



**AN ANALYSIS ON THE ITALIAN AGRICULTURAL FIRMS:  
EFFECTS OF PUBLIC SUBSIDIES**

**Manuela Pulina  
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# An analysis on the Italian agricultural firms: effects of public subsidies

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## Abstract

Public subsidies to the agricultural sector are aimed to promote growth and sustainability. Considering the importance of the agricultural sector in Italy, especially in Sardinia, the impact of public subsidies on the agricultural production is assessed over the span time 2007-2013, that is the time period in which the effects exerted by the Fischler's reform can be detected. A Cobb Douglas growth model is employed to test such an impact at a micro level. While public intervention is likely to reduce the uncertainty of farm incomes, the findings reveal that decoupled public payments have a negative effect on the sector.

**Keywords:** decoupled payments; public subsidies; panel data.

**Jel classifications.** C23; H41; J48; Q18.

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## **1. Introduction**

Every year, approximately 45% of the European Union's annual budget is spent on Common Agricultural Policy (CAP) measures. Nearly 90% of the CAP budget is directed on market support (1<sup>st</sup> Pillar), while the remaining 10% is targeted on rural development policies (2<sup>nd</sup> Pillar). The aim of the CAP is mainly to achieve social economic cohesion, competitiveness and sustainability (Esposti, 2007).

Hence, the objective of the Common Agricultural Policy is to "help European Agriculture become multifunctional, sustainable and competitive, while continuing to ensure a stable income for the farming community" (European Commission, 2002). Given that prices in agriculture tend to be rather volatile, governments are concerned to ensure price stability and to avoid any inflationary impact on prices in agricultural products. Moreover, in a growing economy there is a tendency for incomes to decline compared to other sectors (Mackel, 1984).

Although structural funding (2<sup>nd</sup> Pillar) is important for rural development, within the 1<sup>st</sup> Pillar subsidies to farms are the most important injections of CAP funds into rural areas (Daniel, 2009). Therefore, the impact of governments' payments on farm survival rate continues to be a central issue in on-going international trade negotiations, where Common Agricultural Policy programs are a major source of contention (Key, 2006).

The majority of CAP subsidies are annual payments that are not linked to a specific land area. When implementing the CAP, EU member states could choose amongst three different implementation models: the historical model, the regional model and the hybrid model. Under the historical model, historical production levels would determine the subsidy size (O'Donoghue and Whitaker, 2010). Under the regional model, all farms in a region have entitlements with the same unit value. The hybrid model is a combination of the historical and regional models. So far, the most commonly implemented model in the EU is the historical model, used in Austria, Belgium, France, Greece, Ireland, Italy, Netherlands, Portugal, Spain, and Wales and Scotland (UK). While, Malta and Slovenia both implement regional models. And, Denmark, Finland, Germany, Luxemburg, Sweden, and England and Northern Ireland (UK) use the hybrid model. (Ciaian et al., 2014).

Significant was also the expected impact of the Fischler's reform issued in 2003, that had the aim of supporting farmers' incomes for the achievement of quality and food safety, environmental protection and animal welfare. Moreover, the Health

Check issued after 2013 provided the basis for a new image to the agricultural sector with the focus on the need for innovation and competitiveness by innovative firms composed by younger generations. As Carter (1996) remarks, research is required to understand the nature of the relationship between the dynamics of agricultural restructuring and the emergence of new businesses in rural areas. A dynamic and rather volatile sector requires adequate policy tools, training and consulting, as well as an improvement in the access to credit and a new approach to risk management.

In particular, the 2013 reform changed the implementation conditions of the CAP as follows: certain farms, such as young farmers and farms located in disadvantaged areas, may receive additional payments; a reduction of subsidies for large farms; a higher value for the first 30 hectares than for the rest of area. There are strongest linkages of the subsidies to “agricultural practices beneficial to the climate and environment” (so-called CAP greening). Moreover, farm eligibility for the subsidies is restricted: entitlements are only for active farmers and not for non-farming landowners (Ciaian et al., 2014).

