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# Designing an effective small farmers scheme in France with environmental and employment conditions

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&  
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CEE-M Working Paper 2020-20

# Designing an effective small farmers scheme in France with environmental and employment conditions<sup>1</sup>

Pauline Lécole,\* Raphaële Préget,\* Sophie Thoyer\*

## Abstract

The small farm sector has long been neglected by the Common Agricultural Policy (CAP). Since CAP support is mainly allocated through the first pillar budget on a per-hectare basis, small farms receive little or no direct income support. This situation is compounded by cumbersome administrative procedures which discourage small farmers from claiming the financial support they are entitled to, and by eligibility criteria which exclude part of the small farm sector from the CAP system. 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 direct payments of the first pillar. This paper assesses the acceptability in France of a more sophisticated version of the 2014 SFS for the post-2020 CAP. We propose that this extended SFS include easily controllable conditions on environmental efforts and on salaried employment. The results of a discrete choice experiment conducted in France show that the principle of such extended SFS would be attractive to small farmers, especially market gardeners, and that the vast majority of respondents have a preference for an extended SFS incorporating an environmental condition.

## 1. Introduction

The post-2020 CAP is expected to be in place in 2022. Although debates and decisions on the content of the future CAP regulations have been delayed by the Brexit never-ending negotiations and more recently by the Covid 19 health crisis, the overall ambition of the next CAP and the main lines of the reform have been announced as early as mid-2018 and have not evolved dramatically since. 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 administration. A new partnership between the EU and the Member States is 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 for each Member State to draw up a National Strategic Plan based on an assessment of needs, mapping the CAP objectives it wants to address, describing its intervention strategy and quantifying the results and impacts (with indicators to be monitored and assessed) it intends to reach. It is expected that this new organization should give the room for manoeuvre that Member States have always asked for, enabling them to decide more freely on their priorities and on the policy instruments they want to activate.

France has published its assessment and prioritisation of needs in February 2020 after several months of consultation with stakeholders and regional authorities. Several regions point at the need to rethink the system of per-hectare direct payment in order to increase the financial support provided to farms with a high labour to land ratio, and to small farms supplying environmental services and local food. It echoes

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a larger debate in France initially launched by the farm union “Confederation Paysanne” (2016) to defend the interests of a peasant agriculture model, based on small-scale highly innovative and environmentally-friendly farms. It is argued by a number of environmental NGOs, both at French and European levels, that small farms can play a key role to accelerate the agro-ecological transition and must therefore be better taken into account into agricultural policies. Scientific evidence on the contribution of the small farm sector to sustainable development is sparse. It indicates that small farms provide non marketed public goods and services: they preserve landscape and biodiversity because they usually adopt more diversified production systems (Tisenkopfs et al., 2020 ; Zasada 2011); they make a lower use of intensive techniques and substitute chemical inputs and land by additional labour (Birol et al., 2006 ; Schmitzberger et al., 2005 ; Potter et Lobley, 1993), thus displaying higher employment rates and lower environmental impacts (European Parliament, 2014); finally, in a number of case studies, it was shown that small farms are key to reduce the risk of desertification, maintain vibrant rural lifestyle (Winter et al., 2016) and food and nutrition security (Galli et al., 2020). Yet quantitative analysis brings less evidence (Ramankutty et al., 2019). The public opinion has also expressed its growing distrust of intensive farming systems and its desire to see peasant farms earn higher incomes (Ecorys, 2017). This trend was likely reinforced by the recent lockdown that has sparked the interest of city-dwellers in local farms providing easily traceable healthy food (Chiffolleau 2020).

The question of whether small farms should be better supported by the CAP and how, has hovered over previous reforms. It is embedded in the more global debate on the inequity of CAP support. Indeed, most first pillar direct payments are allocated on a per hectare basis, thus favouring mechanically large-size farms. In France, for example, 40% of the French smallest farms get less than 5% of direct payments (calculated on financial year 2016, figures from the European Commission).

The 2014 CAP has marked a turning point by introducing the options for Member States to propose a redistributive payment (corresponding to a higher per-hectare payment for the first hectares of each farm) and to activate the “small farmers scheme SFS”. The latter was not chosen by France but was activated by 14 other Member States such as Germany, Italy, Portugal and Romania (European Commission, 2017). The principle is to replace all first pillar direct payments by a lump-sum payment, independently of farm size, production or localization. Farmers join the scheme on a voluntary basis: it is a self-selection process since bigger farms will prefer to maintain the more advantageous per-hectare payment system. The SFS was part of the CAP simplification effort engaged by the Commission as well as the willingness to facilitate CAP payment access to smallholders. Its objective is mostly to redistribute a small income to farmers (capped in the 2014 reform at 1250 €/farm/year) without having to deal with all the administrative and control system associated with CAP declaration and cross compliance conditions (European Commission, 2016). The SFS was designed so to overcome the constraints faced by small farmers who are often reluctant to engage in lengthy and complicated procedure for a payment which may be lower than the associated administrative costs (European Commission, 2019). According to the European Court of Auditors (2016), the small farmers scheme has reduced administrative burdens.

The reasons why France has not activated the SFS in 2014 were not publicly disclosed but it is clear that the €1250 cap on the lump-sum payment would have only allowed to enrol the smallest of the small farms, mostly part-time or retired farmers, which are rarely those contributing the most to public goods. However, the post 2020 framework allows Member States to adjust their strategy and policy instruments in order to attain their stated objectives. Since the SFS option is maintained in the legislative proposals made by the Commission, Member States could envisage the set-up of an extended SFS, offering larger lump-sum payments and associating them to easily-controlled environmental or employment conditions. An extended SFS, is a policy instrument deserving attention: if well-designed, it could help to maintain or enhance the income of small-scale farmers and encourage them to engage into labelled environmental efforts, and to create wage jobs. It could contribute to the agro-ecological ambition of the French government.

The scientific objective of this paper is to test the acceptability by small French farmers of an extended SFS for the post 2020 CAP, and to measure in monetary terms their relative preference or aversion for attached condition on environment and employment. The policy objective is to provide guidance to French policy-makers on the feasibility and costs of such scheme, as well as on the type of small farmers who would be interested to enrol. For this purpose, a Discrete Choice Experiment (DCE) was designed to measure farmers' willingness to join such scheme and also to measure their willingness to accept for different conditions attached to the scheme.

