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EUROPEAN RURAL TOURISM: AGROTOURISTIC FIRMS IN SARDINIA AND THEIR LIFE CYCLE

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EUROPEAN RURAL TOURISM: AGROTOURISTIC FIRMS IN SARDINIA AND THEIR LIFE CYCLE

Summary: this paper analyses the supply of rural tourism. The analysis is framed into three main sections: firstly, an overview examines the supply of rural tourism at a European level. Secondly, the main legislative actions engaged by the Italian region of Sardinia in regulating the supply of agrotourism are presented. Thirdly, a life cycle analysis is undertaken in terms of trend factors of Sardinian agrotourism within a sample period from 1986 up to 2003. An econometric analysis has identified a heterogeneous trend for each of the four Sardinian provinces. Evidence is found of signs of a consolidation stage. Moreover, regional regulatory laws for agrotourism have had a significant impact in the evolution and dynamics of this type of rural tourism supply. On the basis of the economic results obtained suggestions are given to the private sector and policy maker.

Keywords: rural tourism, legislative action, life cycle, fitting trends.

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1. Introduction[1]

Tourism literature has greatly focused on tourism demand and the consumer, as the consumer is the one who identifies with and purchases the tourism product. The means of transportation, type of accommodation, cultural services and so on can be considered as tourist supply if their main economic drives is aimed at satisfying leisure and business actives, (from the definition of tourism according to the World Tourism Organisation (WTO)). On the other hand, the tourist supply approach emphases the role of goods and services offered by private and public sectors without which a certain geographical area could not experience a growth in tourist demand. It is evident that the two approaches are deeply inter-linked as the demand depends on the quantity and quality of the existing tourist supply and, also, the supply exists if the private and public sectors are able to promptly adjust to the consumers' expectations and preferences.

In recent years the role of tourism in the context of the sustainable use of natural resources has become more recognised. As Markandya *et al*. (2003) point out, the three main linkages between tourism and sustainable development are: economic, social and environmental. This recognition has been achieved in 1997 by the European Conference in Luxembourg where tourism was identified as the key to activating growth processes in rural agriculture thanks to the principles of integration and multi-functionality of several economic and non-economic sectors. On this basis, a European rural model was developed based upon the definition of "rural tourism" in terms of "any tourist activity within the rural areas" (Pierini, 2003). However, this definition is broad and each of the EU countries has issued its own specific legislation, so that today rural tourism appears to be a heterogeneous activity across the EU countries.

[1] We would like to thank Ubaldo Grazietti for his valuable support in providing the data.

This paper has the objective to analyse the supply of rural tourism on the island of Sardinia (Italy). This island represents one of the important tourist areas in the Mediterranean Sea. Its main attraction for tourists consists of the quantity and quality of its natural resources together with its archeological and cultural heritage that represent the pillars in developing tourism as a key economic sector. In 2001, Sardinian tourism expenditure reached approximately 3% of the Italian total expenditure for tourism in goods and services. Italians spent 42% of the total tourism expenditure, locals 38% and foreigners a final 20%. Moreover, tourism expenditure in Sardinia represented 7% of the total regional value added (CRENoS, 2003). Sardinia also experiences a "sea and sun" tourist phenomenon characterised by a high seasonality, with peak months in August and July that capture 54% of the total annual tourist flows (Pulina, 2002). According to Crenos (2003), it has been possible to reduce the environmental pressure by activating a policy of diversification in accommodation and services supply. This is the policy adopted by some local administrations that are now registering higher levels of deseasonalitation of tourist flows that is leading to decreased environmental and social pressures. This approach is being regarded as the basis to achieving sustainable tourism conditions. The role of rural tourism, and hence, of agrotourism in this context has been stated in the "Cork Declaration" (1996). Government policies have the objective to preserve rural landscapes, natural resources, bio-diversity and cultural identity so that the use of these resources by today's generation does not prejudice the opportunities for future generations. Each country has to be aware of its own global and long run responsibilities.

The paper is organised as follows. In the second section, a European overview on rural tourism is given. In the third section, an analysis of the Sardinian legislation is undertaken. In the fourth section, an investigation of the life cycle of the agrotouristic firms in Sardinia is carried out. A summary presents the main economic findings pointing out the strategic

implications for both private sector and policy makers. Concluding remarks are given in the last section.

2. A European Overview

A European overview on rural tourism is given both in terms of a law perspective and also from different experiences within some of the Union countries, namely: France, Great Britain and Italy. In recent decades, Europe has experienced a growing interest towards rural tourism that has progressively led to the increase of demand and supply of infrastructure and services. Nowadays, this phenomenon, once marginal and spontaneous, is characterised by a segment of tourism demand and supply having a great economic and financial impact within the rural areas. As emerged in the European Congress on Rural Tourism, approximately 200,000 entrepreneurs are recorded within Europe that offers more than 2,000,000 bed-places. The annual expenditure in rural tourism is about 12 billion EUR and taking into account added value and multiplier effects, this brings to the revenue upon 26 billions. Furthermore, an estimated 500,000 jobs are created by rural tourism (Jakovica, 2003).