For some time, policy makers and researchers have been interested in how governments' subsidies may influence the growth and survival rate of farm businesses (Key, 2006; Huffman and Emerson, 2001), how agricultural policy affects welfare (Bullock and Salhofer, 2003) and what role direct payments have on farmers' decision (Kurkalova, 2005). In fact, governments' programs, including mechanisms designed to support and reduce the uncertainty of farm incomes, can alter the expected return to farmland (Gray, 2004) and farmers' aversion towards risk (Enjolras, 2012). Since direct payments represent a great quota of farm income (Loughrey, 2015), the high dependence on direct payments may threaten farmers' economic viability (Hennessy, 2008). Amongst the European Countries (EU), in Italy, the incidence of agricultural sector as a quota of the Gross Domestic Product (GDP) is relevant, and the value added in agriculture, forestry and fishing in 2011 amounted to 30,9 billion Euro (ISTAT).

The Italian regions have different endemic cultures as a result of a strong identity value of agricultural products offered. In the national panorama, the island of Sardinia, endowed with a rich asset that accounted for 365 endemic species on 3,000 biological varieties, is an important contributor to the national economy. The participation to EXPO-2015, which has had the theme "feeding the planet, energy for life", has confirmed the uniqueness of local products obtained through the agricultural food chain. Food industry in Sardinia is relevant since it is valued approximately 168 million Euro, and represents 37.5% of Sardinian exports. Amongst others, the dairy industry alone accounts for 67% of Sardinian exports

(Regione Autonoma della Sardegna, 2015). With a population of approximately 1.7 million inhabitants and a urban density of 69.1 per Km<sup>2</sup>, in 2011, the value added in the agriculture sector accounted for 3.1% of the agriculture national value added and 5.1% of the number of working hours (INEA, 2013). As reported by CRENoS (2013 and 2014), almost a quarter of Sardinian companies belongs to the agricultural sector, compared with 15.5% nationally. This confirms the vocation of Sardinian agribusiness, enhanced by an increase in exports of food + 10% in 2013). Nevertheless, in an area characterized by a territorial disadvantage because of its natural insularity and high rates of unemployment (17.5% in 2013 against 12.2% in Italy, as reported by CRENoS, 2014), the actions of economic policy should be aimed at encouraging entrepreneurial activity and the process of specialization. Given the time span under investigation (i.e. 2007 – 2013), it is possible to assess in what measure Sardinian agriculture sector has been affected by the so-called Fischler's reform issued in 2003. The key innovation was a scheme that provides farmers with a single payment on the basis of historical entitlements, hence decoupling a large share of CAP support from production. Besides, the single farm payment is conditional on compliance with the rules of safeguarding the environment, guaranteeing food safety, animal and plant protection, as well as the obligation to keep the land in good agricultural and environmental condition (Swinnen, 2008).

Hence, the aim of this study is to analyse the effects of the 1<sup>st</sup> Pillar subsidies on agricultural productivity in Sardinia. From a methodological perspective, a Cobb Douglas production function is applied to analyse in what measure public subsidies affect the firms' production. As far as the authors' knowledge is concerned, the present research can be considered as the first attempt to assess the impact of public intervention in the agriculture sector in Italy at a micro level.

The paper is organised as follows. The following section gives an account of the literature review on the topic. The third Section provides a methodological framework. In the fourth Section, an account is provided on the empirical data employed in the econometric analysis as well as on the case study under investigation. The fifth Section reports the main empirical results. The final section provides a discussion and concluding remarks.

## **2. A literature review**

Agricultural policies are implemented to achieve two main objectives: to create an adaptive, enterprising, innovative and efficient agriculture; to support the farm production and farmers' income while preserving the value of land (Botos, 1990).

