Original study

Is part-time farming less subsidised? The example of direct payments in France and Switzerland

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Abstract

Farms in Western countries are strongly subsidised while part-time farms are in general ignored in agricultural support regulations. But is public support truly designed in such a way that it favours full-time farms? The common view is that part-time farms, not involved solely in farming, receive fewer subsidies than full-time farms.
In this paper we investigate whether the part-time character is disadvantageous to farms when it comes to receiving direct payments. Using an econometric regression on farm-level data, we assess the influence of off-farm activities on the level of payments received in France and in Switzerland in 2003. Our results show that the influence is non linear: the effect is negative for farms with a low part-time character but positive for the others. A strong part-time character can therefore favour the receipt of direct payments.

Key words: agricultural policies; France; part time farming; subsidies; Switzerland.

Subjects: economy and rural development.

Résumé

Les exploitations pluriactives reçoivent-elles moins de subventions ? Le cas des aides directes en France et en Suisse

Les exploitations agricoles dans les pays développés sont fortement subventionnées mais les exploitations pluriactives ne sont pas explicitement prises en compte dans les politiques de subvention. Les modalités du soutien public sont-elles telles que les exploitations à plein temps sont favorisées en termes d'aides reçues ? Une vision répandue est que les exploitations pluriactives, moins engagées dans les activités agricoles, reçoivent moins de subventions que les exploitations à plein temps.
Dans cet article, nous évaluons si l'aspect pluriactif est désavantageux pour les exploitations agricoles en termes d'aides directes. Grâce à une régression économétrique sur données individuelles, nous analysons l'influence des activités hors-exploitation sur le niveau des aides reçues par les exploitations agricoles en France et en Suisse en 2003. Nos résultats montrent que l'effet n'est pas linéaire : l'effet est négatif pour les exploitations faiblement pluriactives, mais positif pour les autres. Une forte pluriactivité peut ainsi permettre de recevoir un montant d'aides substantiel.

Mots clés : France ; pluriactivité ; politique agricole ; subvention ; Suisse.

Thèmes : économie et développement rural.

Part-time farming was defined as early as 1936 by Salter (1936): 'the combination of a small amount of farming with an occupation not connected with the farming'. The author noted that the latter point may be measured either in terms of labour supplied off the farm or in terms of income sources. The terms 'multiple-job holding', 'pluriactivity', 'farm labour diversification' and 'gainful off-farm activity' have sometimes been preferred (Fuller, 1990; Gasson, 1991; Lund, 1991; López-i-Gelats *et al.*, 2011). Part-time

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farming has gained importance around the world over the last decades. The combination of off-farm employment and farm activity may be a farm survival strategy in times of financial stress. It can also represent an initial step towards retiring from farming, a life style choice or a way of retaining inherited farm assets (Evans and Ilbery, 1993; Goetz and Debertin, 2001; Renting *et al.*, 2008). It is however difficult to provide figures on the phenomenon, as information on off-farm employment is rarely registered in available farm data as the latter are meant to concern only farm activities. Biba and Pluvinage (2006) explain this by the fact that policies in Western Europe have long ignored the importance of pluriactivity, considering it as a transitory step from traditional farming towards a final state of production organisation, namely market-oriented and specialised farming.

From a sustainable development point of view, part-time farming presents advantages over traditional agriculture by providing more multifunctional services, that is to say non-market goods that are positive environmental and social externalities. It enables extensive land management and provides agricultural public goods that are rarely labour-intensive. Ellis *et al.* (1999) show for example that the biodiversity of grassland on part-time farms tends to be higher than that on full-time farms. Kristensen (1999) reports that in Denmark part-time farms are more engaged in extensive land use than full-time farms, a view also supported by Ceddia *et al.* (2009) regarding hobby farmers. As for Phimister and Roberts (2006), they explain that fertiliser intensity declines as off-farm labour increases in England and Wales. In addition, combining a farming activity with an off-farm job may help maintain farms whose agricultural activity is unprofitable and which would disappear in the absence of additional off-farm revenue. This is particularly important in remote areas such as mountainous regions (López-i-Gelats *et al.*, 2011). The presence of part-time farms in such regions may contribute to preventing land abandonment and therefore to reducing the risk of wild fires as well as to preserving the rural population and vitality .