The European Commission has put in place legislative acts since the Eighties aimed at reducing the economic divergence amongst the European regions, and given financial aids to disadvantaged rural areas (CEE 2052/88, CEE 4253/88 and CEE 1260/99). However, an important step forward was taken in 1996 with by the Cork Declaration (1996) where the main policy strategies for rural tourism and its sustainability were assessed. The integration between agriculture and other productive sectors, such as tourism, is regarded as a vital strategy for the development of a rural system characterised by agricultural, environmental, historical and cultural opportunities that can create innovative and sustainable economic activities, as well as a new attraction for tourism demand. Hence, agriculture is seen as the economic sector able to revitalise European rural areas that are today characterised by a progressive depopulation,

as new generations tend to leave in search of better opportunities and alternative sources of income. However, the European legislation is very broad and gives each of the European members the legislative discretionary to adopt their own specific acts in accordance to the main legal Union directives. Hence, European rural tourism appears to be heterogeneous and EU countries experience different legal frameworks.

Rural tourism was first developed in France and dates back to 1951. In 1969 the French Government defined a new type of tourist accommodation, "Chambre d'Hotes", that were characterised by a diversified supply of services and leisure activities. In a 1992 survey, French farmers declared that rural tourism is acquiring an increasing role and economic impact within their agriculture activity. From the analysis it also emerged that rural tourism is mainly practised by female operators (Revue Espaces, 1992). From a French legal perspective, rural tourism is not classified as an agricultural activity, as an activity can only be defined as agricultural if there is a long-term production from the land. Given this definition rural tourism cannot therefore be regarded as agriculture. In France, rural tourism operators have to enrol in a commercial register in order to guarantee fair competition and consumers' rights.

In Great Britain, rural tourism has been developing since the Seventies and was seen as a response by citizens from polluted and industrialised urban areas in search for uncontaminated and unspoiled environments. A supply of accommodation and infrastructure was planned and delivered by both public and private sector to fulfil the tourists' needs. The demand for "green tourism" is the basis to sustain the economy of British rural areas. This objective is reached by integrating and differentiating the traditional agriculture activity and a sustainable use of the existing natural resources. Rural tourism is regarded as an instrument to protect the rural environment. However, tourism demand is highly sensitive to security and health shocks, as the recent past events have demonstrated: Gulf War in 1991, Kosovo conflict in 1999, September 11 terrorist attacks (Blake and

Sinclair, 2003). In the UK, the foot and mouth epidemic in 2001 resulted in a sudden and unexpected decrease of tourism demand in the countryside. This crisis has highlighted the existence of inter-dependency between healthy farming, the environment and the economic effects on tourism and, more generally, rural activities.

Within European legal framework rural tourism of Italy represents a unique example. If rural tourism and agrotourism are considered as a synonymous in all European countries, in Italy the two concepts are distinct. Two separate legislative acts define "rural tourism" and "agrotourism" that are characterised by distinctive administration, commercial and fiscal disciplines. Rural tourism, in Italy, is defined as a tourism activity having in mind the protection of rural areas and all their cultural, historical, crafts, gastronomy resources that these areas are based upon. Rural tourism dealers might not be agriculture operators since the law does not require a connection between tourism and agriculture activity whereas the latter connection is the foundation for running an agrotouristic firm.

In Italy, national laws give only policy directions and each region issues specific regulations on this topic. The Sardinian Region, for example, declares that one defines "rural tourism" as the numerous activities of accommodation, restoration, organisation of tourists' recreation and any other service aimed to satisfy tourism demand within extra-urban areas (Art. 8, L.R 27/98).

On the other hand, the agrotouristic activity can be regarded as a special case of rural tourism. In the next section, the definition and legislative actions in regulating agrotourism in the region of Sardinia are discussed.

3. Sardinian agrotourism

Sardinia is an Italian region that represents 8% of the total Italian surface and counts one million and six hundreds inhabitants representing 2.9% of the Italian total population. It is

mainly characterised by a “warm temperate” climate with some differences along the south coast, that sees a sub-tropical climate and the inner areas with a “sub-continental temperate” climate. Its territory is very diversified and is composed of 13.6% by mountains, 67.9% by hills and 18.5% by plains.

