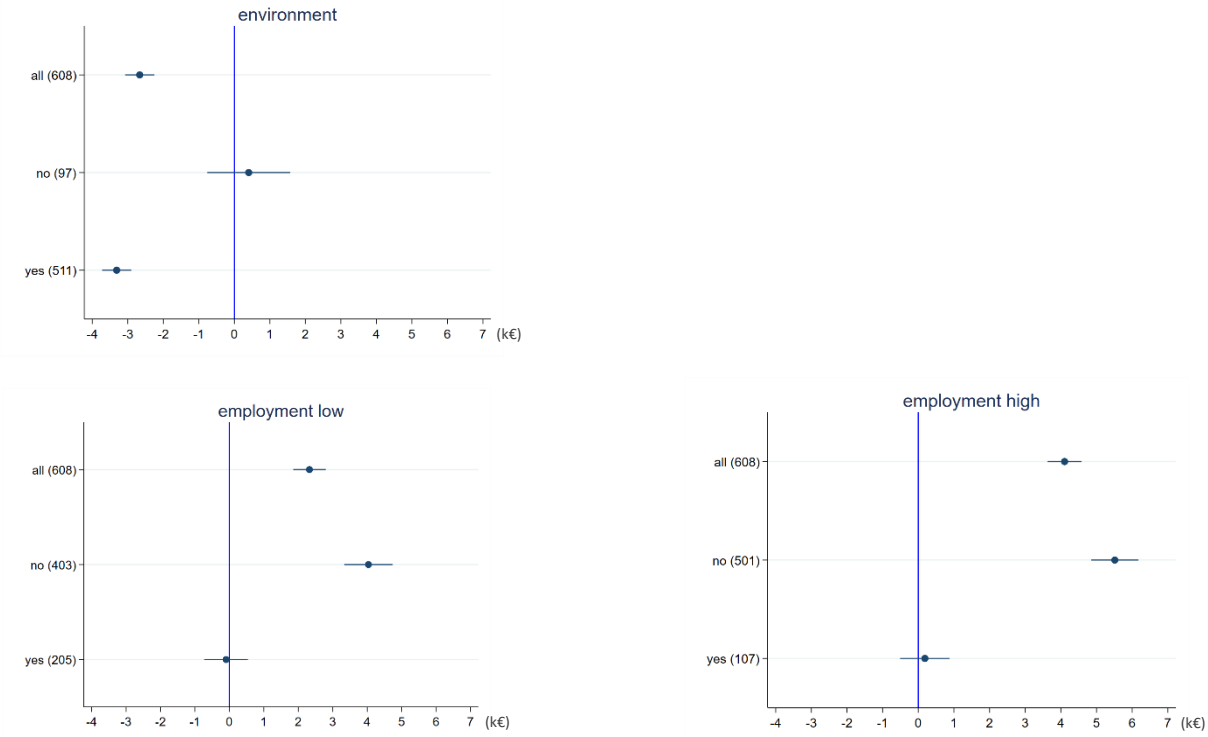
*** p<0.01, ** p<0.05, * p<0.1; Standard errors in parentheses

Table 8: Mixed logit results on subsamples according to whether or not environmental and employment conditions are fulfilled