We show that an extended SFS should include an environmental condition. Indeed, many farmers indicate they would prefer a SFS which imposes an environmental condition. Even farmers who do not meet this condition yet indicate that they would accept it. On the contrary, adding an employment condition can be quite constraining for some farmers who would require a much higher lump-sum payment to accept it. Finally, although it would be good that farmers do not switch from one system to another every year, it can be quite costly to require farmers to commit to the SFS for 4 years.

Section 2 describes the methodology. Section 3 presents data collected, section 4 provides an econometric analysis of the results and section 5 proposes policy simulations. Section 6 concludes.

## **2. Methodology: Discret 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 Ruto and Garrod (2009), it is widely used to study farmers' preferences regarding agri-environmental contract characteristics. Here, a DCE is undertaken to estimate *ex-ante* the value farmers place on specific characteristics of different small farmers schemes we call 'programs'. Our DCE describes the programs in terms of a number of characteristics, or 'attributes'. The extent to which a farmer values a program is expected to vary as a function of the 'levels' of the attributes. The DCE method allows us to explore the relative importance of each attribute of the program that may influence a farmer's decision to abandon their first pillar aids and to enter in a small farm program.

Section 2.1 describes the attributes and their associated levels. Section 2.2 presents the experimental design and the econometric modelling of farmers' choices is provided in section 2.3.

### **2.1 Attributes and levels**








Our DCE was pre-tested with 10 targeted interviews with farmers from different parts of France and with a face to face pilot study with 30 respondents. This process allowed us to adjust and improve the survey.

The extended SFS we propose to study can be declined in different versions. Each program is characterized by four attributes summarized in Table 1. The first three attributes correspond to conditions: an environmental condition, an employment condition and a commitment condition. The fourth attribute is the monetary attribute of our DCE. It is an annual lump-sum payment independent of the size of the farm, its type of production or its localization. It replaces all first pillar payments that the farmer could get but the farmer can still get the second pillar payments in addition to the lump-sum payment of the chosen program.

The objective of the environmental condition is to guarantee that only farmers providing a certified effort for a more environmentally-friendly agriculture are eligible for the program. There are only two levels for this attribute. Level 1 requires no environmental condition; it corresponds to the 2014 small farmers scheme. For level 2, only farmers who have an environmental certification recognized by the French Ministry of agriculture are eligible. The objective is to create a momentum towards more

environmentally-friendly farming systems, not to reward environmental gains. Eligible environmental certifications include Organic farming and High Natural value certifications as well as other regional certifications (officially recognized by the French Ministry of agriculture), covering various types of production systems. We want to induce farmers to engage into a process of certified environmental improvement even if it is not highly demanding. We decided to include only the certificates recognized by the French Ministry of agriculture to reduce red tape and because it is easy to control as farmers will just have to show their certificate to prove that they fulfil the environmental condition (level 2). As it is an additional constraint, we expect a negative impact of the environmental constraint (level 2) on the probability of choice of the program.

Table 1 : Description of the attributes and their levels

Attributes	Levels	
<b>Environmental condition</b> ( <i>envir</i> )		<u>Level 1:</u> No environmental condition attached No control
		<u>Level 2:</u> Farmers have to be certified with a sustainable farming label registered by the Ministry of agriculture: several exist, the most demanding and most famous is the organic farming label, others are very light
<b>Employment condition</b> ( <i>empllo</i> ) ( <i>emplhi</i> )		<u>Level 1:</u> No employment condition No control
		<u>Level 2 (low):</u> Salaried employment on the farm must be at least 2 full-month equivalent per year (on a temporary or permanent basis)
		<u>Level 3 (high):</u> Salaried permanent employment must reach at least the equivalent of one third of a full time
<b>Commitment condition</b> (4 years)		<u>Level 1:</u> The enrolment in the SFS is annual. The farmer can decide to return to the usual CAP support system the following year
		<u>Level 2:</u> The enrolment in the program is for a minimum of 4 years
<b>Lump-sum payment</b>	€/year	1250, 3000, 5000, 7000

The objective of the employment attribute is to guarantee that only farmers who create or maintain paid jobs (even part-time) on their farm are eligible for the program. There are three levels for this attribute. The no employment condition is level 1 and corresponds to the 2014 SFS. Level 2 corresponds to a low employment condition which requires that farmers employ at least 2 full months per year. It can be permanent or temporary staff. The minimum 2 full months can be reached with the addition of several short term contracts for different workers. The objective is to encourage farmers who need labour force on a seasonal basis to recruit instead of overworking themselves and their family members. Level 3 is a high employment condition which requires that the permanent employment on the farm reaches at least the equivalent of 30% of a full time. It is a way to encourage permanent hiring. We expect a negative sign for both the low and the high employment conditions (level 2 and 3). Of course, we expect that the high employment condition (level 3) will have a stronger negative impact than the low employment condition (level 2).

The commitment duration attribute has two levels. Level 1 corresponds to the standard annual commitment, as in the 2014 SFS. At the end of each payment year, the farmer can decide to return to the usual CAP support system to receive first pillar payments. In level 2, the enrolment is for 4 years. In that case, the farmer cannot decide to return to the usual CAP support system before the end of the 4-years commitment. It is also a commitment from European authorities to maintain the program (and the lump-sum payment) for 4 years. The interest of a 4 years' commitment is to avoid opportunist changes from one system to another, creating additional burden for the administration. Thus, it could be interesting for the administration to impose this condition unless farmers really dislike this attribute. The advantage for a farmer of being enrolled for 4 years is to have a guaranteed known payment over 4 years (if the farmer respects the potential environmental and/or employment conditions of the program). However, farmers may be reluctant to commit for 4 years, especially if they plan to increase their eligible area and/or livestock, and thus, expect higher first pillar payments in the coming years. Therefore, we are quite uncertain about the impact of this attribute. Some farmers may have a willingness to pay for committing to 4-years, but others may ask for a higher lump-sum payment to enter the program if they have to commit for 4 years.

Regardless of the commitment (annual or for 4 years), if a farmer does not meet the conditions of the program for a given year, then he will only receive a base payment that we have set at €1000. If the following year, the farmer meets the program conditions, then he will receive the full lump sum payment from the program.