The region of Sardinia is divided into four administrative provinces: Cagliari (in the South), Nuoro (in the East), Oristano (in the West) and Sassari (in the North). Oristano was the first province to have developed forms of rural tourism since the Sixties by a farm cooperative (*Cooperativa Allevatrici Sarde*) sponsored by the European Organisation for the Economic Cooperation. During the Seventies agrotouristic farms were activated also in the Sassari province. The aim was to offer a differentiated tourist products based upon the re-evalutation of the traditions and cultural heritage of the local and provincial territories. This was the answer given by the farming sector to a new type of tourism demand that is becoming more interested in the knowledge of the local culture, traditions, folklore and the use of an unspoilt environment.

The first Sardinian Regional law was issued in 1986 to regulate the agrotouristic activity. A regional list was introduced to register the entries and cancellations of agrotouristic operators. A definition of agrotourism was also given as follows: "Accommodation and restoration services are identified as agrotourism if they are provided by agriculture operators and the tourist activity can be regarded as connection and complementary to the agriculture activity" (L.R.1986).

As Macellari (2003) points out, this legal act has enhanced and promoted agrituristic activity in Sardinia. It revealed to be a multi-sectoral policy based on an integrated approach that encouraged the differentiation of the services supplied: the enhancement of environmental functions, the promotion of culture, local knowledge and traditions, sport activities and recreation. However, the years following its introduction saw the law presenting an excess of bureaucracy and lack of regulation on the quality of the agroturistic goods and services supplied.

In 1998, a new law was issued presenting innovative aspects. It emphasised even further the condition of connection and complementarity of agrotourism with agriculture activities (Art. 5). New limitations were introduced in terms of quantity and quality of goods and services supplied by agrotouristic firms, in accordance to the tourist-consumers' rights and satisfaction. Accommodation infrastructure can be supplied according to the farm dimension. However, they cannot exceed the maximum limit of 12 rooms and 20 bed-spaces within the agrotouristic accommodation and they cannot exceed the maximum limit of 10 tent-spaces and 30 guests within an agrocamping accommodation. Limits have also been fixed for the restoration activity for a maximum of 80 seats per meal. The legislation has also integrated the provision of own-farm food and drinks produced by other local agriculture firms. The aim is twofold: to guarantee the quality, the differentiation and the availability of restoration products; to develop a "network" of agriculture firms within the local territory that are able to benefit from economic multiplier effects, commercialisation of own products and promotion of local traditions. Finally, the law has issued specific structural requisites that fulfil the legal lack of regulation on the quality of agrotouristic firms. At this aim, the minimum ratio of guests/bathrooms and the hygienic requisites in the restoration activity were identified.

At the regional and national level, rural tourism and agrotourism are proving to be successful with higher levels of demand. In 2002, as reported in ISTAT (2003), the total number of arrivals in Italian agrotouristic firms reached 1 million units and the number of nights of stay counts more than 5 million tourists, denoting an average of 5.5 days of staying. On average, foreigners spend around 6.8 days and Italians stay for only 4.3 days. On the supply side, in Italy there are around 8,600 enterprises and 102,000 bed-spaces. Toscany confirms its historical investment in agrotourism with the highest quota of firms equal to 29.3% and Sardinia shows a quota of existing firms equal to 0.5% of the national supply. Very similar results are

reported in terms of bed-spaces, Sardinia, together with Valle D'Aosta and Molise, denotes a quota of 0.4% with respect to the aggregated datum. ISTAT (2003) also indicates some problems for this economic activity and some signs of maturity in many areas that need some prompt actions in terms of services, promotion and professional training to improve the quality of the "product".

4. Life cycle analysis of agrotourism in Sardinia

4.1. The stages of life cycle and the supply

In general terms, life cycle can be defined as the selling evolution of a product when it goes through the phases from its introduction into the market, to its growth, maturity and decline (Cooper, 1990). In the tourism literature, there is no consensus on how many stages characterise a tourist product and they vary from three to six. Butler (1980) proposes a more detailed product evolution divided into main six phases: exploration, involvement, development, consolidation, stagnation, post-stagnation that can be characterised by a period of either decline, rejuvenation or stabilisation. Agarwarl (1992) suggests that the sixth stage can be defined as re-orientation and occurs whenever decline needs to be avoided. Gonçalves and Aguas (1997) describe in great detail these six stages under four main elements: demand, supply, distribution and competitors. In the present study, the analysis focuses on the supply side, as reported by Gonçalves and Aguas (1997). In the first stage, tourists are attracted by the natural resources, historical and cultural heritage; however, services and infrastructure are not activated to satisfy this new tourism demand. In the second stage, the public and private sectors are involved in activating and providing tourist goods and services. The development stage is characterised by the growth and a differentiated supply. National and foreign enterprises start handling the supply and the locals loose, progressively, its control. In the consolidation phase, tourism becomes the main bulk for the local economy and is able to create revenue, value

added and jobs. However, the growth rate of tourists' flows begins to slow down. In the stagnation stage, the tourist destination shows the loss of its original appeal and experiences a decreasing number of tourists' flows. These effects are caused by saturation effects, damage to the environment and to the local social equilibria. The post-stagnation stage can present three distinct scenarios: a period of stabilisation where there is the tendency to maintain a stable number of tourists together with the same level of goods and services supplied. However, a tourist destination can experience a period of rejuvenation thanks to innovative policies aimed to creating and differentiating tourist products. The last possible scenario sees the decline of the tourist destination and a long run conversion of its infrastructure to alternative uses (Gonçalves and Aguas, pp. 13-14, 1997)