	(1) envir_no	(2) envir_yes	(3) empllo_no	(4) empllo_yes	(5) emplhi_no	(6) emplhi_yes
Mean coefficients						
kpayment	0.616***	0.651***	0.652***	0.659***	0.635***	0.656***
	(0.0675)	(0.0278)	(0.0322)	(0.0431)	(0.0276)	(0.0617)
envir	-0.249	2.157***	2.005***	1.638***	1.806***	1.906***
	(0.372)	(0.137)	(0.164)	(0.203)	(0.150)	(0.294)
empllo	-1.832***	-1.564***	-2.633***	0.0634	-1.924***	-0.152
	(0.429)	(0.167)	(0.229)	(0.213)	(0.191)	(0.308)
emplhi	-3.346***	-2.619***	-4.403***	-0.650***	-3.503***	-0.121
	(0.560)	(0.179)	(0.303)	(0.178)	(0.225)	(0.233)
4years	-0.893***	-0.709***	-1.111***	-0.238**	-0.878***	-0.159
	(0.222)	(0.0883)	(0.118)	(0.117)	(0.0943)	(0.171)
ASC_prog0	-0.893	-0.121	0.756***	-0.998*	0.0246	-1.476
	(0.618)	(0.334)	(0.271)	(0.568)	(0.284)	(1.179)
ASC_AB	0.873	2.267***	2.622***	2.984***	2.246***	2.784***
	(0.545)	(0.194)	(0.221)	(0.451)	(0.197)	(0.671)
S.D. of mean coefficients						
envir	2.751***	1.935***	2.291***	2.002***	2.292***	2.029***
	(0.471)	(0.142)	(0.176)	(0.232)	(0.173)	(0.310)
empllo	2.513***	2.456***	2.976***	1.369***	2.816***	1.564***
	(0.459)	(0.196)	(0.270)	(0.249)	(0.262)	(0.373)
emplhi	3.128***	2.687***	3.273***	1.531***	2.960***	1.245***
	(0.609)	(0.202)	(0.322)	(0.206)	(0.232)	(0.242)
4years	0.652*	0.863***	1.000***	0.741***	0.879***	0.851***
	(0.365)	(0.121)	(0.158)	(0.175)	(0.137)	(0.270)
ASC_prog0	4.236***	2.908***	2.616***	2.031***	2.769***	-3.125***
	(0.804)	(0.322)	(0.311)	(0.601)	(0.302)	(0.987)
ASC_AB	3.456***	2.826***	3.044***	4.110***	2.964***	4.179***
	(0.592)	(0.207)	(0.216)	(0.401)	(0.181)	(0.757)
Observations	3,104	16,352	12,896	6,560	16,032	3,424
Nb. of farmers	97	511	403	205	501	107

*** p<0.01, ** p<0.05, * p<0.1; Standard errors in parentheses

Figure 3 : Graphs of WTA of environmental and employment conditions



5. Policy simulations on the French population of non-retired farmers

The objective in this section is to provide simulations of the uptake rate and associated public spending of different SFS scenario at the French scale. To do this, we first simulate enrolment decisions made by each respondent in our sample, and we then transpose our results, correcting for our sample bias, to the whole population of French farmers (excluding retired farmers)[5] using the 2010 agricultural census figures. We first present the results on enrolment rate and the additional cost of the 2014 SFS (Section 5.1). Next, we present comparable results on three selected hypothetical SFS+ (Section 5.2) and we make a proposal to finance the additional cost of an SFS+ (Section 5.3). Finally, we analyse the incentive effects of those three specific hypothetical programmes (Section 5.4).

5.1 Simulated enrolment in the 2014 SFS (programme 0)

We showed in Section 4 that farmers who do not receive any CAP payments have a strong preference for programme 0. We confirm this result with our policy simulations. The simulation of the enrolment in the 2014 SFS (programme 0) at the national scale is done in several steps from the results of our choice experiment.

[5] Given the very low proportion of retired farmers among our respondents, we had insufficient information on the choices of retired farmers. We therefore chose to estimate the rate of enrolment of French farmers excluding the retired farmers (408 000 farmers)

First, to calculate the rate of enrolment, we compare the status quo's utility to the utility of programme 0 for each respondent using individual estimated parameters from the mixed logit (3) ML_0_AB of Table 5. Indeed, even if the 2014 SFS does not imply any condition, we do not just compare the amounts received by a farmer, but the *utility* he derives from each scenario. 2.