A question is whether the way agricultural policies are designed is disadvantageous to part-time farming. It is well known that farms in Western countries are strongly subsidised. Is public support designed in a way to allow part-time farms to receive a substantial amount of subsidies, or does it favour full-time farms? Since governments support the farming sectors, the question about the distribution of this support concerns agricultural economists (Blandford, 1987; Jones, 1994). Some researchers have focused on the redistributive effects of public support, i.e. whether subsidies can equalise incomes across farms (e.g. Allanson, 2006; Benni *et al.*, 2012; Severini and Tantari, 2013). Other studies are concerned with identifying which farms receive most of the support, depending for example on their localisation, main production, size or legal form (e.g. Roman *et al.*, 2010; Gocht *et al.*, 2013; Sinabell *et al.*, 2013). Some rare works report the extent of subsidies for different types of farms depending on their off-farm strategy (e.g. Möllers and Buchenrieder, 2011, in Croatia; D'Antoni and Mishra, 2013, in the United States). Studies on the distribution of support have not been concerned, however, with the part-time characteristics of farms. There is a research trend that investigates how public subsidies influence off-farm labour (e.g. Butault *et al.*, 2005; Kwon *et al.*, 2006; Hennessy and Rehman, 2008; Corsi and Salvioni, 2012). However, the reverse link between off-farm labour and subsidies, that is to say the extent to which part-time farms are supported compared to full-time farms, has, to our knowledge, never been considered as such. The common view is that part-time farms, being not fully involved in farming, receive fewer subsidies than full-time farms. For example, Laurent *et al.* (2002) came to this conclusion after studying the laws governing agricultural policies of five countries in the European Union (EU). Agricultural policies in the Western countries have undergone major 'green' reforms in the past decades, where farm payments are less and less dependent on food and fibre output, but more and more linked to multifunctional services. This trend may therefore favour part-time farms in terms of the amount of payments received.

In this paper we investigate whether part-time farming receives more or less agricultural subsidies than full-time farming, and whether the pattern is linear or not. More precisely, we are interested in seeing whether the part-time character is favourable to farms when it comes to receiving direct payments, that is to say payments that are linked to some farm characteristics other than agricultural output. We also investigate whether the effect is the same whatever the extent of off-farm engagement. We consider two European countries with substantially different support policies, France and Switzerland. In the period studied, 2003, as part of the EU France complied with the framework provided by the Common Agricultural Policy (CAP) but with some subsidies remaining coupled to production. Switzerland applied a largely decoupled and environment-oriented direct payment system.

In the next section we explain the different support systems in the two countries. Data and method used are then described. We finally present the Results and Conclusions.

The direct payment systems in France and Switzerland

The form of agricultural support in developed countries has changed over time in order to comply with international trade agreements and to address the changing needs of society. The major change is a shift from market price support to direct payments to farmers. The introduction of direct payments within the European CAP took place with the first CAP reform, the 1992 MacSharry reform, and continued with the following reforms: the Agenda 2000 reform and the 2003 Luxemburg reform.

Direct payments may be of two types, coupled to commodity area or headage, or decoupled. Within the first type are the CAP direct payments provided within the frame of Agenda 2000 (the period studied in this paper). Such payments are delivered to farmers per hectare of crop planted (e.g. cereals, oilseed) or per head of livestock reared (e.g. cattle, sheep). Some studies have given evidence of environmental harm brought about by CAP direct payments.

Such harm is caused by the promotion of high-input farming systems resulting in intensification of production, abandonment of extensive practices and removal of sites of biodiversity (Donald *et al.*, 2002; Pacini *et al.*, 2004). In contrast, fully decoupled payments, that is to say those not coupled to hectares planted under a specific commodity or to heads of livestock (e.g. lump-sum transfers), influence farmers' production decisions to a lesser extent and have less probability of leading to increased intensification Agri-environmental measures usually fall within this category. Such payments are linked to the production of environmental goods or services, such as the length of hedgerows or the area of grass strips. They can also concern the compliance of production methods to protect the environment, as in the case of extensive farming.