It is important to point out that this description is given for methodological purposes since the number of stages depends on the characteristics of the product, marketing strategies, public and private investment choices. Therefore, some of the phases could not be experienced by a tourist destination and re-orientation phenomena could be present for a long span of time.

Some studies analyse the evolution of a certain destination by employing a descriptive investigation (*e.g.* Formica and Uysal, 1996). Other studies make use of time series such as number of overnights, number of bed-places, tourist receipts and so on to identify the evolution of the tourist product (Foster and Murphy, 1991; Gonçalves e Aguas, 1997; Choi *et al.*, 1999). Both the qualitative and quantitative approaches are aimed to describe and identify the life cycle of a certain tourist product and/or tourist destination so as to give strategy directions for marketing and policy makers. In the following section, the long run evolution of the supply of agrotourism in Sardinia is studied by employing an econometric approach.

4.2. Life cycle and empirical evidence

In 2003, Sardinia had 488 agrotourism distributed as follows: 19.7% of the total regional supply in the Cagliari province, 25.2%

in the Nuoro province, 18.8% in the Oristano province and, finally, 36.3% in the Sassari province. It is also interesting to consider the evolution of the supply from 1986, when the first legal action was issued, up to, and including 2003. Table 1 gives a better picture of the agrotourism dynamics in each province and in Sardinia as a whole.

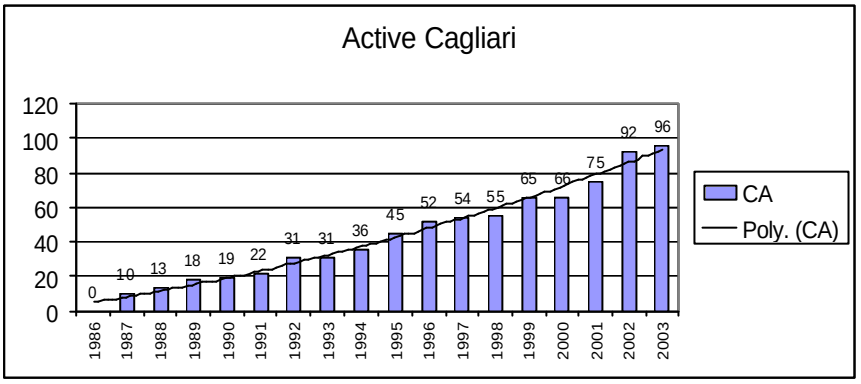
Table 1 Agrotouristic Firms: Entries, Cancellations and Active in each province (Cagliari (*CA*), Nuoro (*NU*), Oristano (*OR*), Sassari (*SS*) and in Sardinia (*SAR*)). Source: *Elenco Regionale* (January 1986 - March 2003).

	ENTRIES					CANCELLATIONS					ACTIVE				
Years	*CA*	*NU*	*OR*	*SS*	*SAR*	*CA*	*NU*	*OR*	*SS*	*SARD*	*CA*	*NU*	*OR*	*SS*	*SAR*
1986	0	0	5	1	6	0	0	0	0	0	0	0	5	1	6
1987	12	4	23	14	53	2	0	0	0	2	10	4	28	15	57
1988	3	6	13	23	45	0	1	2	0	3	13	9	39	38	99
1989	5	3	22	4	34	0	0	5	1	6	18	12	56	41	127
1990	2	3	4	6	15	1	0	2	3	6	19	15	58	44	136
1991	5	2	2	7	16	2	2	3	2	9	22	15	57	49	143
1992	9	10	7	15	41	0	0	6	1	7	31	25	58	63	177
1993	3	8	10	18	39	3	1	8	1	13	31	32	60	80	203
1994	6	8	8	18	40	1	2	3	4	10	36	38	65	94	233
1995	11	11	15	15	52	2	1	4	3	10	45	48	76	106	275
1996	11	15	10	32	68	4	5	10	6	25	52	58	76	132	318
1997	6	19	9	9	43	4	3	6	2	15	54	74	79	139	346
1998	4	14	18	20	56	3	6	8	6	23	55	82	89	153	379
1999	10	8	10	8	36	0	1	6	4	11	65	89	93	157	404
2000	5	16	6	19	46	4	11	19	26	60	66	94	80	150	390
2001	18	26	9	42	95	9	6	5	24	44	75	114	84	168	441
2002	19	7	7	15	48	2	5	0	9	16	92	116	91	174	473
2003	6	7	3	4	20	2	0	2	1	5	96	123	92	177	488
Total	135	167	181	270	753	39	44	89	93	265					