The second step consists in correcting the sampling bias in order to extend our results to the estimated population of 222,398 French non-retired farmers (see Table 4) receiving less than 15,000 € in first pillar direct payments. In doing so, we assume that no farmer getting more than 15,000€ from the first pillar would enrol into the 2014 SFS. As explained in section 4.2, the main factors explaining farmers' choices to enrol into the 2014 SFS (programme 0) or any SFS+ programme are their status quo payments and whether or not they already fulfil the environmental and/or employment conditions. Other potential explanatory variables, like respondents' socio-economic characteristics or respondents' farming systems are not significant in our models estimating the decision to enrol (see section 4.2). For each cell of Table 3, grouping respondents with the same characteristics in terms of status quo payments and conditions fulfilled, we calculate the rate of respondents who would choose to enrol in the 2014 SFS (see Table A1 in Appendix). We assume that this proportion is a reasonable approximation of the proportion of non-retired French farmers with equivalent characteristics who would enrol. Therefore, we estimate for each cell of Table 4 the number of French farmers who would enrol in the 2014 SFS, by transposing the cell-specific simulated rates of enrolment.
According to that calculation, nearly 55,000[6] farmers (13% of the overall population of non-retired French farmers in 2010- 408 000 farmers) would choose the 2014 SFS, were it proposed. Unsurprisingly, 89% of them are farmers who already receive less than 1,250€ in first-pillar payments, but the remaining 11% receive an average of 3,620€ that they are willing to forego in return for a lower payment of 1,250€ associated with less administrative constraints, no conditionality and no control.

In a third step, we can calculate the resulting total cost of the 2014 SFS had it been proposed to French farmers, which is just 1250€ times the number of enrolled farmers. To estimate the net additional cost, we subtract from the total cost the saved first pillar payments (as they are no longer paid to farmers who enrol in the programme). Since, we do not know exactly which farmers would enrol in each cell of Table 4, we consider that every farmer receives the average of the first pillar direct payments of that cell (i.e. for that specific population of farmers). We estimate the net additional cost of the 2014 SFS implementation at the scale of France at 129 million €, which represents an increase of 1.86% of the total first pillar direct aid budget (estimated at 6,933 million in 2019 by the European Commission[7]).

[6] This estimation is based on 2010 agricultural census figures but it matches quite well a rough estimation that can be done based on the 2019 EC figures, by assuming that all farmers receiving less than 2,000€ in direct aid will switch to the 2014 SFS. The 2019 EC figures for first pillar direct aids indicate that more than 54,000 farmers received less than 2,000€ and among them 39,370 received less than 1,250€.
[7] https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/direct-aid-indicative-figures-2019_en.pdf