In accordance with the preliminary interviews, we proposed 4 levels of lump-sum payments for the monetary attribute (€/year): 1250, 3000, 5000, 7000. The lower level (1250€/year) corresponds to the lump-sum payment of the 2014 SFS. In our DCE, it is only associated to programs which impose no environmental condition and no employment condition. Thanks to this monetary attribute, it is possible to determine the willingness to accept (WTA) for a program. The marginal willingness to accept (WTA) for a given attribute is defined here as the minimum monetary value that would be required to compensate for a change in the level of that attribute.

## ***2.2 Experimental design***

The different combinations of the attribute levels constitute numerous possible programs (called alternatives). The 2014 SFS corresponds to the alternative with no environmental condition, no employment condition, an annual commitment and a lump-sum payment of 1250€/year. We call this special alternative Program 0.










Farmers are asked to choose their preferred program. If none of the programs suits them, they can keep their current situation which corresponds to the first pillar aids (if they receive any) by choosing the status quo option. The different alternatives constitute a choice card, and different choice cards are

successively presented to farmers. As shown in Figure 1, our choice cards include four options: first there is the 2014 SFS alternative (program 0), then two different “extended SFS” alternatives which vary in each choice card, in terms of attribute levels (program A and program B) and finally the farmer’s status quo option (his business-as-usual situation), shown on the right hand side and identified with 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 payment) to 15000€ (see justifications in section 3.1). In addition, to take into account the fact that some farmers may already meet one or both of the program conditions (environmental and/or employment) we take this information into account when coding the status quo.

There are two reasons why we included program 0 in each choice card. First, we were particularly interested in this special program corresponding to the 2014 SFS which is open in some European countries but not in France. Second, program 0 is in all choice cards for a strategic reason. If it was not proposed in each choice card, the respondent interested in a SFS but who knows that he or she will not respect the conditions could be led to choose any program A or B to receive at least 1000€ without any condition (except possibly commitment). Our data would then be of lesser quality.

Figure 1: Example of a choice card

	Program 0	Program A	Program B	
Environmental condition				I prefer to remain in my current situation
Employment condition		 ≥ 2 months cumulated	 Permanent ≥ One-third of time	
Commitment condition				
Lump sum payment	1250€/year	5000€/year	7000€/year	

We used ©NGene to build an efficient fractional design (by selecting priors on the signs of attributes parameters). Our design minimizing the D-error is composed of 3 blocks of 8 choice cards. The respondents were assigned randomly to one of the 3 blocks and had to fill 8 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 ( $\varepsilon_{nit}$ ), 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  $n$  chooses 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 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).<sup>2</sup> The ML model allows us to estimate an individual-specific  $\beta$ -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  $\beta_n$  represents their associated marginal utility for each farmer  $n$ . The error term  $\varepsilon_{nit}$  is assumed to follow an extreme value type1 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 one in the program 0 alternative, and zero otherwise, but also the ASC dummy variable  $ASC\_AB$ , which takes the value one in the program A and B alternatives, and zero 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 program, so the farmers' average marginal willingness to accept (WTA) for attribute  $x$  is given by:

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

where  $\beta_x$  and  $\beta_{payment}$  are the 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 on-line questionnaire (with the software ©LimeSurvey) targeting farmers receiving payments between 0 and 15000€ from the first pillar. The questionnaire was divided into three parts. The first part gathered information on CAP payments received by respondents and on their current situation regarding environmental certification and employment. Farmers declaring first pillar payments above 15000€ were invited to leave the survey. Indeed, we made the assumption that no farmer getting more than 15000€ would be willing to trade his current situation for an extended small farmers scheme offering a maximum lump-sum payment of 7000€, even with promises of less administrative work and no conditionality. The second part of the survey was dedicated to the choice experiment questionnaire, with 8 choice cards presented to respondents. The presentation of attributes was done step by step and included also questions on their present situation regarding their fulfilment or not of the conditions presented in the environment and employment attributes. The last part of the survey included follow-up questions to identify protest answers and issues of understanding and clarity, as well as questions on the social and economic status of respondents. The socioeconomic questions (age, education level and department) were mostly used to test the representativity of our sample, compared to the whole French

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<sup>2</sup> The conditional logit estimation and the Hausman test conducted on our data justify the choice of the mixed logit model. Those results are available upon request.

population of farmers receiving less than 15000€ of first pillar CAP support. These variables are also useful to test whether some preferences of contracts are attached to farmers' individual characteristics.

The first part of the questionnaire is essential 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 payment whatsoever, the monetary attribute value of their status quo was set to zero. For those who declared that they received CAP support but were not able to state the exact amount received from the first pillar<sup>3</sup>, we proposed that they identify the value range within which they thought that their first pillar CAP support was. 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 we used an integrated algorithm to estimate the corresponding first pillar payment. This information was then returned to respondents "we estimated that your first pillar payment amount approximately to X€". All choice cards were customized so as to indicate clearly the amount received by the respondent in the status quo situation: as indicated, this amount was either directly provided by the respondent or estimated from the information he provided.

The survey was disseminated to French farmers by email between March and July 2020, through various channels: we contacted farmer associations (mostly dedicated to the small farm sector such as the AMAP network) and two national farm unions (the "Confederation 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 15000€ in first pillar payments. The survey was also advertised in specialist newspapers for farmers like "France agricole".

### 3.2 Characteristics of the sample

More than 1000 farmers started responding to our online questionnaire but only 617 respondents completed the eight choice cards. 80 of them always chose the status quo. Out of those 80 respondents, we eliminated 4 of them because they indicated that they had not understood the proposed choices, and 5 of them as protest no, since they justified their choices in the follow up question by indicating that they did not wish to get payments from CAP whatever the amount proposed or rejected the principle of a small farmers scheme. Our final sample consists of 608 respondents, of which only 2% are retired farmers. The socio-economic and production characteristics of our sample are different in proportion from what can be inferred of the population of non-retired French farms with less than 15000€ of direct payment. The comparison is made difficult by the absence of up-to-date data on small farms in French statistics. The latest agricultural census dates back to 2010 and the FADN survey does not include farms with a standard output which is less than 25000€ 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 our sample

	Our sample	2010 agricultural census* French farms with first pillar payments < 15000€
Total Utilized area /farm	17 ha	19 ha
Direct aid /farm	2700€	4600€
Organic farms	81%	9%
Market gardeners	39%	6%
Fruit and vineyards	20%	30%

<sup>3</sup> From our preliminary interviews, it became 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 instalments, they are not fully aware of the amounts received.