Switzerland, as one of the few non-EU member-states in Western Europe, follows its own agricultural policy. This policy is based largely on direct payments. Since a referendum in 1996 interventions in agricultural product markets by tariffs, product allowances and export subsidies have been displaced as the most important policy instrument. Ever since, 2.3 billion Swiss francs out of the federal budget of 3 billion Swiss francs for the agricultural policy have gone into two categories of direct payments. The policy rests firmly on the principle of cross-compliance (Curry and Stucki, 1997; Mann, 2005). Direct payments are grouped into General Direct Payments and Ecological Direct Payments. Ecological Direct Payments are linked to agri-environmental programs, such as restrictions on fertiliser and pesticide applications. They can also concern ethological farm programs where farmers are paid for particularly animal-friendly housing systems and for keeping animals outdoors. The General Direct Payments are also tied to ecological restrictions which are met by more than 60 000 out of Switzerland's 70 000 farms. The so-called 'proof of ecological performance (PEP)' which farmers have to furnish in order to qualify for direct payments has led to a halving of mineral fertiliser applications compared with Germany over five years. Crop rotation restrictions and the need to extensify 7 per cent of the farmland are also unique to Swiss agriculture. In WTO negotiations, not only the Ecological Direct Payments but also the General Direct Payments of the Swiss system made it into the GATT Green Box.

Over the same period, the EU introduced direct payments in the form of area and livestock payments and agri-environmental payments, following the 1992 MacSharry CAP reform. However, it is not rare to find critical words on the low level of decoupling in Europe's CAP (e.g. Watkins and von Braun, 2003). Within the EU, France is the strongest opponent of decoupling (Cunha, 2004). Desjeux *et al.* (2007) explain this opposition to decoupling by the strong French farmers' lobbies, by the late arrival of ecologists in the decision-making sphere, and by the continuous ardour of France's government to ensure high returns from the European budget to French agriculture. During the period of interest in this paper, 2003, area and livestock direct payments accounted for 42.9 per cent of the total value of subsidies delivered to French farms, while only 3.6 per cent were agro-environmental payments (MAP, 2008). As Donald *et al.* (2002) underline, agri-environmental measures are not popular among the EU member-states due to the necessary national co-financing forcing national governments to provide part of the funds for the measures. It may also reveal the big difference in strategies between the Swiss and the French governments. While the French government considers direct payments as a tool for competitiveness on agricultural markets, the Swiss government stresses the multifunctionality of agriculture (Mann and Wüstemann, 2008), whereby farmers provide a number of positive non-market goods in exchange for payments.

Data and method

Farm-level data from 2003 were used. Data were extracted from the Farm Accountancy Data Network (FADN) database in each country, which is a bookkeeping database for professional farms[1]. As in many EU countries, in France information about off-farm incomes is not part of the FADN system. Therefore, data from the tax records have to be used and linked with the FADN data set. This matching process is carried out by the Ministry of Agriculture in collaboration with the Statistical Office (INSEE) and has been done only three times, the last one being 2003.

Direct payments are the dependent variables of the regression. As the variable may capture some size effect, we related it to farm size in terms of labour. In both countries, there is no information in bookkeeping databases, nor in the tax records in France, regarding the time spent off farm and the types of off-farm activities. For this reason, the share of off-farm income in total farm income was employed here as an explanatory variable. It was taken as a proxy for the part-time character of farms. Hence, the part-time character is proxied here in terms of income rather than time. In addition to the share of off-farm income, in the regression we used its squared value, in order to investigate whether non-linear effects are present.

Other explanatory variables were included in the regression. In this way it was possible to avoid capturing other effects than the one linked to part-time farming in the effect detected for the off-farm variable.