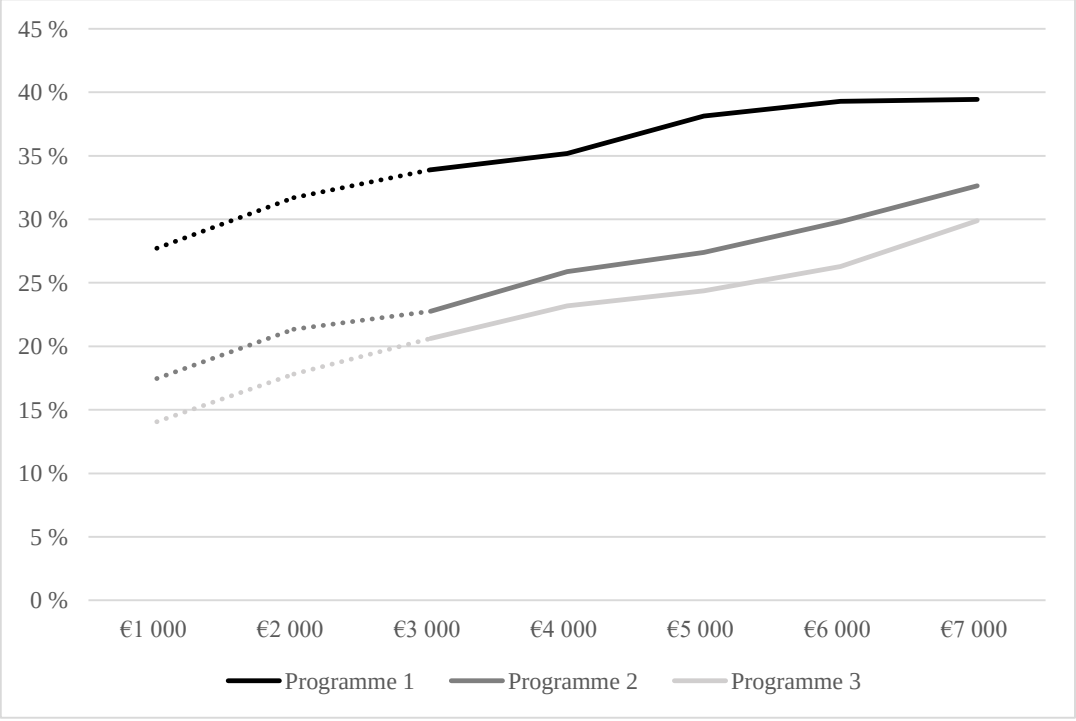
5.2 Comparison of three simulated SFS+

We conduct the simulations for three hypothetical programmes that are created by combining different levels of our condition attributes. We do not report the results for other combinations of the attributes because those other hypothetical programmes are of lesser interest. Indeed, given the results of our choice experiment, it is not advisable to wave the environmental condition. On the other hand, the commitment condition is mostly rejected by respondents, so it is preferable not to introduce it. The different levels of the employment condition have important impact in respondent choices, so we propose to simulate three SFS+:

- Programme 1 has no employment constraint, it includes only the environmental condition, it is the favourite programme of our sample;
- Programme 2 combines the environmental condition with the low employment condition;
- Programme 3 combines the environmental condition with the high employment condition.

To conduct the simulations on these three SFS+, we follow the same steps as for programme 0 (see section 5.1). We first compute the rate of enrolment in each programme using the individual estimated parameters from the mixed logit (3) ML_0_AB of Table 5 for each cell of Table 3. To observe the impact of the lump-sum payment on enrolment, we vary the payment from 1000€ to 7000€. Next, we extend our results to the whole French population of non-retired farmers using Table 4. Here again, we assume that farmers receiving more than 15,000€ from the first pillar will never enrol into an SFS+. In Figure 4, the simulations of the enrolment rates for payments less than 3,000€ are shown in dotted line because 3,000€ is the lowest payment proposed for a SFS+ in our choice experiment.

Figure 4 : Simulated enrolment rates in SFS+ on all non-retired French farmers (408,154 farmers)



For a lump-sum payment of 3,000€, 34% of all non-retired French farmers would sign up for programme 1 (environmental condition only). As they include an employment condition, the estimated enrolment rates of programmes 2 and 3 are lower than those of programme 1 with a 3,000€ payment, but they increase significantly and more rapidly than for programme 1 as the lump-sum payment increases.
The estimated net additional costs of programmes depend on the enrolment rate of farmers and their first pillar payments. Those who decide to enrol, even though their first pillar payments are higher than the proposed lump-sum payment, contribute to reduce the net additional budgetary cost by foregoing part of their payments. They are particularly numerous to do so in the programme 1. This explains its relatively lower net additional cost compared to the other two programmes, even though it has the highest enrolment rate (see Table 9).

Table 9: Simulated enrolment rate and net additional cost of the 2014 SFS and of three hypothetical programmes

Simulations on the non-retired French farmer population		
Programmes	Enrolment rate (on the total population of non-retired farmers)	Additional cost (% of the total cost of status quo situation which is 6,933 million €)
Programme 0 (2014 SFS): 1,250 € no condition	13%	129 million € (+1,86%)
Programme 1: 3,000 € and environmental condition only	34%	42 million € (+0,61%)
Programme 2: 3,000 € and environmental and low employment conditions	23%	93 million € (+1,34%)
Programme 3: 3,000 € and environmental and high employment conditions	21%	46 million € (+0,67%)