In the literature, the effect of governments' subsidies on farm production, productivity, technical efficiency and income is rather well researched. Alston and James (2002) studied the policy incidence, in order to analyse the distribution of the resulting benefits and costs to understand why particular policies are chosen, with a particular emphasis on two main types of policy instruments, that is supply control policies (quota) and subsidies. The authors also discussed the consequences of agricultural policy in terms of the implications of alternative policies for the functional distribution of income. This approach is based on the view that, while it may be of interest to focus on the consequences of policies on prices and quantities of commodities produced, a more fundamental question concerns the overall effects, in terms of net benefits, on the agents on which the policy is issued (either producers and/or consumers) (Alston, 2007).

Several studies analyzed the production effects of direct payments (Young and Westcott, 2000; Goodwin and Mishra, 2005; Weber, 2011; Carpentier, 2012) and suggested that subsidies may have either a negative impact on farm productivity (e.g. Ciaian and Swinnen, 2009) or a positive impact on farm size and sales growth (e.g. Key and Lubowsky, 2005).

Rizov (2013) investigated the impact of CAP subsidies on aggregate farm productivity arguing that subsidies may negatively affect farm productivity because of the distortion of the production structure of recipient farms leading to allocative inefficiency. Farms may adjust their behaviour and start investing in activities which are less productive (Alston and James, 2002).

Zhu and Lansink (2010) analysed the impact of agricultural policy on technical efficiency of crop farms, finding that subsidies have a negative impact on technical efficiency in Germany but a positive impact in Sweden, although an insignificant impact in the Netherlands. Lakner (2009) showed that agri-environmental payments have a negative effect on the technical efficiency of organic dairy farms in Germany. In contrast, Sauer and Park (2009) found a positive relationship between subsidy payments and an increase in farm efficiency and technology improvement.

Moreover, Whitaker (2009) explored the varying impacts of agricultural support programs on US farm household consumption finding that direct payments have a greater effect on farm household consumption than on profit. Lamb (2002) argued that farm policy is no longer necessary to raise or stabilize farm incomes, and is ineffective anyway. Moreover, farm policy impedes the market forces to drive innovation and efficiency in the farm sector. Olper et al. (2014) studied the impact of subsidies on out-farm labor migration. An interesting implication of the study is related to the 'efficiency' of CAP payments in transferring income to farmers. Also, Koundouri et al. (2009) confirms the assertion that agricultural policies, that are

decoupled from production, do affect input use and crop mix through their effect on farmers' risk attitude. Shroeder et al. (2014) analysed the impact of Pillar II funding, observing a moderate increase on agricultural income.

Through the present literature review, it appears that several studies have been devoted to the investigation of the effects of governments' subsidies on the agricultural sector and in what measure they may influence farm production, efficiency, income and farmers' risk attitude. The aim of the present study is to further extend the existing literature estimating the effect of regional government subsidies within a neoclassical framework.

### 3. The methodological framework

In this paper, the analysis of the relationship between farm sales and agricultural subsidies is run by applying a Cobb Douglas production function where the interrelationship between capital, labour and output are approximated by using empirical data.

Several studies in agricultural economics adopted the Cobb Douglas specification as an empirical research tool (Hayami, 1970; Bergstrom, 1998; Biddle, 2010; Iganiga, 2011).

A generic Cobb Douglas production function can be expressed as follows:

$$Y_{i,t} = A_{i,t} f(L_{i,t}, K_{i,t}) \quad (1)$$

Where:

$Y$  = output (value);  $A$  = technology;  $L$  = labour;  $K$  = capital stock;  $t$  = time dimension;  $i$  = agriculture firm.

However, the endogenous growth theory suggests that other endogenous factors such as government subsidies may also affect the output (Iganiga, 2011).

Accordingly, several research integrated exogenous with endogenous variables in explaining the output. In this manner, the specification can be implemented as follows:

$$Y_{i,t} = A_{i,t} f(L_{i,t}, K_{i,t}, G_{i,t}) \quad (2)$$

$$Y_{i,t} = A_{i,t} K_{i,t}^{\beta} L_{i,t}^{(1-\beta)} G_{i,t}^{\gamma} \quad (3)$$

where,  $G$  = government subsidy; and constant returns to scale are assumed.