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 aids are estimated with the algorithm used in the survey (2014 CAP rules for direct payment calculation) but with 2010 production and surface data.*

Intuitively, we expect that respondents' choices are explained for the most part by their status quo situation: the amount of direct payments received in the current situation, and whether or not they already meet the environmental and employment conditions. Table 3 summarizes 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 payment (they represent 35% of our respondents), farmers who receive less than 1250€ of payments from pillar 1 (they are 24%), farmers who receive between 1250€ and 7000€ (25%) and finally the farmers who receive more than 7000€ from the first pillar (16%). Remember we have excluded farmers who receive more than 15000€ of first pillar payments. The first threshold of 1250€ corresponds to the program 0's lump-sum payment, and the second threshold correspond to the highest lump-sum payment proposed in our DCE.

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

Range of direct first pillar payments (status quo)	0 €	]0; 1250 €]	]1250; 7000]	]7000; 15000]	<b>Total*</b>
No constraint fulfilled	31	11	13	17	<b>72 (12%)</b>
Environmental constraint fulfilled only	132	85	81	33	<b>331 (54 %)</b>
Low employment constraint fulfilled only	4	1	5	4	<b>14 (2 %)</b>
Low and High employment constraint fulfilled only	4	1	2	4	<b>11 (2 %)</b>
Environmental constraint and low employment constraint fulfilled only	20	23	24	17	<b>84 (14 %)</b>
Environmental constraint and employment constraints (low and high) fulfilled	22	27	25	22	<b>96 (16 %)</b>
<b>TOTAL</b>	<b>213 (35 %)</b>	<b>148 (24%)</b>	<b>150 (25%)</b>	<b>97 (16%)</b>	<b>608</b>

Table 3 can be compared to Table 4 showing the percentage for the overall population of French farms receiving less than 15000€ of pillar 1 direct support (excluding retired farmers).

Table 4: Comparison with the 2010 agricultural census (without retired farmers)

Range of direct first pillar payments (status quo)	0 €	]0; 1250 €]	]1250; 7000]	]7000; 15000]	Total
No constraint fulfilled	17022	34813	54320	50339	<b>156494 (70%)</b>
Environmental constraint fulfilled only*	1120	3081	4696	3979	<b>12876 (6%)</b>
Low employment constraint fulfilled only	4396	3840	5026	4770	<b>18032 (8%)</b>
Low and High employment constraint fulfilled only	7706	6278	6956	6007	<b>26947 (12%)</b>
Environmental constraint and low employment constraint fulfilled only	516	822	1038	661	<b>3037 (1%)</b>
Environmental constraint and employment constraints (low and high) fulfilled	1361	1270	1468	913	<b>5012 (2%)</b>
<b>TOTAL</b>	<b>32121 (14%)</b>	<b>50104 (23%)</b>	<b>73504 (33%)</b>	<b>66669 (30%)</b>	<b>222398</b>

\*The environmental constraint concerns organic farming only. Other environmental certifications are not filled in.

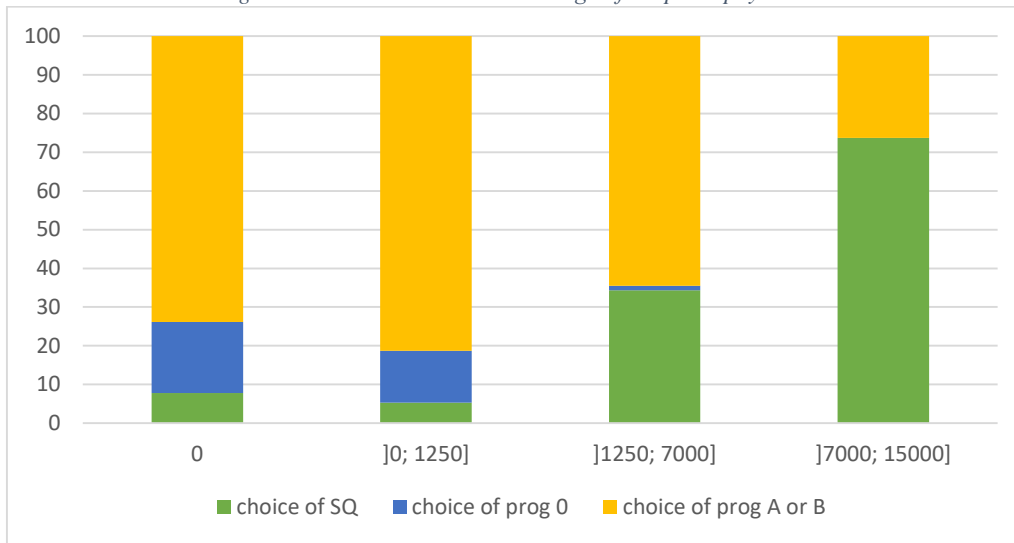
The comparison shows that the proportion of farms who do not fulfil any constraints is really high compared to our sample (70% against 12%). It also shows that employment constraints are proportionally more fulfilled in the overall population, contrary to our sample where environmental constraint is largely fulfilled. Finally, we observe that our sample includes a high proportion of small farms respecting the environmental constraint without any direct aids (132 farms representing 22% of the sample).

## 4. Results

### 4.1 Mixed logit results

It is expected that respondents, when asked to choose between a SFS option (program A, B or program zero) or their status quo situation, will first compare the amount of CAP support they get in their current situation, with the amounts proposed in the experiment. Figure 2 shows respondents' choices according to their status quo first-pillar payments.

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



What we observe in figure 2 is logical and reassuring. Program 0 is almost exclusively chosen by farmers who receive less than 1250€ in their status quo situation. We also see that the proportion of respondents choosing to remain in the status quo increases as their status quo payments are larger. It should be noted that even when farmers receive more than 7000€, they sometimes choose (25% of the responses on average), one of the two extended SFS (program A or B). This shows that at least some farmers are ready to enrol in a simplified payment system for lower payments than their status quo payments. This is a first indication of farmers' preferences for a simplified per farm lump-sum system.