5.3 A proposal to finance the additional cost of a SFS+

It has to be underlined that the programmes' net additional costs remain modest when compared to the overall first pillar direct aid budget (6,933 million €). The net additional cost of programme 3 represents an increase of 0,67% of the total cost of the status quo situation whereas the implementation of programme 1 would represent only +0,61%.
As a check, we conduct a sensitivity analysis to account for the fact that some cells of Table 3 are not well populated: in particular, we had very few respondents who fulfil the (low or high) employment condition only. Thus, to asses a maximum additional cost of an SFS+ with a lump-sum payment of 3,000€, we assume that all the 114,291 farmers getting less than 3,000€ (and only them) enrol into any SFS+ (whatever the conditions attached), all the other farmers keep their first pillar direct payments. Under this naive and extreme assumption, the net additional cost of a SFS+ would be 251 million €, which represents a budget increase of 3.6% maximum.

With the objective of a constant CAP budget, we propose to finance the additional cost of our proposed SFS+, by reducing the amount of direct aids paid to the largest beneficiaries of the first pillar direct

payments. We simulate different burden-sharing scenario, in which only farmers receiving more than €20,000 as direct payments from the first pillar contribute by having their payments reduced. To finance the additional cost of 42 million € corresponding to the enrolment of 34% of the non-retired French farmers in programme 1, we could set a reduction of an average rate of 0.7% on all the farmers receiving more than 20,000€. To take into account the heterogeneity of the average amounts received per farm among these largest beneficiaries, we test a progressive contribution rate. We apply a contribution rate ranging from 0.6% for those getting less than 100,000 €, up to 2.3% for the largest beneficiaries. As shown in Table 10, the corresponding average individual contributions are rather negligible for each contributing farmer compared to their current first pillar payments. This scenario seems quite acceptable for those who would face a reduction in their first pillar direct payments.

Table 10: Proposal to finance programme 1 with a progressive contribution rate

First pillar payments in k€	Current average first pillar payments	Average individual contribution	Chosen contribution rate
Less than 20 k€	7,074€	0 €	0 %
[20; 50[	31,680 €	206 €	0.6 %
[50; 100[	65,104 €	422 €	
[100; 150[	116,912 €	1,896 €	1.6 %
[150; 200[	169,110 €	2,743 €	
[200; 250[	222,023 €	4,321 €	1.9 %
[250; 300[	271,114 €	5,276 €	
[300; 500[	389,688 €	8,848 €	2.3 %
More than 500 k€	1,230,625 €	27,940 €	

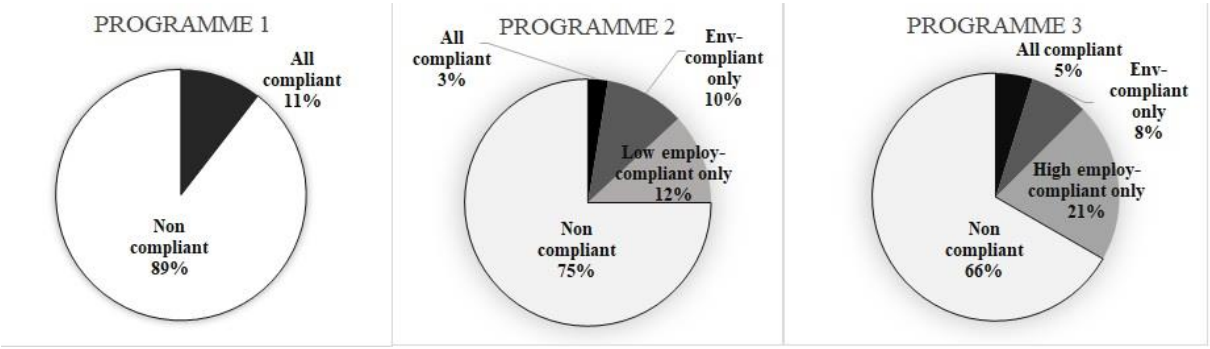
5.4 Incentive effect of simulated SFS+

To measure the efficiency of the SFS+ proposed, we need to complete our analysis on participation rates and additional costs with an evaluation of the incentive effect of programme conditions. In other words, do proposed programmes just enrol those who already comply with conditions? Or do they motivate farmers to change their employment and/or environmental practices in order to become eligible for the programmes? Thus, we need to estimate the proportion of farmers who would choose the programmes although they do not currently comply with the conditions.