– Farmer age. The age of farmers may influence the level of direct payments received: younger farmers may be more able to adapt to a new support system and receive more transfer payments.

– Farm location in deprived areas. The area where the farm is located may also play a role in the level of direct payments in both countries. Switzerland is divided into three production zones in accordance to their elevation. In France, as in the other EU member-states, specific CAP payments are handed out to disadvantaged areas labelled Less Favoured Areas (LFA) and often found in mountains or on plains with difficult production conditions. Hence, it can be expected that in both countries farms in mountainous areas receive more direct payments.

– Land per labour unit, as well as animals per labour unit. In France in particular, a considerable share of direct payments uses land or animals as a reference. Using ratios in relation to labour units control for size effects.

[1] The FADN database is managed by the Ministry of Agriculture in France (''Réseau d'Information Comptable Agricole'', RICA), and by Agroscope Reckenholz-Tänikon, ART, in Switzerland.

– Share of hired labour. In Switzerland, there is the traditional objective to support explicitly family farms. It can therefore be hypothesised that external labour would decrease the level of direct payments. In France, the objective is to support the preservation of labour in general in agriculture. It is therefore difficult to draw a hypothesis regarding the effect of presence of hired labour on the farm.
– Conventional or organic farming systems. In Switzerland, while most direct payments are subject to cross-compliance, i.e. to the application of integrated farming principles, the share of organic farms is around 10 per cent, which is relatively high even according to European standards. In France the share is only about 2 per cent. Organic farmers enjoy additional support by the Swiss government, in contrast to French farmers who, at the time of study (2003), received support only during the process of conversion to organic production.

The potential endogeneity of several explanatory variables (part-time character, land per labour, livestock units per labour) was tested for and accounted for with the help of instrumental variables. A two-stage least squares regression was used in cases of exogeneity rejection tested with a Hausman test, while a standard ordinary least squares regression was employed otherwise. The instruments used included the value of farm assets, the educational level of the farm head, and the main production orientation of the farm. The relevance of the instruments was tested with the Anderson under-identification test (Anderson, 1951).

Descriptive statistics of the variables are given in *table 1*. The 2003 FADN Swiss sample used is composed of 2,644 farms, whose utilised agricultural area (UAA) is 19.8 hectares and labour use is 1.7 annual working units (AWU; one AWU is equivalent to 2,200 worked hours) on average. The French sample used consists of 6,574

Table 1. Descriptive statistics of the variables used.

Tableau 1. Statistiques descriptives des variables utilisées.

Variable	Definition and unit	Switzerland	France
		Average	Average
Farm land	Utilised agricultural area in hectares	19.8	91.0
Farm labour	Labour in Annual Working Units (AWU)	1.7	2.4
Direct payments	Euros / real labour unit	31,623	18,880
Part-time character	Off-farm income divided by total income	0.20	0.26
Farmer's age	In years	44.8	45.9
Land per worker	Hectares per real labour unit	12.8	52.8
Animals per worker	Livestock units per real labour unit	16.0	45.5
Hired labour to farm labour	Labour units of hired workers divided by total on-farm labour units	0.19	0.17
		Share of farms (%)	Share of farms (%)
Farm system	1-conventional	1.4	97.5
	2- integrated (Switzerland) or in the process of conversion to organic (France)	84.8	1.2
	3-organic	13.8	1.3
Region	1-valley	45.8	-
	2-hills	27.9	-
	3-mountains	26.3	-
	1-not in LFA	-	61.8
	2-LFA not mountains	-	24.8
	3-LFA mountains	-	13.4
Number of observations		2,644	6,574

farms for which information about off-farm income and other variables is available and reliable, out of the 7,314 farms included in the 2003 French FADN data set. The sample's average UAA is 89.4 hectares and the average labour use is 2.4 AWU. The French sample is much larger than the Swiss sample but representative of the full French FADN data of the year. In 2003 Swiss farms benefited from more public direct payments per farm labour unit than did French farms (31,623 Euros against 18,880 Euros). Swiss farms and French farms relied on off-farm income at relatively similar levels: respectively 20 per cent and 26 per cent in total income on average.