As explained in section 2.3, we use a mixed logit model to take into account farmers' heterogeneity in preferences. In Table 5 we present the mixed logit estimations for three specifications estimated on the whole sample: 608 farmers which have responded to 8 choice cards with 4 alternatives result in 19,456 observations (608\*8\*4). The first specification (ML) includes no Alternative specific constraint (ASC). However, it is preferable to include an ASC to capture potential characteristics of the proposed programs (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 programs 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 farmers have a preference for the lump-sum payment programs (0, A or B) on average.

Table 5: Mixed logit results

Variable	ML	ML_0AB	ML_0_AB
-----			
Mean			
Payment (k€)	0.6757***	0.7368***	0.6406***
envir	1.3448***	2.0043***	1.7933***
empllo	-1.0910***	-1.4549***	-1.4887***
emplhi	-2.3811***	-2.7965***	-2.6287***
4years	-0.3818***	-0.7827***	-0.7320***
ASC_0AB		2.7564***	
ASC_prog0			-0.6212**
ASC_AB			1.9765***
-----			
SD			
envir	2.4338***	2.7394***	2.0959***
empllo	3.1904***	2.9569***	2.6243***
emplhi	2.8730***	3.0740***	2.4673***
4years	1.3614***	1.2292***	0.8441***
ASC_0AB		4.0808***	
ASC_prog0			3.2098***
ASC_AB			2.9651***
-----			
Nb. of obs	19,456	19,456	19,456
Nb. of farmers	608	608	608
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Legend: \* p<.1; \*\* p<.05; \*\*\* p<.01

The ML\_0AB specification is not totally satisfying since program 0 is a special program in this choice experiment. First, it corresponds to the 2014 SFS with no condition attached and with a relatively low lump-sum payment (1250€). Second, program 0 is a fixed alternative presented in each choice card. Therefore, in the last specification we choose to keep the reference to the status quo, but the ASC referring to the programs is broken down by distinguishing an ASC for program 0 (*ASC\_prog0*) and an ASC for the new A and B programs (*ASC\_AB*). *ASC\_prog0* is equal to 1 for program 0 alternative and 0 in all other cases. *ASC\_AB* is equal to 1 for program A and program B, and 0 for program 0 and for the status quo option. With this specification, we show that on average farmers prefer their status quo to program 0: the coefficient associated to *ASC\_prog0* is negative and significant at 5%. However, as we will show later in our analysis by sub samples, this result is not robust. There is a strong heterogeneity on that dummy across the respondents. The positive impact of the *ASC\_0AB* of estimation ML\_0AB is mainly due to a strong positive preference for programs A and B: the coefficient associated to *ASC\_0\_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. The probability of choosing an alternative increases as payment increases.

The most striking result is the positive sign of the coefficient associated to the environmental attribute (*envir*). Programs which include the environmental constraint are preferred on average to programs with no environmental constraint. 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 constraint. We could have expected that farmers who already fulfil the environmental constraint just choose to overlook this attribute into consideration (this would have led to a coefficient non significantly different from zero) but they actually do take it into consideration and their choices indicate their strong preference for programs which impose the environmental constraint.

For the employment attribute, the coefficients associated with the low and high employment constraints, respectively (*empllo*) and (*emplhi*), are both negative and the coefficient for the low constraint is lower than the coefficient for the high constraint level (the most demanding level), the reference level being no employment constraint. This is coherent with what we expected.

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

#### 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 confidence interval at a 95% of the WTA of Table 6 are calculated from the ML\_0\_AB results of Table 5.

Table 6: Average WTA for the 608 farmer of our sample

	<i>envir</i>	<i>empllo</i>	<i>emplhi</i>	<i>4years</i>
Mean WTA (k€)	-2,799	2,323	4,103	1,142
Lower confidence limit	-3,193	1,852	3,628	0,901
Upper confidence limit	-2,404	2,794	4,578	1,383

All the WTA of table 6 are significantly different from zero at a 95% confidence. On average for the whole sample, we find that respondents would be willing to pay 2799€ (or equivalently willing to forgo 2799 € per farm and per year) to be proposed a program with the environmental constraint, rather than a an equivalent program without the environmental constraint. Remember that this counter-intuitive result mainly comes from the large proportion of respondents who already fulfil that environmental condition. On the contrary, farmer require 2323€ (resp. 4103€) to accept to enrol in program with a low (resp. high) employment constraint. As seen previously, farmers do not like the commitment constraint. They want to be paid an additional 1142€ on average to commit for 4 years in the program instead of a program based on a standard annual commitment.

Many socio demographic variables may explain some of the heterogeneity of farmers' preferences toward 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 include interaction terms in mixed logit models (Ai and Norton, 2003), we conduct estimations on subsamples to understand better farmers' preference heterogeneity. Our analysis shows that the most important factors explaining farmers' preferences is the status quo payments and whether they already fulfil the environmental and/or employment conditions. Thus in the following, we present our sub samples mixed logit results only according to those criteria.<sup>4</sup> Another reason for focusing on those criteria is that they appear to be more pertinent from a public policy perspective than any socio demographic variables. Indeed, the backbone of the SFS is simplification and self-selection, meaning that it is intended to be open to all farms on a voluntary basis whatever their type of production, size, or farmer's characteristics.

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We conduct mixed logit estimations on the four subsamples presented previously (see Table 7). First, 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 7000€ from the first pillar. Contrary to the 3 others subsamples, these farmers are not sensitive to this attribute level on average. As expected, the strongest impacts concern the signs and values of ASCs parameters. Farmers with less than 1250€ from the first pillar have a significant preference for both program 0 and the extended SFS compared to their status quo situation. On the contrary, farmers with

<sup>4</sup> Sub samples estimation results on other criteria (such as the type of productions) is available upon request.

more than 1250€ do not like the program 0 and farmers with more than 7000€ have a significant preference for their current situation (the coefficient for the *ASC\_AB* is negative and significant at 5% confidence). However, since farmers with more than 7000€ from the first pillar almost never chose program 0 and very often choose the status quo, this specification with the two ASCs is not unsatisfactory for this sub-sample.