For a 3,000€ lump-sum payment, 34% of non-retired French farmers would enrol in programme 1, according to our simulations. Out of these potentially enrolling farmers, 11% already meet the environmental condition, whereas 89% choose to join programme 1, although they do not comply with the environmental condition yet (see the first pie chart of Figure 5). This conclusion is based on organic certification only because the agricultural census does not provide information on other –less demanding- environmental certifications. 89% is therefore the upper bound of the percentage of farmers who would have to get an environmental certification in order to be eligible. These 89% are the farmers who would create an additional environmental benefit by joining programme 1 compared to the status

quo situation. The net impact of programme 1, beyond the financial support provided to all farmers already complying, lies with this quite high proportion of new certification that could be attained.
For programmes 2 and 3 with a 3,000€ lump-sum payment, respectively 77% and 79% of non-retired French farmers would not enrol. Nevertheless, the second and third pie charts of Figure 5 show that among the farmers who would enrol, only few already meet all conditions attached (3% for programme 2 and 5% of programme 3). The others would have to comply with at least one of the conditions. The proportions of farmers who would seek to meet both the environmental and the employment conditions (low or high levels) are high for these programmes (75% for the programme 2 and 66% for the programme 3). These programmes create incentives for non-compliant farmers to change their environmental and employment practices.

Figure 5: Incentive effects of SFS+ on enrolled farmers (based on our simulations on non-retired French farmer population)



All compliant means that respondents already comply with all the conditions attached to the programme (ie for programme 1, all-compliant farmers are those who already have an environmental certification). Non-compliant means that respondents comply with none of the conditions attached to the programme.

6. Dicussion and policy recommendations

6.1 Respondents' attitudes with respect to CAP support

An indirect lesson drawn from our survey is the confirmation that a large number of respondents do not know the amount of CAP support they receive annually. Out of the 1,002 respondents who answered at least the first part of our questionnaire, 65% declared that they get payments from CAP and all but five were able to state whether the overall amount received was lower than 2,000€, between 2,000 and 8,000€, between 8,000€ and 20,000€, or above. Yet when asked to indicate the approximate amount received from the first pillar[8], 45% replied that they were unable to answer. The same proportion is found in our final sample of 608 respondents: 41% of our respondents receiving CAP payments were unable to indicate how much they get from the first pillar. This result is interesting because it indicates that the CAP is seen as a black box by many small farmers who cannot distinguish why they get different types of support or how much they receive.
Respondents who declare that they do not receive any CAP payments at all (346 farmers of the initial 1,002 respondents) explain that they are not eligible for CAP payments (48%) and that they are

[8] Farmers were reminded of the structure of first pillar payments: basic payment scheme, plus the green payment and the redistributive payment, as well as coupled payments associated to certain types of production and herds.

discouraged by the administrative complexity of CAP procedures (38%): "*The amount of aid would be too small in relation to the time needed for the administrative procedure*". 22% state that they prefer not to be dependent on CAP payments: *"I want to remain in control of my economic and strategic choices"*. Only 5% respond that they do not want to be controlled[9].

6.2 Respondents' attitudes with respect to the SFS+

It is interesting to note that the preferences we estimated with the discrete choice experiment are also shared broadly by the 71 respondents[10] who have always chosen the status quo option. They justified their choice by indicating that the status quo is the most favourable option to them (91%) and/or that none of the proposed programmes suited them (81%). Yet they also responded that they were not opposed to an SFS+ and declared that it is a relevant policy option for small farmers. When asked what the best design for an SFS+ would be, 42% choose an SFS+ with environmental and employment conditions, 40% of them choose the SFS+ with an environmental condition only, and 16% choose the 2014 SFS[11].