Taking the natural logarithm of both sides of equation (3) a linear form is obtained as follows:

$$\ln Y_{i,t} = a + \beta \ln K_{i,t} + (1-\beta) \ln L_{i,t} + \gamma \ln G_{i,t} \quad (4)$$



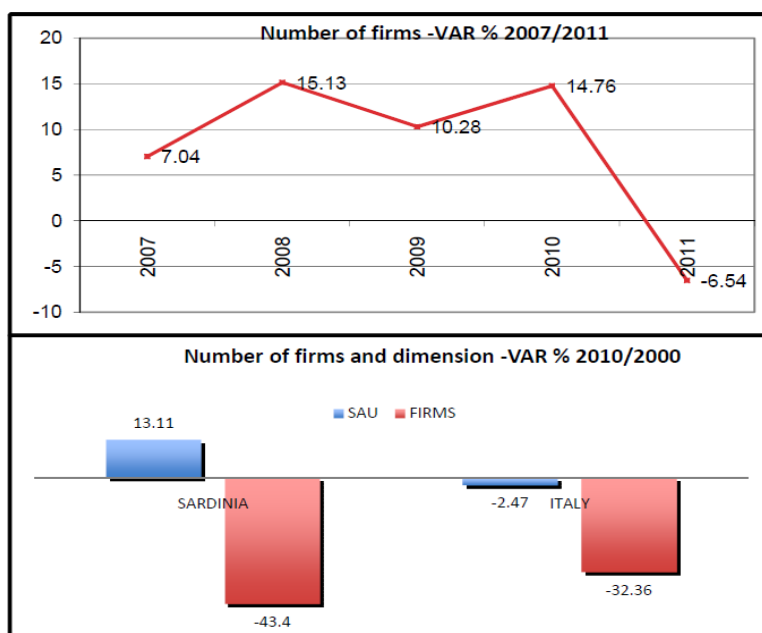
#### **4. The data collection and case study**

For the present analysis, a panel data between 2007 and 2013 is used which includes subsidised and non- subsidised agricultural farms operating in agriculture, forestry and livestock.

The balance sheet data of Sardinian agricultural firms have been collected to analyse the subsidy impact on firms' production. Only limited-liability companies and cooperative companies are here considered as are obliged, by law, to provide annual accounts. Therefore, family-owned farms have not been included in the sample because only commercial enterprises and cooperative companies are obliged to provide annual accounts. As a proxy of firms' production generated throughout the year sales revenue have been employed. This variable, used as the dependent, is defined as the product between the price at which goods and services are sold and the number of units, or amount sold. Amongst the explanatory variables, labour costs are defined as the total expenditure borne by employers in order to employ workers; this indicator includes direct remuneration, bonuses, payments for days not worked, severance pay, benefits in kind. They also include indirect costs linked to employees, such as contractual and voluntary social security contributions, direct social benefits, vocational training costs, other social expenditure (e.g., medical services), and taxes relating to employment, less any subsidies received. As a further variable, physical capital is defined as the monetary value of all material goods employed by the firm as production factors (e.g., building, machineries, plants). Finally, the amount of public subsidies is included to take into account its effect on firms' production.

From a descriptive perspective, an investigation can be done on the evolution of the agriculture sector in Italy and Sardinia in the last decade. In this respect, both the number of firms and overall average dimension is considered within the time span 2000-2010 (Figure 1).

Figure 1. Number of firms and dimension.



Notes: (First part) Elaboration on our data; (Second part) Report Inea

In the first part of Figure 1, the percentage variation of active farms, as calculated from the balance sheet, shows the dynamics between 2007 up to 2011 denoting a rather volatile pattern. Overall, considering the Census data (2000 versus 2010, second part of Figure 1), although there is a decrease in the number of agriculture firms (-43.4%), it is counterbalanced by an increase of firms size in terms of agricultural area used (+13.11 so called *SAU*). This outcome diverges from the Italian average, that shows an overall decrease of the sector both in numbers (-32.36%) and dimension (-2.47%).