The positive sign of the *ASC\_prog0* estimates for respondents who receive less than 1250 € in their status quo situation indicate that they have a strong preference for the 2014 SFS. The average WTA for respondents who do not get any first pillar CAP payment is 2300 € (1.1556/0.4893). This can be interpreted as the amount that the standard CAP system would have to offer to make them renounce the 2014 SFS. The difference between 2300€ and the 1250 € associated with program 0 is the monetary equivalent of their preference for the unconditional 2014 SFS compared to the standard per hectare payment of the existing CAP.

Table 7: Mixed logits results on subsamples according to 1st pillar payments

Variable	0	]0; 1250]	]1250; 7000]	]7000; 15000]
Mean				
Payment (k€)	0.4893***	0.6201***	0.7306***	0.4551***
envir	1.5152***	1.9687***	2.0533***	2.2229***
empllo	-2.0385***	-1.6684***	-1.6090***	-0.5456
emplhi	-3.3843***	-2.9168***	-2.2851***	-0.7742**
4years	-0.8893***	-0.8190***	-0.3383**	-0.6403**
<i>ASC_prog0</i>	1.1556***	1.8150***	-3.3530***	-22.9741
<i>ASC_AB</i>	3.6871***	4.3678***	0.4993**	-1.7182**
SD				
envir	2.1693***	2.5428***	2.1218***	1.8655***
empllo	2.5497***	3.1353***	2.0736***	0.8847
emplhi	2.8006***	3.1978***	2.1324***	-1.1641**
4years	0.8132***	1.3401***	0.7487***	1.0069**
<i>ASC_prog0</i>	2.7094***	2.9485***	2.6419***	0.0572
<i>ASC_AB</i>	3.0086***	2.8718***	1.8683***	6.5061***
Nb. of obs	6,816	4,736	4,800	3,104
Nb. of farmers	213	148	150	97

legend: \* p<.1; \*\* p<.05; \*\*\* p<.01



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

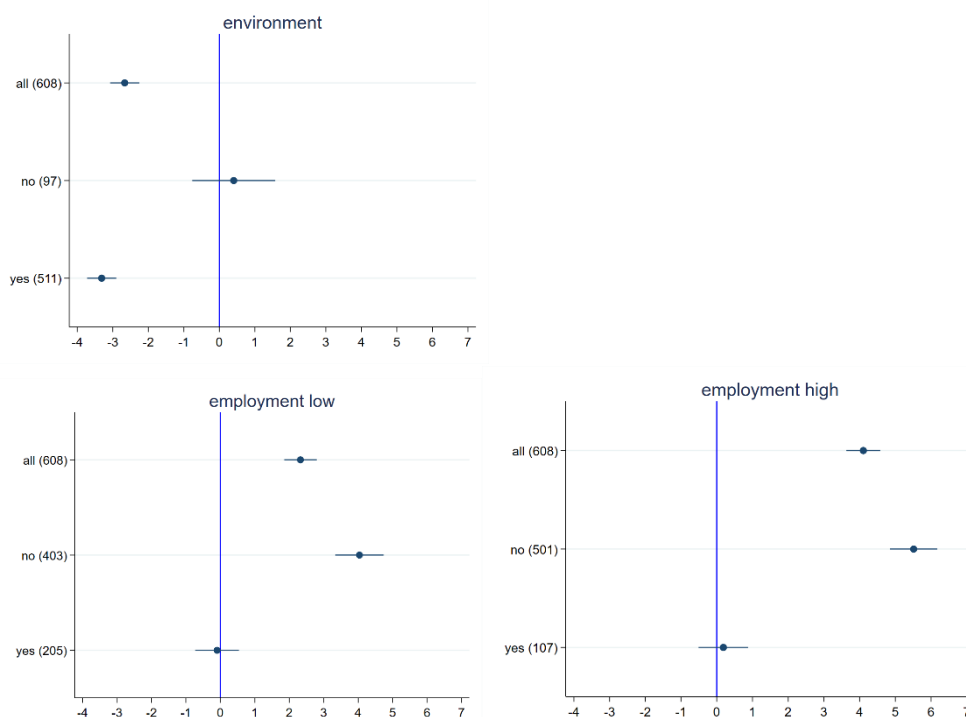
Variable	envir_no	envir_yes	empllo_no	empllo_yes	emplhi_no	emplhi_yes
<b>Mean</b>						
kmontant	0.6160***	0.6509***	0.6523***	0.6595***	0.6355***	0.6558***
envir	-0.2493	2.1574***	2.0054***	1.6379***	1.8058***	1.9062***
empllo	-1.8316***	-1.5642***	-2.6326***	0.0634	-1.9242***	-0.1521
emplhi	-3.3464***	-2.6189***	-4.4034***	-0.6505***	-3.5027***	-0.1210
enga	-0.8931***	-0.7089***	-1.1114***	-0.2383**	-0.8783***	-0.1591
ASC_prog0	-0.8926	-0.1209	0.7558***	-0.9982*	0.0246	-1.4762
ASC_AB	0.8728	2.2673***	2.6224***	2.9845***	2.2456***	2.7840***
<b>SD</b>						
envir	2.7514***	1.9350***	2.2913***	2.0024***	2.2919***	2.0287***
empllo	2.5127***	2.4560***	2.9760***	1.3688***	2.8163***	1.5640***
emplhi	3.1277***	2.6866***	3.2731***	1.5315***	2.9604***	1.2448***
enga	0.6521*	0.8635***	0.9997***	0.7410***	0.8786***	0.8505***
ASC_prog0	4.2360***	2.9076***	2.6159***	2.0307***	2.7689***	-3.1251***
ASC_AB	3.4563***	2.8264***	3.0444***	4.1099***	2.9643***	4.1788***
Nb.of obs	3104	16352	12896	6560	16032	3424
Nb.of farmers	97	511	403	205	501	107

Legend: \* p<.1; \*\* p<.05; \*\*\* p<.01

As already mentioned, the positive sign of the coefficient associated to the environmental attribute is related to the fulfilment of the environmental constraint. Yet farmers who do not fulfil the environmental constraint do not take this attribute into consideration (the coefficient is not significantly different from zero) (see first estimation of Table 8 and first graph of Figure 3). This reveals that they are not discouraged by this constraint and this is of course a very important result since it provides strong arguments in favour of the overall acceptability of a SFS with an environmental constraint.