The entries are the number of agrotourism operators registered in the year *t*. The cancellations are the number of agrotourism operators cancelled in year *t*. The actives are the number of active firms in year *t*. For example, in 2003 the active firms in Sardinia as a whole are 488, this numer is given as a sum of the active firms in 2002 and the difference between entries (*En*) and exits (*Ex*) in 2003, in more general terms: $\mathrm{Sar}_t = \sum_{i=1}^{i=n} (\mathrm{En}_t - \mathrm{Ex}_t)$.

In Figure 1 the trend of agrotourism is presented for the province of Cagliari (*CA*).

Figure 1 Active agrotourism in Cagliari Province (1986-March 2003)



An econometric analysis is carried out in order to understand the main variables affecting the supply of agrotourism along the time span under study. For this aim an Ordinary Least Squares (OLS) approach is employed. Evidence is found of the existence of a curvature in the relationship between the number of active firms in Cagliari (*ACCA*), that is the dependent variable, and the time trend, that is the independent variable. A second-order term for the trend variable (*STrend*) is required into the equation. The generic non-linear model, with a quadratic specification, is given by the following equation:

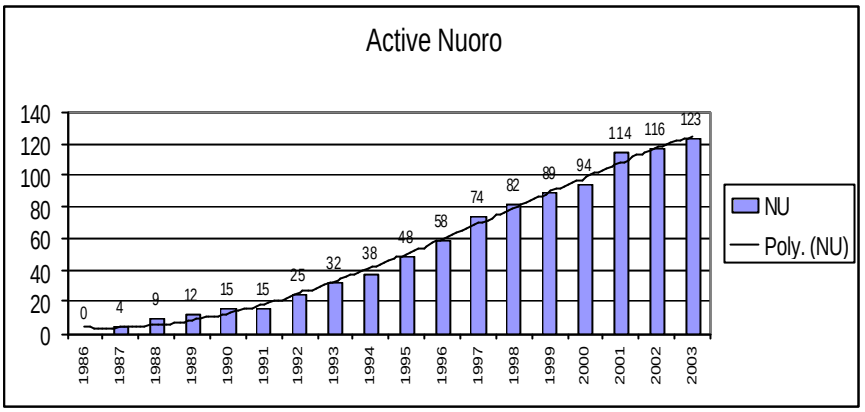
$$AC = a + ß1\ Trend + ß_2\ Trend^2 + e \qquad (1)$$

An extra qualitative variable, that is an impulse dummy (*i00* that takes the value of one in 2000 and the value of zero otherwise) is

included into the model in order to correct for the existence of non-normal residuals. The results obtained are reported in Table 2. Several diagnostic tests are presented to evaluate the goodness of the fit: the joint statistical significance of the coefficients, excluding the constant (*F*-test), Durbin-Watson statistic (DW); autocorrelation test (AR); conditional heteroscedasticity (ARCH); normality test (NORM); heteroscedasticity test (HETER); functional form test (RESET). The results are obtained using PcGive Modulus in GiveWin 2.00 (Doornik, 2001). The R^2 value suggests a good fit, as the model is able to explain almost 99% of the variance of the dependent variable. The joint *F*-test suggests that the independent variables included are jointly statistically significant. Furthermore, the model does not present any problems in the diagnostics. As one can notice, the sign of $? _2$, that measures the amount of curvature in the response curve, is positive implying that the curve opens upwards. Note that the coefficients allowing for the quadratic specification are jointly statistically significant. Moreover, a negative and statistically significant coefficient is determined for the qualitative variable (*i01*).

The province of Nuoro (*NU*) denotes a different pattern (see Table 1). In the Eighties, the agrotourism business sees a very slow development until 1992 when this province shows a higher number of operators in the sector, reaching in 1997 the peak of 19 new entries. Conversely, the year 2000 sees the highest number of cancellations (for a total of 11 firms) whereas the year 2001 sees the highest number of entries in the agrotourism activity (for a total of 26). In Figure 2 the trend of the supply is depicted.

