

The Efficiency of POSEI and PRORURAL Programs in Azores Islands Development

Silva, E.¹; Jonnalagedda, E.²; Marta-Costa, A.³

¹ Azores University, Centre of Applied Economics Studies of the Atlantic (CEEAPIA) and Dep. of Agrarian Sciences, Portugal, emiliana@uac.pt

² Azores University, Dep. of Agrarian Sciences, Portugal, jsnigdha_hbs12@gitam.in

³ University of Trás-os-Montes e Alto Douro (UTAD), Centre for Transdisciplinary Development Studies (CETRAD), www.utad.pt, amarta@utad.pt

Abstract: Azores is one of the outermost regions (ORs) in European Union (EU). Isolation of the islands raises the issues involving socio-economic difficulties, remoteness, small size, the competitiveness of agriculture, which makes the region one of the poorest in EU. Due to this consequences government introduced programs: Programme d'Options Spécifique à l'Éloignement et l'Insularité (POSEI), Rural Development Plan (RuDP), Azores Rural Development Programme (PRORURAL) and PRORURAL +. The objective of this project is to analyze the efficiency of these programs in Azores agricultural development. Firstly, the main feature of the Azorean economy is agriculture. This economy represents 2.1% of the Portuguese Gross value added. Azores Gross domestic product per capita in 2013 is 14,900€ and its contribution of the agricultural sector is 9.6% (2012). Secondly, POSEI aims to compensate the additional costs of transporting certain agricultural products to the ORs. RuDP was the first rural development program applied to Azores. PRORURAL + it is the next of PRORURAL. It has six priority measures, they are: 1: Measures for the transfer of knowledge and innovation, 2: Enhancing the viability and competitiveness of farms and agro-industry, 3: Chain improvement, 4: Preserving agricultural and forestry ecosystems, 5: Energy and climate change and 6: Local development. After, the brief analysis of the information available in the Azorean, the agricultural ratios are: economic, agricultural, market, agricultural labor market and financial market. This evaluates the impact of these programs in the rural economy and development. Finally, it shows a positive impact of European programs in Azores economy.

Keywords: Agricultural European Programs; Rural Development; Socio-economic and environmental indicators.

1. Introduction

The Azores is a remote region of the European Union with development problems, caused the geographic isolation of the European and American continents and the lack of resources. Azores is a Portuguese Archipelago located in the middle of North Atlantic with the surface area of 2322 km² equivalent to 2.6% of Portuguese territory. It is 800 km from Madeira, 1500 km from the European mainland, 1450 km from Africa, 3900 km from North America and 6400 km from the north of Brazil. The archipelago has been subdivided into three groups that consumes of nine islands: The western group (made of two islands - Flores and Corvo), Central group (with five islands - Faial, Pico, São Jorge, Graciosa, and Terceira) and Eastern group (comprising the islands of São Miguel, Santa Maria and the Formigas islets) (Massot, 2015). The largest islands are São Miguel (759 km²), Pico (446 km²), and Terceira (403 km²). Even though being the part of Portuguese republic the Archipelago has its own political and administrative statue with its own government, forming the Autonomous Region of the Azores

(ARA) (Massot, 2015). The economy of the Azores represents 2.1% of the Portuguese economy, measured by its contribution to the GVA (Gross value added). Azores GDP (Gross domestic product) per capita (€) in 2013 is 14,900 and contribution of the agricultural sector of GDP is 9.6% (2012) (Massot, 2015).

The objective of this paper is to compare Agricultural Census data from 1989, 1999 and 2009, as well, social, environmental and economic indicators from these three periods to observe the impact of the Europeans funds in the Azores rural development.

In this paper, a summary of Azores characterization is made, as well the evolution of rural development in the European Union, policy and the POSEI and PRORURAL programs (the main measures, the budget along the time and the main differences to Portuguese Rural development). After, an analysis of data from Agricultural Census is made and it is built social, economic and environmental indicators.

2. The Agricultural European Programs

The Common Agricultural Policy (CAP) is organised into two pillars: First pillar is market policy and second pillar, the sustainable development of rural policy. Where, the first pillar includes the common market organisation (direct payments) and the second pillar, rural development regulation (national or regional development plans) (Silva and Marta-Costa, 2013). The CAP primary principles and objectives have evolved from the beginning (greatly concerned with agricultural production) and other policies are increasing its importance, such as, environmental policies and the role of rural development.