Results are different for the employment constraints (see the four last estimations of Table 8 and the two graphs at the bottom of Figure 3). Those who already fulfil the employment constraints (low or high) are indifferent. They are not particularly favourable to add an employment constraint; and those who do not fulfil employment constraints strongly reject it. This result indicates that imposing a SFS with employment constraints would be a risky policy option, susceptible to enrol very few farmers.

Figure 3 : Graphs of WTA of environmental and employment conditions



## 5. Policy simulations

Our DCE results allow us to simulate different policy options, on the basis of our sample of respondents. We generated hypothetical programs with different combinations of attributes, and we study for each program, the rate of enrolment and the associated public spending.

The combination of attributes generated 11 programs in addition to the 2014 SFS (program 0). To determine the rate of enrolment, we compare the status quo utility to the utility of each program for each respondent (by using individual estimated parameters) and for different levels of payments (from 1000€ to 7000€). We assume that a program is chosen by a respondent when the utility provided by the program is greater than the utility of his status quo. For a given program and a given amount, we can therefore calculate the cost of a program (for the sample) using the rate of enrolment. The difference between the total cost of a program and the total cost of the status quo is the additional cost of the program.

We first present the results on enrolment rate and additional cost of the SFS. Next, we present comparable results on some of our hypothetical programs. Third, we analyse the incentive effect of two specific hypothetical programs.

### *5.1 Enrolment in 2014 SFS (program 0)*

We showed in section 4 that farmers who do not receive any CAP payment have a strong preference for program 0. We confirm this result from policy simulation. According to the calculation of the difference of utilities between 2014 SFS and the status quo, 28% of respondents would have chosen 2014 SFS, had it been proposed. Unsurprisingly, 90% of them receive less than 1250€ of first-pillar CAP direct payments, but the remaining 10% receive an average of 2300€ (the maximum is 5500€).

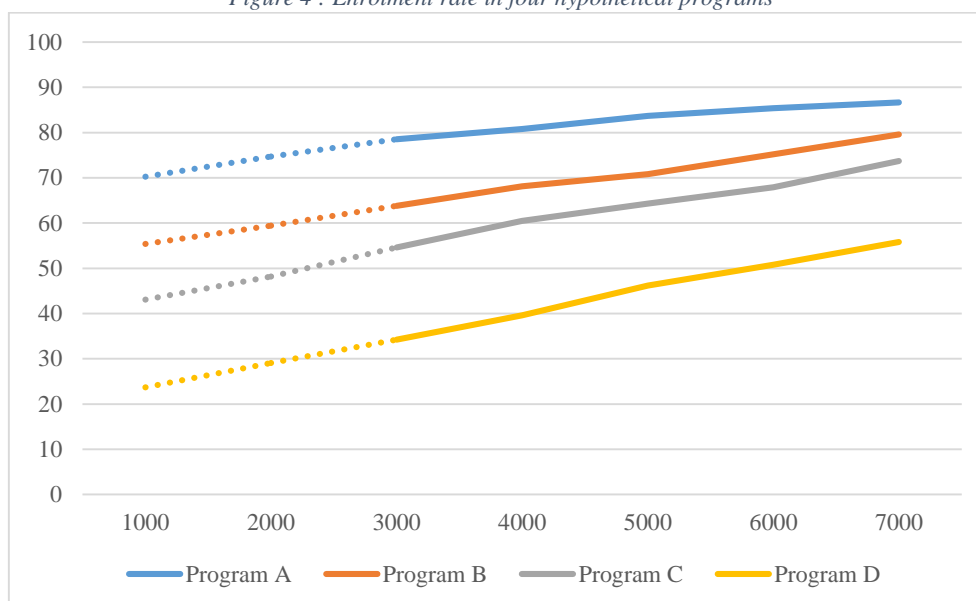
The additional cost of the 2014 SFS is 211K€ for our sample.

### *5.2 Comparison of the 11 other programs*

Within the 11 hypothetical programs generated, we select 4 programs:

- Program A: the favourite program of our sample with the environment constraint only;
- Program B: it cumulates the environment constraint with the low employment constraint;
- Program C: it cumulates the environment constraint with the high employment constraint;
- Program D: the least liked program of our sample, it cumulates the high employment constraint with the commitment constraint.

Figure 4 : Enrolment rate in four hypothetical programs



(In choice's cards, only amounts above 3000€ were proposed. However, we have made estimates for lower amounts. The enrolment rate is represented in dotted line for these lower amounts).

For a lump-sum payment of 3000€, more than 79% of respondents would sign up for program A (environment constraint only) (Figure 4). As we observed in section 4.2, this is a really high proportion, that is not only driven by farmers who already comply with the environment constraint: 67% of respondents who do not fulfil this condition would enrol in program A (for a lump sum payment of €3000). This result argues in favour of a program with an environment constraint.

The enrolment rates of programs B, C and D increase significantly as the lump sum payment increases. For a lump-sum payment of 3000€ they are much lower than for program A. Therefore, their additional costs are lower. For example, the additional cost of program C represents an increase of 36% of the total cost of status quo situation (Table 9).

Table 9: Enrolment rate and additional cost of selected hypothetical programs

For a lump sum payment of €3000		
Programs	Enrolment rate	Additional cost (% of the total cost of status quo situation)
A – environment constraint only	79%	K€ 799 (+49%)
B - environment and low employment constraints	63%	K€ 698 (+42%)
C - environment and high employment constraints	55%	K€ 590 (+36%)
D – high employment and commitment constraints	34%	K€ 418 (+25%)