6.3 Is the simplification objective attained?

An SFS+ would alleviate the paperwork related to CAP declaration procedures as it would no longer be necessary to calculate eligible hectares, basic payment rights or greening payments or to check compliance with the required agricultural and environmental conditions stipulated. Only the conditions attached to the SFS+ would have to be controlled at the end of each year and this could easily be coupled with the database of environmental certification agencies and social and employment services.
Of course, the simplification advantages of an SFS+ would be partly wasted if small farmers chose to switch back and forth between the regular CAP payment system and the SFS+ due to uncertainties or changes in strategy. This is why we tested farmers' responses to a 4-year commitment. We find that respondents would require on average an extra 1,000€ per year to commit to a programme for four years instead of just 1 year (see Section 4.2). Interestingly enough, a majority of respondents (54%) declare that they are in favour of this commitment condition. To justify this response, 59% indicate that they appreciate the guarantee of a fixed payment over 4 years and 33% like the alleviation of the administrative burden on farmers. Only 8% mention the fact that this would simplify the tasks of the payment agency. 24% of respondents declare that they are against the 4-year commitment condition: for them it imposes too much rigidity and 4 years is too long of a period to commit to.

7. Conclusion

The proposal for an extended small farmers scheme (SFS+) with environmental and employment conditions appears on paper to respond both to the objective of CAP payment simplification and to better support the small farm sector. Imposing environmental and employment eligibility conditions is a way

[9] Multiple responses were allowed.
[10] We have excluded the nine protest-no respondents.
[11] Only 57 respondents of 71 gave an answer to this non-compulsory question.

to improve the targeting of this financial support on farmers who are trying to start or want to consolidate their transition towards more environmentally-friendly practices by rewarding their efforts and by contributing to alleviating the costs of wage labour. Including a conditionality regime in a renewed version of the 2014 SFS would also increase the legitimacy of a small farmers scheme offering more significant amounts, since payments could be tied to environmental and social services.

Our results indicate that an SFS+ with an environmental condition is an acceptable policy option for many small farmers: it would enrol farmers who already fulfil the condition (notably organic market gardeners) but also farmers who do not meet the condition yet. Such an SFS+ could serve as a lever to accelerate the small farm sector's transition towards more sustainable certified practices. It could also contribute to changing the social norm, by signalling that engaging in a certified agro-ecological transition is rewarded by society. The willingness to meet conditions on employment is lower. Small farmers face many uncertainties that prevent them from hiring permanent labour and, although they complain of an excessive workload, they remain reluctant to use paid labour unless they are guaranteed large support payments. Thanks to our simulations, we estimate that 21% of non-retired French farmers would enrol in an SFS+ combining the environmental condition with the high level employment condition for a lump-sum payment of 3,000€. This rate would increase to 30% if payments increased to 7,000€ per farm.

This paper is the first contribution evaluating farmers' preferences for a lump-sum payment as a substitute to the usual CAP per-hectare income-support system. It opens up new ideas on what could be proposed by France in the context of the post-2020 CAP reform, since the new delivery system should give Member States more flexibility to design their own policy instruments. This study is particularly useful for French policy-makers because it helps estimating environment rates for various SFS+ as well as associated additional budgetary costs. It also shows that financing an SFS+ would not be too costly for the largest beneficiaries in the context of redistribution of CAP support.

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Appendix

Table A1 : Simulated enrolment rate in the 2014 SFS (programme 0) from the individual parameters of the respondents

Range of first pillar direct payments in euros (status quo)	0	]0; 1,250]	]1,250; 7,000]	]7,000; 15,000]
No condition fulfilled	74%	55%	0%	0%
Environmental condition fulfilled (only)	42%	34%	4%	0%
Low employment condition fulfilled (only)	0%	0%	40%	0%
Low and High employment condition fulfilled (only)	100%	100%	50%	0%
Environmental and low employment conditions fulfilled (only)	30%	43%	8%	0%
Environmental condition and both employment conditions (low and high) fulfilled	50%	41%	20%	0%

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