Results

The regression results are presented in *table 2*. For both countries the Hausman test rejects the exogeneity of the potentially endogenous explanatory variables, and the Anderson test rejects the hypothesis of under-identification, confirming the relevance of the instruments. Therefore, the results presented are those from a two-stage least squares model for both countries. The regression coefficients for the part-time character variable and its squared value are significant and with the same sign for both countries. The negative estimated coefficient of the part-time proxy indicates that in both countries a rising share of off-farm income leads to a decrease in direct payments per worker. This effect, however, weakens with a growing off-farm income share, as shown by the positive estimated coefficient of the squared part-time proxy. Hence, in both countries, the effect switches signs for a specific value of the part-time variable. In Switzerland the threshold is 18 per cent of farm income stemming from off-farm activities. In France it is 33 per cent. This means that in the Swiss sample, the effect is negative for 57 per cent of farms (those with a low part-time character) while it is positive for the 43 per cent of farms whose part-time character is strong (that is to say, for which the share of off-farm income is greater than 18 per cent). In the French sample, the effect is negative for 65 per cent of farms (with low part-time character), and positive for 35 per cent (with strong part-time character).

The non-linear effect revealed by the regression is U-shaped, indicating that farms receiving the most subsidies are those with no or very low part-time activities (that is to say, full time farms) and those with very high part-time activities. In order to shed light on how pluriactivity could be successfully combined with high subsidies per labour unit, we used a t-test to compare the characteristics of farms in the group below the threshold

Table 2. Regression results: direct payments per labour unit as dependent variable.

Tableau 2. Résultats de régression avec les aides directes par unité de travail comme variable expliquée.

	Switzerland		France	
	Estimated coefficient	Significance	Estimated coefficient	Significance
Part-time character	-66,670	**	-109,574	***
Part-time character squared	189,644	***	165,721	***
Farmer's age	-72.3	**	7.3	
Region	6,018	***	164	
Land per worker	1,912	***	450	***
Animals per worker	215	***	12.6	***
Hired labour to farm labour	-2,521	*	5,946	***
Farm system	2,143	***	1,992	***
Constant	-6,834	**	-2,842	
R-square	0.37		0.27	
Hausman F-test of H0: exogeneity of explanatory variables	103.9	***	235.8	***
Anderson Chi2-test of H0: underidentification of instruments	50.5	***	52.6	***

***, **, * mean significance at 1, 5, 10 per cent respectively.

Table 3. Comparison of the characteristics of farms in Group 1 and Group 2.

Tableau 3. Comparaison des caractéristiques des exploitations dans les groupes 1 et 2.

	Switzerland			France		
	Average for Group 1	Average for Group 2	t-test	Average for Group 1	Average for Group 2	t-test
Direct payments per labour unit	29,240	34,739	9.0 ***	18,186	19,656	4.7***
Part-time character	0.09	0.33	58.8***	0.10	0.56	140.0***
Farm labour (AWU)	1.7	1.6	4.8***	2.4	2.3	2.1**
Farm land (hectares)	20.7	18.5	2.8***	88.9	91.8	3.2***
Land per worker (hectares)	12.7	12.9	1.0	51.5	54.2	3.5***
Animals per worker	17.9	13.5	13.0***	47.5	39.7	2.2**
Hired labour to farm labour	0.21	0.16	5.9***	0.17	0.18	0.5
Farmer's age	44.5	45.3	2.2**	45.5	46.6	5.1***
Number of farms	1,498	1,146		4,294	2,280	

Group 1 (resp. Group 2) includes farms below (resp. above) the threshold identified by the regression. The threshold is 18 per cent of farm income stemming from off-farm activities in Switzerland, and 33 per cent in France.
***, **, * mean significance at 1, 5, 10 per cent respectively.