Although the rural development was a concern in CAP, the peak importance appears with the MacSharry reform (1992). This reform was important to promote a modernised CAP, recognising the role of Agriculture expected by society and simultaneously involving the environmental protection and rural development (Silva and Marta-Costa, 2013). Agenda 2000 strengthen the rural development, creating the second pillar of CAP (González and Gómez-Limón, 2008). A specific fund to support rural development was created in 2005, FEADER, which also strengthens the rural development (Rico González and Gómez-Limón, 2008). The paradigm of rural territory had changed the previous paradigm of agricultural production, turning a wide concept (not only the agricultural production, but also the territory and population participation) (Rico González and Gómez-Limón, 2008).

New CAP design is based on holistic approach to policy support through the maintenance of the existing two pillar structure but in a more targeted, integrated and complementary way. Also this new design offers more responsive safety net measures and strengthens the EU's capacity for crisis management (APPB, 2013). Where, the new rural development policy for 2014/20, is designed to improve quality of life in rural communities, seeks to address these issues and to harness the full potential of rural areas.

The geographical isolation of the Azores along with the division of the islands makes the region one of the poorest in the European Union (E.U.), due to their remoteness, insularity, small size, topography and specific climate that gives rise to socio-economic difficulties (relating to the

supply, the competitiveness of agriculture, and so on). For this specific features for the regions, E.U. recognized the Treaty of Maastricht in the article 299 (2) dedicated to Ultra-Peripheral Regions (UPRs), which includes the French overseas department, the Azores, Madeira and the Canary Islands (BIOA, 2008). On the basis of this acknowledgment, the POSEI program was developed for the Portuguese archipelagos of Madeira and Azores (POSEIMA) to make them more competitive, and strengthen their regional integration.

In the Azores POSEI is the 1st Pillar of CAP and PRORURAL is the 2nd Pillar of CAP.

POSEI (Programme d'Options Spécifique à l'Éloignement et l'Insularité)

POSEI is developed for the benefit in agricultural sector for EU's outermost regions (ORs). The outermost regions of the EU, identified in Art 349 of the Treaty for the functioning of the European Union (TFEU) are: France: Guadeloupe, French Guyana, Martinique, Réunion, Saint-Barthélemy and Saint-Martin; Portugal: the Azores and Madeira; Spain: the Canary Island. POSEI has been supporting the ORs since 1991. The programme is been funded under the EU's Common Agricultural Policy (CAP), where the programme aims to compensate the additional costs of transporting certain agricultural products to the ORs, and to nurture the development of local production. POSEI measures fall into two categories: 1) Specific supply arrangements (SSA) – It aims to offset the higher costs of raw materials for certain essential products arising from the insularity and remoteness of those regions, and 2) Measures to assist local agricultural products (MLAP) – It aims for the production, processing and marketing the products.

In 2001 POSEI scheme was reformed in SSA, by establishing forecast supply balances, list of products benefiting and changing the way of calculation bases on additional costs related to ORs remoteness, insularity and small size instead of export funds. They also changed new MLAP measures and modified existing ones and adapted the scheme to new Rural Development Regulation. In 2006 POSEI scheme reformed again, priority was given to greater regional participation, decentralisation and flexible decision-making of SSA and MLAP. The main objective of this innovation is to introduce a higher level of flexible management of SSA and MLAP and to simplify the procedures of the modification.

In 2010, The Court of Auditors noted that POSEI measures were effective but is some weakness in the management of the scheme. Court also mentioned that the national control systems didn't match the diversity of the specific measures (Library Briefing, 2013).

So, European Committee (EC) wrote a report on the impact of the 2006 POSEI scheme with a proposal for a review of POSEI regulation, to incorporate the requirements of Lisbon Treaty with some minor included: 1) Increasing by 20% the maximum ceilings set for the SSA in France and Portugal; 2) Clarifying the procedure for submitting programmes and amendments for approval by the Commission to promote flexibility and efficiency; and 3) Extending to the French overseas departments the possibility of re-dispatching products using raw materials under the SSA without the benefit being reimbursed.

POSEI's annual financial framework (2015) for the Azores region is EUR 76,78 million of which EUR 6,3 million is allocated to Specific supply arrangements (SSA) and EUR 70,48 million is allocated to Measures to Assist Local Agricultural Products (MLAP) (Massot, 2015).