Figure 2 Active agrotourism in Nuoro Province (1986-March 2003)



An econometric investigation has led to adopting a third-order specification (a cubic model) that allows for non-linearities in the relationship between the time trend and the supply of agrotourism. The generic equation is given by the following:

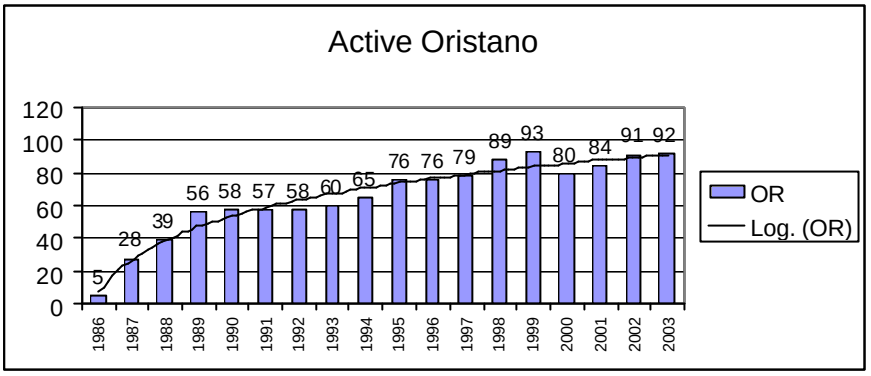
$$AC = a + ß1\ Trend + ß_2\ Trend^2 + ß_3\ Trend^3 + e \qquad (2)$$

A further impulse dummy (*i01* that takes the value of one in 2001 and the value of zero otherwise) is included into the model in order to correct for the existence of non-normal residuals. The econometric results are reported in Table 2. By regressing the number of active agrotourism (*ACNU*) on the time trend (*Trend*) in its linear, quadratic (*STrend*) and cubic (*CTrend*) specification and the impulse dummy, a coefficient of determination equal to 0.99 is determined. According to the diagnostic statistics, the model is well specified and does not present any problems in the residuals. The coefficients allowing the polynomial specification are jointly statistically significant; moreover, the impulse dummy presents a positive and statistically significant coefficient.

As reported in Table 1, in 1986 five agrotouristic operators registered in the Oristano (*OR*). The year 1987 shows the highest number of new entries whereas the highest number of

cancellations occurred in 2000 with 19 firms. The evolution of the agrotourism supply is presented in Figure 3.

Figure 3 Active agrotourism in Oristano Province (1986-March 2003)



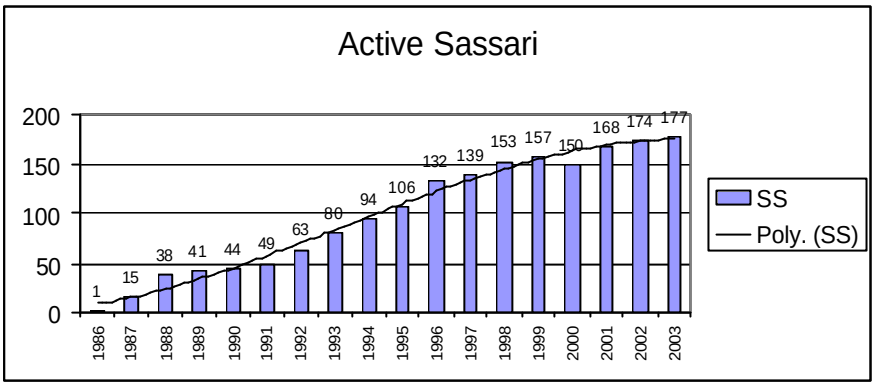
The best econometric specification is achieved by using a logarithmic specification. The generic model adopted is given by the following:

$$LAC = a + ß1\ LTrend + e \qquad (3)$$

One includes the logarithm of the dependent variable (in the specific case, *LACOR*) and the logarithm of the time trend (*LTrend*). It emerges that after three years of initial strong growth there appears a stable moderate growth during the next decades. Further variables are included into the model. The first lag of the dependent variable ($LACOR_{t-1}$) is added to correct problems of serial correlation in the residuals; such a variable presents a positive sign suggesting that the supply of agrotourism is positively influenced by its past behaviour. A further impulse dummy (*i89* that takes the value of 1 in the year 1989 and the value of zero otherwise) is included to correct problems of non-normality. Note that the coefficient of *i89* is positive and statistically significant. One finds an R^2 equal to 0.97 and the statistical diagnostics indicate that the model is well specified.

The last province to be considered is that of Sassari (*SS*). The trend is presented in Figure 4.