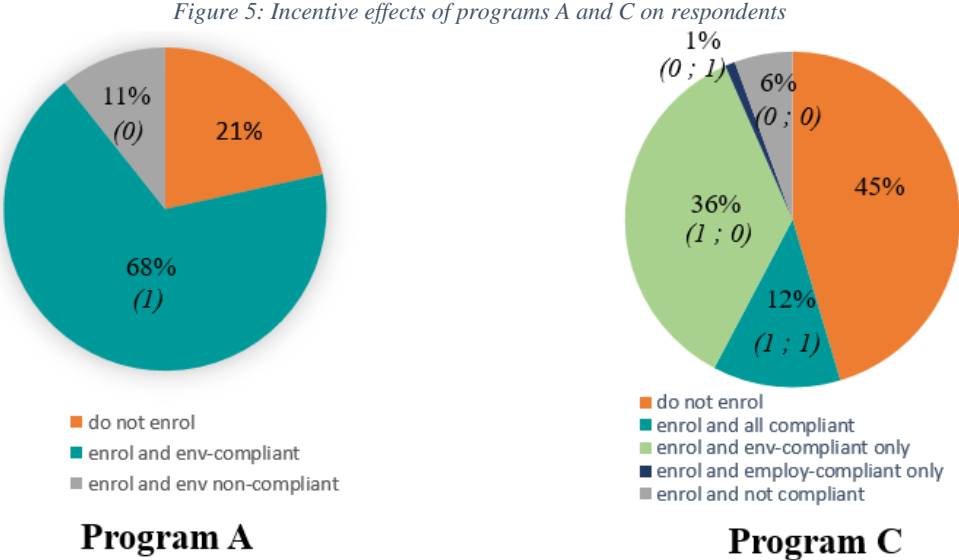
### 5.3 Analysis of a policy option

Beyond the additional cost and enrolment rate of the programs, we want to know if they have an incentive effect on respondents: would many of them have an incentive to comply with the constraints to enter these programs? Or, on the contrary, do they already comply with the associated constraints?

The focus is on the programs A and C. Program A is retained because it is appreciated by our respondents. Program C is retained because it is particularly relevant from a public policy point of view: it combines the environment constraint with the high employment constraint at a relatively low additional cost compared to the simulated programs.

For a lump sum payment of 3000€, 68% of respondents would enter program A already respecting the environmental constraint and 11% would be encouraged to respect it.

For program C, 12% already comply with the environment and high employment constraints, but 6% do not comply with any of the constraints, and 36% would be encouraged to comply with the high employment constraint in addition to the environment constraint they already comply with, and 1% would be encouraged to comply with the environment constraint in addition to the high employment constraint they already comply with (Figure 5).



A portion of the respondents who would enter these programs already meet the associated constraints. In part, these programs support smallholders who are already contributing to the environment and employment. These programs are selective in that they have entry requirements without compensation associated with the constraints. Finally, some respondents who do not meet the constraints would be encouraged to meet them by entering the programs. This demonstrates their incentive effect.

## 6. Discussion 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 1002 respondents who answered at least the first part of our questionnaire, 655 (65%) declared that they get payments from CAP and all of them but 5 were able to state whether the overall amount received was lower than 2000€, between 2000 and 8000€, between 8000 and 20000€, or above. But when asked whether they could indicate the approximate amount received from pillar 1<sup>5</sup>, 45% of them responded that they were unable to answer. The same proportion is found in our final sample of 608 respondents: 172 respondents out of the 421 receiving CAP payments were unable to state how much they get from pillar 1 (41%). This is interesting as it shows that CAP is seen as a black box by many small farmers who cannot distinguish why they get support and how much they get.

Respondents who did not receive any CAP payments at all (346 farmers out of the initial 1002 respondents) were asked why this was the case. 48% explain that they are not eligible for CAP payments, and 38% answer that they are discouraged by the administrative complexity of CAP procedures: “*The amount of aids would be too small compared to the time required for the administrative procedure*”.

<sup>5</sup> Farmers had been reminded of the structure of pillar 1 payments: basic payment scheme, plus the green payment, the redistributive payment, as well as coupled payments associated to certain types of production and herd

Only 5% respond that they do not want to be controlled and 22% state that they refuse to be dependent on CAP payments<sup>6</sup>: “*I want to keep control of my economic and strategic choices*”.

### **6.2 Respondents’ attitudes with respect to the extended SFS**

We show that 28% of respondents would enrol in the 2014 SFS (1250€/year, no condition) if they were given the choice. It would involve respondents who receive less than 1250€ of pillar 1 payments but also respondents earning more than 1250€. Their main interest is in limiting administrative costs and the absence of control. We also show that the environmental condition seems to be a relevant condition to add to a SFS regarding to the preferences of our sample.

It is interesting to note that these preferences are shared not on an individual scale but more broadly by the 71 respondents (this excludes the 9 protest no respondents) who have always chosen the status quo option. Even if, 91% stating that their status quo is always more favourable to them than any other SFS option, and that 81% also mentioning that although none of the proposed option do suit them, they are not opposed to the extended SFS and find that this is a relevant policy option for small farmers. When asked what would be the best design for an extended SFS, 40%<sup>7</sup> of them choose the SFS with an environmental condition, and 16% choose a SFS without any condition.

### **6.3 Is the simplification objective attained?**

On average, we find that respondents would require around 1000€ per year to commit for a 4 year extended small farmers scheme: as already mentioned, it is probably much greater than what would be saved in terms of administration costs with a 4-year contract. Interestingly enough, when asked what is their opinion on the 4-year commitment, only 24% declare that they are not favourable to this 4-year commitment: for 65% of them, it imposes too much rigidity; for 56% of them 4 years is too long. Out of the 54% who declare that they are favourable to this commitment condition, 59% justify this choice because it guarantees a fixed payment to the farmer over 4 years, 33% like the alleviation of the administrative budget for farmers, and only 8% mention that it simplifies the tasks of payment services.

## **7. Conclusion**

The proposal for an extended SFS with environmental and employment conditions appears on paper to respond both to the objective of simplification and to encourage small farmers to start or consolidate their transition towards more environmentally-friendly practices by rewarding their efforts and by contributing to alleviating the costs of wage labour.

We have shown with this contribution that small farmers who do not benefit from any direct income support have a strong preference for the SFS system. We also show that an extended SFS with an environmental condition is an acceptable policy option which would help to enrol massively farmers who already fulfil the condition but also those who don’t. Yet a condition on employment would be much more difficult to implement and is not recommended. The extended SFS should remain flexible and avoid a compulsory long-term commitment.

Finally, we have to underline again that our results are obtained on the basis of a biased sample. They are questionable for a national application. But our survey reveals characteristics of farmers that could be specifically concerned by such a SFS. We intend to extend our survey to include more respondents and reflect better the composition of the national population of small farmers.

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<sup>6</sup> Multiple responses were allowed

<sup>7</sup> Only 57 respondents out of 71 – It was a non compulsory question.

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