As reported by INEA (2013), this trend is due to several causes. On the one hand, the economic crisis and the consequent credit crunch has led to a reduced bargaining power and a relapse on investments. Such a situation led to a lack of liquidity and thus a less competitive agricultural system. On the other hand, the rise in commodity prices and the factor of production (e.g. seeds and fertilizers), together with the changes occurred in the agricultural policy, as well as the new challenges related to environmental sustainability, have exacerbated farmers' productivity. In addition, in the past decade, the agriculture sector has had to deal with the new global economic scenario and a stronger competition. In the INEA (2013) report, it is argued that all these events have led to a deep structural change of Sardinian traditional agriculture. A decrease in the number of firms and a resulting increase in the endowment of agricultural land is occurred. Small businesses, especially those with familiar management, had to give way to medium and large entrepreneurs. The utilized agricultural area has virtually doubled from an average of 9.49 hectares in 2000, to 18.97 hectares in 2010. As a consequence, a reduction in biodiversity, protection of land and environment is seldom experienced. Such a change may also due to the growth of young independent agricultural workers. Only in 2015 with respect to the previous year, Coldiretti (2015) registered a growth of 35% of new firms run by people under 35 years old. This positive trend is due, on the one hand, to the increasing number of young people who decide to continue their family business and on the other hand, young entrepreneurs who start their own agricultural business as "first-generation farmers" thus providing the sector with innovation and professionalism. According to a survey by Coldiretti (2015), young farmers have a greater land area and a higher turnover of 54% and 75%, respectively. With this return to agriculture, young people are finding a great opportunity for economic development and a significant discovery of the opportunities offered by the rural economy.

## **5. Empirical results**

### ***5.1 Statistical properties of the variables***

In this section, panel unit root tests are run in order to investigate the statistical properties of the variables under study. Specifically, there are two main assumptions that can be made about the autoregressive coefficients in the standard ADF model for panel data. On the one hand, LLC (Levin, Lin and Chu, 2002) assume that the autoregressive parameters are common for all cross section units. On the other hand, the IPS (Im, Pesaran and Shin, 2003), ADF-F and PP tests (Maddala and Wu, 1999) and Choi (2001) allow for individual unit root processes so that the autoregressive coefficients may vary across cross-section units. In all the cases, under the null

hypothesis the variable can be treated as integrated. All the tests have been run following the Akaike's information criterion in order to include the appropriate number of lags of the dependent variable to control for possible serial correlation. In Table 1 main results are provided.

Table 1. Panel Unit root analysis

		LLC	IPS	ADF-F	PP-F
LY	c	-65.443 (0.000)	-16.889 (0.000)	902.316 (0.000)	1114.26 (0.000)
	c,t	-10.124 (0.000)	-4.21064 (0.000)	697.692 (0.000)	1179.810 (0.000)
LK	c	-1543.08 (0.000)	-302.293 (0.000)	1101.130 (0.000)	1246.180 (0.000)
	c,t	21.394 (0.000)	-64.347 (0.000)	764.700 (0.000)	1099.570 (0.000)
LL	c	-117.609 (0.000)	-18.427 (0.000)	684.764 (0.000)	870.945 (0.000)
	c,t	-9.380 (0.000)	-3.696 (0.000)	501.181 (0.000)	812.201 (0.000)
LG	c	-2078.630 (0.000)	-149.542 (0.000)	257.803 (0.000)	293.208 (0.000)
	c,t	<b>-1.203</b>	-10.563 (0.003)	187.470 (0.000)	293.228 (0.000)

		(0.1144)			
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Note:  $t$  and  $\tau$  (constant and trend p-values in parenthesis; in bold cases where the unit root assumption holds, when considering at least the 5% level of significance).