Table 1, shows the greatest execution of the measure Specific Supply Arrangement (SSA) from 2009 to 2013, respectively 99.28% and 99.1%. In all these periods the percentage of the execution of SSA was superior a 99%.

Table 1. Summary of the financial execution of the Specific Supply Arrangement (SSA).

Year	Executed (1000€)	Execution (%)
2009	6 254	99.3%
2010	6 257	99,3%
2011	6 240	99.1%
2012	6 265	99.4%
2013	6 245	99.1%

In the overall MLAP program (Table 2) the financial execution increased from 83% (2007/08) to 97.5% (2013/14). The measure, Animal Production, had an execution, along these periods, always superior a 91% and it is the most stable measures. Plant production increases from 2007/08 (78%) to 2013/14 (99%). But the most significant increase was in the measures, Transformation (43% in 2007/08 to 87% in 2013/14) and Marketing (20% in 2007/08 to 78% in 2013/14).

Table 2. Summary of financial execution (%) of measures to assist local agricultural products (MLAP).

Year	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Measure							
Animal Production	92%	91%	97%	98%	99%	99%	98.5%
Plant Production	78%	82%	98%	99%	99.5%	99.5%	99%
Transformation	43%	41%	45%	61%	88%	98%	87%
Marketing	20%	38%	49%	51%	59%	76%	78%
Technical Assistance	-	-	36%	98%	99%	100%	-
Total	83%	85%	94%	96%	97%	98%	97.5%

The animal production (dairy cows) is very important in Azores agriculture and economy. Then, the POSEI Animal Production reflects this importance as is seen in Table 2. The decomposition measures of POSEI reconfirm it. POSEI measure is mainly oriented to animal production: 49.5% Premium to milk production, Award for dairy cows (19.5%); Increasing the award for dairy cows (8.9%), Suckler cow premium (15.2% and so on (Table 3). The aids for Horticultural Production flowers cut and ornamental plants is very small (3%).

Table 3. Aid of agricultural budget produced in POSEI, 2014.

	Measure	Euros (10 ³ €)	Percentage
1.	Milk production premium	20 216	49.5%
2.	Support for the sale of young cattle	205	0.5%
3.	Supplement for dairy cows Premium	3 645	8.9%
4.	Premium for dairy cattle	7 961	19.5%
5.	Premium for Suckler cow	6 194	15.2%
6.	Support for production traditional culture	538	1.3%
7.	Support for Horticultural Production Flowers Cut and Ornamental Plants	1 219	3.0%
8.	Row Beef - Support for the promotion and beef markets access	75	0.2%
9.	Row for Milk and Milk Products Quality - Support image reinforcement and presentation	295	0.7%
10.	Multi-sectoral actions - studies, technical assistance and implementation of actions support	150	0.4%
11.	Other Agricultural Products Produced support, in RAA	310	0.8%
	Total	40 812	100

Source: POSEI (2014)

PRORURAL (Azores Rural Development Programme)

PRORURAL is a programme part of 2007/13 period of the EU rural development policy, being reimbursed by European Agricultural Fund Rural development (FEADER). The PRORURAL was planned by the government in broad partnerships with various public and private entities. It was approved by Decision C (2007) 6162 on 4 December 2007 (PRORURAL, 2011).

The programme has been based on the analysis of the previous period (2000/06), that has the drawbacks of specific geographic, economic, social and environmental issues. That characterizes the region and determines specific responses of rural development policies. It has developed around four axis defined for Community policy for rural development: Axis 1. Improving competitiveness of the agricultural and forestry sectors; Axis 2. Improvement of the environment and rural landscape; Axis 3. Quality of life in rural areas and diversification of economy; and Axis 4. Operation of LAGs, acquisition of skills and entertainment in rural areas. In PRORURAL, the estimated public expenditure for seven years is EUR 322 million in which EUR 274 million is corresponded by FEADER contribution. Here, 40% of the budget is allocated to the environmental-based measures.

PRORURAL + (Azores Rural Development Programme) is one of the first programme to be approved by the commission in February 2015 with the period of 2014/20. Due to the delay in adopting the basic regulation, delegation and implementing acts, the effective period of the Azores Programme has been reduced to a year.

The contribution to PRORURAL + is nearly EUR 295.3 million (0.3% of the total fund for the EU 28), the general rate of co-financing is 85%, in accordance with Article 59.2.a) of the Regulation (EU) No 1305/13. If the national contribution is added it is EUR 45.2 million. The total public budget of the Azores RDP amounts to nearly EUR 340.5 million (Massot, 2015).