(Group 1) with those of farms in the group above the threshold (Group 2). The results are presented in *table 3*. They reveal that in both countries, farms in Group 2, that is to say with a stronger part-time character, received on average more direct payments per worker than farms in Group 1, and were characterised by a lower farm labour, which is intuitive. Moreover, they had more animals per worker and were slightly older. One discrepancy between the two countries relates to land: in Switzerland, farms in Group 2 operated a smaller land area than did farms in Group 1, while in France they operated a larger land area. In addition, in Switzerland farms in Group 2 relied more on external labour than did farms in Group 1 while the difference between the groups was not significant in France.

Conclusions

Part-time farms are sometimes considered as holdings that do not require or deserve agricultural subsidies, since they derive a large part of their income from non-agricultural activities. In fact, they are usually ignored in regulations about agricultural support. From an ecological and social perspective, however, part-time farms may provide more multifunctional services for rural areas than do full-time farms, hence justifying some public subsidisation. While some economists concerned with equity have analyzed the distribution of agricultural support between small and large farms, arable and other specialisation farms, for example, they have not yet shown much interest in the receipt of subsidies by pluriactive farming systems.

In this paper, we have contributed to this issue with an application to two countries, France and Switzerland, for 2003. Using an econometric regression on farm-level data, we have investigated how the extent of off-farm activities influences the level of payments received. Compared to descriptive statistics, the regression makes it possible to highlight the presence of a non-linear influence. Our findings reveal indeed that in both countries the effect of the part-time character on the level of direct payments per worker is non linear, in the sense that for the majority of farms with a low part-time character the influence is negative, but it is positive for farms with a strong part-time character.

Therefore, our analysis gives evidence that farms with a strong part-time character can receive a large amount of direct payments, contrary to the common belief that part-time farming is less subsidised than full-time farming. This result is true even in France, where the agricultural policy at the time of study (2003) was still coupled to agricultural production via the area planted and the livestock reared and where the support system does not explicitly take off-farm work into account. In fact, the farming profession in France is one of the most traditional in regards to the farmer's employment status and to the role of agriculture, mainly supporting food production. An example is the uproar among French farmers caused by the declaration by Mariann Fischer Boel on part-time farming in 2006. The then-European Commissioner for

agriculture had reckoned that farmers in Europe would need a second source of income, besides agriculture, to survive in the next decade (Bounds, 2006). Another example is a study of farmer opinions in several EU countries in 2005 which revealed that French respondents strongly agreed with the statement that farmers should not have to resort to off-farm work in order to maintain their farm (Gorton *et al*., 2008).

Simple statistical comparisons highlighted the characteristics of farms that successfully combined a high share of income stemming from off-farm activities and high subsidies per worker. An interesting feature is that, in both countries, these farms had less livestock than the other farms. In addition, they were larger than the other farms in France, but smaller than the other farms in Switzerland, when size is considered in terms of land area. Further research would be necessary to understand more precisely the strategies of these farms in terms of types of subsidies received, in particular the types of agri-environmental programs, types of farm activities, and types of pluriactivity. This would necessitate the use of sources of information that are complementary to bookkeeping databases.

The analysis was carried out on past data (2003) as an illustration. Recent developments of the policies would call for more updated analysis. In particular, France, with the CAP, has moved towards a more decoupled policy scheme with the application in 2006 of the Luxemburg reform and its land-based instrument, the Single Farm Payment (SFP). The latest CAP agreement may be even more favourable to part-time farming, with the introduction of a basic payment scheme not based on historical production references and of a greening payment for 'respecting certain agricultural practices beneficial for the climate and the environment' (European Commission, 2013). In Switzerland there is also a stronger move towards payments for environmental protection (FOAG, 2012).

A final note is that our objective was not to judge whether the policy designs in France and Switzerland are favourable to the preservation of part-time farms, but rather to investigate the role of the part-time character on the receipt of agricultural direct payments. Further research could however focus on the role of agricultural payments on the survival of part-time farms. This could help make projections on the future of part-time farming in Europe and on the possibility of adapting support schemes if the objective is to maintain this type of farming. ■

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