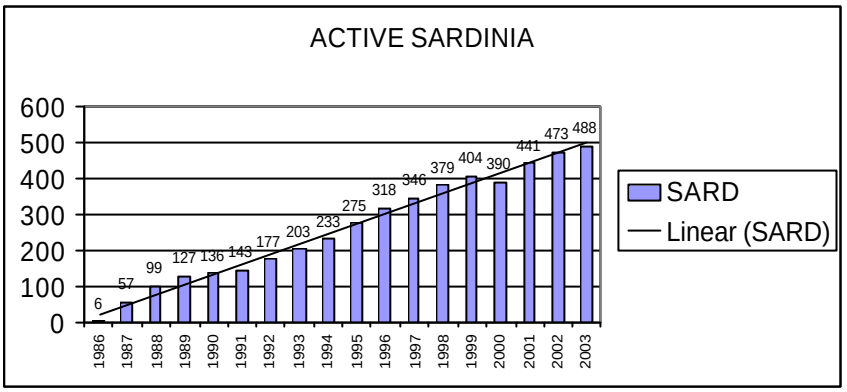
Figure 4 Active agrotourism in Sassari Province (1986-March 2003)



As for the Nuoro case a polynomial specification of third-order is required, as given in equation (2). Two additional impulse dummies (*i88* and *i00*) are included into the model to correct non-normal residuals. From Table 2 the coefficient of *i88* is positive whereas the coefficient of *i00* is negative. The coefficient of determination equals 0.99 that implies the model is able to explain 99% of the variance of the dependent variable (*ACSS*). No problems appear in the diagnostics.

An aggregate picture of the evolution of the agrotourism activity is given by the figures for the Sardinian region as a whole (*SAR*). From Table 1, considering the three decades, the year 1987 has registered 53 new entries, the year 1996 the highest number of new operators equal to 68 and, finally, the year 2001 with 95 entries in the sector. The greatest number of cancellations occurred in 2000 and 2001 with 60 and 44 exits, respectively. The evolution of the supply of agrotourism along the time span under analysis is given in Figure 5.

Figure 5 Active agrotourism in Sardinia (1986-March 2003)



From an econometric investigation the aggregated data are characterised by a linear trend. The generic equation adopted in this case is given by the following:

$$AC = a + ß1\ Trend + e \qquad (3)$$

Further variables are included into the model: the first lag of the number of agrotourism ($ACSAR_{t-1}$) is added to correct problems of serial correlation in the residuals; its coefficient presents a positive and statistically significant sign. Two impulse dummies (*i91* and *i00*) are also included as two outliers are detected; both these qualitative variables present a negative sign coefficient. The time trend shows a positive and statistically significant coefficient at the 5% level of significance that confirms a positive growth of the agrotouristic activity in Sardinia.

Table 2. Estimated models

Variable	Estimated Models
ACCA (OLS)	$ACCA_t$ = 1.90 + 2.80 Trend+ 0.13 STrend - 7.15 i00 (0.72) (4.39) (3.99) (-2.03) R^2= 0.988546 F(3,14) = 402.8 [0.000]** DW = 2 F(2,12)= 1.1241 ARCH_F(1,12)= =0.19455 NORM_Chi^2(2)=0.75531 HETER_F(4,9)=1.5081 RESET_ F(1,13)= 3.6983
ACNU (OLS)	$ACNU_t$ = 4.86 - 2.41Trend + 0.155 STrend - 0.024 CTrend + 7.30 i01 (1.32) (-1.48) (3.10) (-3.54) (2.14) R^2=0.995824 F(4,13) =774.9** DW= 1.3 AR _F(2,11)= 1.9736 ARCH_ F(1,11)= =0.21225 NORM_Chi^2(2)=0.72676 HETER_F(6,6) = 0.30629 RESET_F(1,12) = 1.5404
LACOR (OLS)	$LACOR_t$ = 2.84 + 0.13 $LACOR_{t-1}$+ 0.38 LTrend+ 0.18 i89 (27.20) (2.79) (7.36) (3.52) R^2=0.97062 F(3,13) = 143.2 ** DW = 1.62 AR _F(2,11) = 1.4868 ARCH_ F(1,11) = =0.98342 NORM_Chi^2(2)=0.77532 HETER_F(5,7) = 0.55502 RESET_F(1,12) = 0.17711
ACSS (OLS)	$ACSS_t$=2.71+2.06Trend+1.44 STrend - 0.06 CTrend + 17.66i 88 - 6.14 i00 (0.41) (0.71) (4.08) (-4.63) (2.95) (-2.71) R^2=0.993986 F(5,12) = 396.7** DW = 1.67 AR _F(2,10) = 0.088905 ARCH_ F(1,10)= = 0.52806 NORM_Chi^2(2)=2.4013 HETER_F(7,4) = 0.24118 RESET_F(1,11) = 1.4768
ACSAR (OLS)	$ACSAR_t$= 26.59 + 0.57 ACSARt-1 + 11.63 Trend - 26.23 i91 - 37.32 i00 (2.62) (3.35) (2.42) (-3.27) (-2.41) R^2=0.995927 F(4,12) = 733.6** DW = 1.11 AR _F(2,10) = 1.9333 ARCH_ F(1,10)= = 2.6565 NORM_Chi^2(2)=3.3722 HETER_F(6,5) = 0.21462 RESET_F(1,11) = 0.079812

Notes: the figures in parenthesis are the *t*-values that show the coefficients included in the final restricted model are statistically significant at the 5% level.