There are some differences in the different programs plan along the time, as in Rural development Plan (RuDP) (2000/06), PRORURAL (2007/13) and PRORURAL + (2014/20).

In RuDP (2000/06) there were four measures that have considered in the plan. They are: Axis 1) Compensatory Allowances/Less favoured areas; Axis 2) Agri-environment Measures; Axis 3) Afforestation of agricultural land; and Axis 4) Early Retirement.

Table 4. Budget allocated to the measures in the period 2000/06.

Measures	Average 2000/06 (10 ³ €)	Increase commitments (10 ³ €)	Previous Budget 2000/06 allocation (10 ³ €)
Axis 1	6 672	693	50
Axis 2	5 282	1 780	719
Axis 3	2 431	1 954	920
Axis 4	6 990	4 880	5 473
Total	21 376	9 308	7 162

Source: SRAP (2001)

Budget that been allocated to this measures in the period 2000/06 gives the following results: early retirement (32.7%), compensatory allowances/less favoured areas (31.2%); Agri-environment Measures (24.7%) and Afforestation of agricultural land (11.4%). There was an increasing commitment in all measures (Table 3).

Approved and implemented measures of the PRORURAL (2007-2013) until December 31st, 2013. Here, five measures (Table 4) had considered in the program. They are: 1) Improving competitiveness of the agricultural and forestry sectors (51.2% of total allocation); 2) Improvement of the environment and rural landscape (38.4% of total allocation); 3) Quality of life in rural areas and diversification of economy (2.9% of total allocation); 4) LEADER Approach (6.4% of total allocation); and 5) Technical assistance (1.2% of total allocation).

Table 5. Budget and execution of payments in PRORURAL, Azores (2007/13).

Measures	Allocation (2007/13) (10 ³ €)	Support approved applications in total (10 ³ €)	Payments (10 ³ €)	Rate of commitment (%)	Rate of Execution (%)
Improving competitiveness of the agricultural and forestry sectors	176 688	171 641	127 795	97.1	72.3
Improvement of the environment and rural landscape	132 418	140 822	133 769	106.3	101.0
Quality of life in rural areas and diversification of economy	9 849	2 162	1 377	22.0	14.0
LEADER Approach	22 027	16 644	8 201	75.6	37.2
Technical assistance	4 132	1 271	555	30.8	13.4
Total	345 114	332 540	271 697	96.4	78.7

Source: SRRN (2014).

The overall PRORURAL program had a budget of 345114 thousand EUR, which 96% was support approved applications in total. In the Azores, the rate of commitment was 96.4% but this rate is different for each measure (Table 5). For instance, the Improvement of the environment and rural landscape had a commitment of 106.3% and the Quality of life in rural areas, 22.0% and these measures had an execution rate of 101% and 14% respectively. The Improving competitiveness of the agricultural and forestry sectors had a rate of commitment of 97.1% and a rate of execution of 72.3%

Table 6. Budget related, approved and paid for the projects in PRORURAL.

Measures	Related Projects		Approved Projects		Paid Projects	
	No.	(10 ³ €)	No.	(10 ³ €)	No.	(10 ³ €)
Improving competitiveness of the agricultural and forestry sectors	2 369	247 686	1 683	164 202 (53.6%)	1 468	120 356
Improvement of the environment and rural landscape	6 519	72 614	6 458	121 350 (40.5%)	6 451	115 664
Quality of life in rural areas and diversification of economy	562	26 684	329	12 501 (41%)	211	5 405
LEADER Approach	33	4193	33	4 144 (1.4%)	23	2 797
Technical assistance	6	1 334	5	127	4	555
Total	9 489	352 511	8 533	306 141	8 158	261 252

Source: SRRN (2014).

Following results (Table 6) shows the budget approved allocation in the paid projects for measures is: Improving competitiveness of the agricultural and forestry sectors (53.6 % of total approved allocation), Improvement of the environment and rural landscape (40.5% of total approved allocation), Quality of life in rural areas and diversification of economy (4.1% of total approved allocation), LEADER Approach (1.4% of total approved allocation) and Technical assistance (0.4% of total approved allocation).