With only one exception, there is a clear statistical evidence that all the series are stationary in the level, since the null hypothesis fails to be accepted. Hence, no further investigation on the long run properties of the variables needs to be pursued.

### 5.2 The econometric results

In this empirical section both a static (i.e. fixed effects (*FE*) and random effects (*RE*)) and dynamic panel approach are implemented. The panel dynamic model is estimated by using Arrelano and Bond (2001), in STATA 13.1. The relevant models are presented in Table 2.

Table 2. Econometric specifications

Dep. var. LY	Static model		Dynamic model
	Model 1 (fixed effects)	Model 2 Random effects	Model 3 Arellano Bond
<b>LLY</b>			0.108 (0.170)
<b>LK</b>	0.082 (0.038)**	0.185 (0.032)***	0.190 (0.061)***
<b>LL</b>	0.160 (0.052)***	0.349 (0.044)***	0.199 (0.154)
<b>LG</b>	-0.060(0.028)**	-0.062 (0.026)**	-0.072 (0.041)*
N observations	556	556	226
Wald chi2	5.37***	122.33***	14.40***
<b>Hausman test (random effects versus fixed effects)</b>			
Null hypothesis - random effects: chi2(3) = 79.64 (0.000) ***			
<b>Tests run in the panel dynamic gmm (xtbond2)</b>			
Arellano-Bond test for AR(1) in first differences: z = 0.61 Pr> z = 0.544			
Arellano-Bond test for AR(2) in first differences: z = -0.39 Pr> z = 0.694			
<b>GMM instruments for levels</b>			
Hansen test excluding group: chi2(29) = 21.97 (0.342)			
Difference (null H = exogenous): chi2(30) = 17.32(0.138)			

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Hansen test excluding group:  $\chi^2(57) = 4.65 (0.794)$

Difference (null H = exogenous):  $\chi^2(2) = 17.32(0.012)**$

*Notes: LLY= logarithm of the first lag of the dependent variable; LK=logarithm of firms' capital; LL= logarithm of firms' labour; LG=logarithm of public subsidies; \*  $p < 0.10$ , \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  – Bold figures statistically significance. standard errors in parenthesis*

The generic equation is the following:

$$LY_{i,t} = \alpha_1 LY_{i,t-1} + \alpha_2 LK_{i,t-k} + \alpha_3 LL_{i,t-k} + \alpha_4 LG_{i,t} + \varepsilon_{i,t} \quad (5)$$

For  $i = 1, \dots, n$  agriculture firms and  $t = 1, \dots, j$  years.

In this case,  $LY$  is the dependent variable and is expressed in terms of farms' sales as a proxy of the production generated throughout the year.  $LK$  is the capital stock,  $LL$  are the labour costs and  $LG$  are the public subsidies, respectively. From the Hausman's test, it emerges that the fixed effects needs to be estimated. However, the statistical significance and signs of the coefficients for  $LK$  and  $LL$  are stable and positive as expected in both of the models. Besides, in both the FE and RE model the government intervention negatively influences agricultural production. The same result is achieved when employing the dynamic specification, although only  $LK$  and  $LG$  present a statistically significant coefficient and the latter only at the 10% level of significance.

## 6. Discussion and conclusions

This paper analysed the effects of agricultural subsidies on agricultural productivity with a particular focus on Sardinia (Italy) within a Cobb-Douglas production function framework.

The results showed that public subsidies negatively influence agricultural productivity. This finding has been also validated by a qualitative investigation conducted with farmers and sector experts who provide an explanation to this counter-thinking result. Hence, before the Fischler's reform, the economical efficiency of welfare subsidies was often conditioned by enforcement costs as well as cases of fraud behaviour. As reported by Giannakas and Murray (2000), subsidies based on production may have induced many farmers to overestimate their crop balance reports.