5. Summary

An econometric trend analysis has had the objective to identify each life cycle stage of the four Sardinian provinces and Sardinia as a whole. Heterogeneous outcomes have been obtained. The province of Cagliari is characterised by a quadratic trend that suggests that this province is experiencing a "development stage". To strengthen this phase of expansion competition strategies could be adopted in terms of lower prices, differentiation in goods and services and quality improvements so as to attract new tourists. The supply of agrotourism in the province of Nuoro has required a third-degree polynomial modelling that has detected some signs of a flattening logistic curve. This finding highlights some signs of reaching a "consolidation stage" for the business. The province of Oristano has presented a very different pattern that has required a logarithmic transformation. The trend pattern is characterised by initial high levels of growth and the dummy variable, *i89* (Table 2), that might be picking up the positive impact of the introduction of the regulatory law. Since the Sixties the province of Oristano has been the first Sardinian province to experience an "involvement stage" as it was the first to invest in agrotourism infrastructure to satisfy the new tourists' needs and expectations. Hence, agrotourism operators have had a longer experience that might have led to relatively lower levels of growth along the decades. Private and public entreprises should invest in higher levels of quality, higher differentiation of products and professional training in order to avoid a possible stagnation scenario. In modelling the supply of agrotourism in Sassari, a cubic specification has been employed and more evident signs of consolidation have been detected than in the Nuoro province (see Figures 2 and 4). Finally, at the regional level, econometric evidence has been found of the existence of a positive and stable trend, suggesting that overall the sector is in a "development phase".

The econometric analysis has also highlighted more evidence on the impact of regional legislative actions. The first regional regulatory law has had a more incisive impact only on the provinces of Oristano and Sassari that in the previous years had already invested in the agrotouristic businesses. A positive effect is picked up by two dummy variables: *i88* in the Sassari equation and *i89* in the Oristano equation (see Table 2); hence, lag effects can be noticed in the legislative impact on the sector. The second legislative action issued in 1998 has had its effects on the business after almost two years. The greatest exit impact is registered in the provinces of Cagliari, Sassari and in Sardinia as a whole; as one notices the impulse dummy (*i00*) presents a negative sign (Table 2). Some of the active firms were forced to exit the activity, as they did not have the new required infrastructure and hygienic-sanitary services. However, the majority of these cancelled firms have re-entered the business after having put in place the required infrastructure (D.E.I.S., 2003). On the other hand, only in 2001 the law had a positive impact in the province of Nuoro, suggested by the positive sign of the coefficient of the impulse dummy *i01* (Table 2). This fact seems to confirm the historical attitude of this province to react relatively slowly to new legislative actions.

The results presented have strategic implications for both the private sector and policy makers. Firstly they identify the status and the evolution of the agrotouristic business environment. The existence of a heterogeneous trend evolution highlights the need for a monitoring of the supply in each province. Secondly, the main forces driving changes in the business have been identified. The legislative action in 1998 has had a great impact on the business with almost two years of delay. The exit and re-entry dynamics between 2000 and the following year highlight an overall positive impact on the quality of the agrotourism supply. Thirdly, evidence of signs of a consolidation stage for the agrotourism supply has been found. The Region should induce a "re-orientation stage" by encouraging new entries and the existing enterprises to operate for a longer span of time by adopting

policies for higher investments in professional training, marketing policies and, most importantly, by activating a tourist supply network within the Sardinian territory. These policies should be combined with a quality classification of the firms, not issued yet, in order to assure better information and protect tourist-consumers' rights leading to improved customer satisfaction.

6. Conclusions

In this paper an analysis of rural tourism has been carried out. Definitions of rural tourism have been given bearing in mind the European legislative perspective. Main differences amongst some European countries have also been considered. Agrotourism in Italy and, hence, in Sardinia can be identified as a special case of rural tourism with its own legal, administrative and fiscal structure. Two key dates are 1986 and 1998 for Sardinian agrotourism in line with European legislation. From the economic analysis some important findings can be drawn: a disaggregated trend analysis has shown main differences existing amongst Sardinian provinces. Econometric evidence has identified signs of a consolidation stage and the influence of legislative actions on the agrotourism supply. A monitoring of new laws' impact on agrotourism tourism activity appears of extreme importance in the future.

The next step in this research will be to use a proxy of agrotourism receipts into the model to statistically evaluate the impact of the tourist demand on the supply of agrotouristic firms.

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