With the Fischler's reform (2003), the introduction of agricultural payments decoupled from production but still linked to land supposedly had the purpose to increase consumption, savings and investment without affecting farmers' production decisions (Whitaker, 2009). Decoupled payments are fixed income transfers that do not depend on farmer's choice on the production, output levels or market conditions (Koundouri et al., 2009). Critics of this public program argue that even though such payments are not directly tied to production requirements or market conditions, they may still have important effects on production (Goodwin and Mishra, 2005) and on environmental quality (Muniz and Hurlè, 2006).

Also, O'Donoghue and Whitaker (2010) argue that direct payments can affect agricultural production in three ways. First, if farmers face credit constraints, a direct payment may increase their access to borrowed capital. Second, direct payments, aimed at increasing wealth, may lead to changes in the agents' risk preferences. Third, expectations about future payments could alter current production.

From the economic theory perspective, decoupling is seen as a desirable measure especially for its ability to return to the market its function to determine prices, to improve transparency in the public support, and, therefore, to orient producers' strategies in directions more responsive to the interests of the community. The single payment scheme decoupled is supposed to achieve a better matching between supply and demand, bringing a benefit to the producers who can take full advantage of the market opportunities. In this respect, the reform may give advantages to younger farmers who are likely to innovate and open to international market. Yet, possible risks can also be considered. Amongst others, less competitive farmers, especially in disadvantaged areas, could "cash in" the decoupled single payment and exit the sector, or bring the production to the minimum level required by the regulation. Besides, a disadvantage of decoupling is that the actual allocation of payment is based on the farmers' past level of production. Hence, treatment inequality is likely to arise, leading to a penalisation of those farmers who also adopted good agricultural practice, such as crop rotations.

This paper showed that public subsidies in all the estimated models negatively influences agricultural productivity. Hence, there is empirical evidence that public policies, designed to reduce the uncertainty of incomes, can bias the economic returns and are likely to influence farmers' behaviour. Taking milk production as an example, a farmer who received a fixed contribution, and considers the price of milk very low, tends to decrease production to reduce fixed costs and to have a higher income. Hence, the implication of supply control policies (quota) should not to be underestimated. An example of supply side control policies could be those applied to milk producers, that require farmers to pay a financial penalty for over quota

production. The supply control policies that were introduced in 1984, to regulate milk production have become excessive and have led to an unsustainable fall in prices.

For the farmers of each country the production limit has been set according to the quantity sold in the market. The value of milk production assigned to Italy, that has been changed several times, amounted to 8.823 thousand tons (Boccoli, 2004). In November 2008, the Italian quota increased by 6%.

The quota system has exerted a regulating force on production, driving the free market to contain the price volatility. A farmer can produce even more than the assigned quota, conscious of incurring an additional payment, so as to make the additional production highly uneconomic. On this basis, as assessed in the present study, the negative effect of government subsidies on agricultural production can be explained by production quotas, a tool that aims to regulate supply and discourage overproduction.

From a descriptive perspective, a further picture also emerged. In Sardinia, a decrease in the number of farms has been counterbalanced by an increase of firms size in terms of agricultural area used. This outcome diverges from the Italian average, that shows an overall decrease of the sector both in numbers and dimension. On the one hand, the economic turmoil is likely to have led to the failure of many agricultural firms, while the increase of Sardinian farm size, in terms of agricultural area, may be due to the sale of land by small farmers that have been incorporated by the larger ones. On the other hand, the decoupled payments policy may have provided incentives to some farmers to exit their activity or decrease their productivity.

The new CAP, active from 2014 to 2020, has aimed to reduce the critical issues also assessed by the present empirical investigation. In particular, it has provided the opportunity to the EU members to adopt restrictive actions hence not providing direct payments to farmers whose agricultural activity is not a significant part of their business. From April 2015, it also planned the abolition of milk quotas. Hence, the CAP reform has the aim at enhancing innovation and competitiveness, especially driven by young developers who are supposed to have an essential role in the future advancement of rural areas.

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