PRORURAL + program (2014/20) is presently running in the rural development. It has seven measures and they are: 1) Measures for the transfer of knowledge and innovation (Budget has didn't allocated for this axis); 2) Enhancing farm competitiveness; (42.5 % of allocated budget); 3) Chain improvement (1.8% of allocated budget); 4) Preserving agricultural and forestry ecosystems (41.5% of allocated budget); 5) Energy and climate change (3.6% of allocated budget); 6) Local development (6.6% of allocated budget); and 7) Technical and other assistance (4.0% of allocated budget) (Table 7). The most important measures for Azores is Enhancing farm competitiveness and preserving agricultural and forestry ecosystems. The animal production and the environmental concerns are always included in the Azores rural development.

Table 7. Budget allocation of PRORURAL+ in Azores.

Measures	Allocated Budget (10 ³ €)	Rate of commitment (%)
Measures for the transfer of knowledge and innovation.	-	-
Enhancing farm competitiveness	144 714	42.5
Chain improvement	6 118	1.8
Preserving agricultural and forestry ecosystems	141 211	41.5
Energy and climate change	12 414	3.6
Local development	22 447	6.6
Technical and other assistance	13 585	4.0
Total	340 487	100

Source: Massot (2015) according to PD B based on PRORURAL+ data (http://ec.europa.eu/agriculture/rural-development-2014-2020/country-files/pt/factsheet-azores_en.pdf).

The total of allocated budget is EUR 340 487 thousands, the FEADER supports 295 EUR 282 thousands (86.7%) and Azores Government EUR45 205 (13.3%) (PRORURAL+, no date).

In this rural Europeans' programs, POSEI's main motivate is on EU's outermost regions. Where from year to year plan, main budget has been into Measures to assist local agricultural products than Specific supply arrangements. RuDP's budget allocation is mainly high in Compensatory Allowances/Less favoured areas and Early Retirement compared to the rest of the measures. PRORURAL has been developed on the plan of RuDP, the measures are increased here according to the year adaptableness. Budget allocation is mostly in improving competitiveness of the agricultural and forestry sectors and improvement of the environment and rural landscape. PRORURAL + is mostly similar to PRORURAL but with different axis

and measures. Here, the budget allocation is mostly into Enhancing farm competitiveness and Preserving agricultural and forestry ecosystems than other measures.

In 2014, supposing that the PRORURAL + and POSEI annual Budget is EUR 89 452 thousand and the Azores population is 246353. Then each Azorean received, by a week, EUR 6.9 from European agricultural programs.

3. Material and Methodology

To measure the impact of PRORURAL and POSEI in Azorean rural development two steps is followed: 1) to analyse the database used is the Agricultural Census of 1989, 1999 and 2009 (Sebastião et al., 2012) and 2) to estimate economic, social and environmental indicators.

In the first step, the Agricultural Census data do not match with the PRORURAL period but it's the most credible information available. The year of 1989, is the data baseline, and it is almost coincide with the entrance of Portugal (1986) into EU. The 1999 Agricultural Census measures the first impact of CAP (Common Agricultural Policy). The 2009 Agricultural Census shows the impact of PRORURAL 2000/07.

The criteria to select agricultural census information were associated with the main measures of PRORURAL and POSEI. Since POSEI is oriented, mainly, to dairy production, some variables chosen from Agricultural Census was related with animal holding, agricultural population and effective animal, such us the number of dairy cows, the livestock density and others. The most relevant measures of PRORURAL are enhancing farm competitiveness, mainly the investment in agricultural equipment and the indicators for farm machinery (number of tractors and mobile milking machine, milking parlours).

In the second step, the economic indicators chosen are total VGA and primary sector VGA per capita. The environmental indicators are the density stock and the CO_{2-eq}. The social indicator is the importance of rural population from the Azorean population.

The GVA per capita was estimated according the value of GVA in 1989, 1999 and 2009 (€) and the population living in Azores in the same period) (Sebastião et al., 2012; SREA/INE, n.p.).

The primary sector GVA per agricultural population was estimated according the value of the primary sector GVA in 1989, 1999 and 2009 and the agricultural population in Azores in the same period (Sebastião et al., 2012; SREA/INE, n.p.).

The CO_{2-eq} was estimated by tier (level 1) IPCC (2007). According this source, for the Western Europe, the emission factor of methane CH₄ of dairy cows (with an average milk production of 6000 Kg/head/year) is 117 kg of CH₄/head/year and 57 kg of CH₄/head/year for other cattle (includes bull, calves and growing heifers). To convert methane into CO_{2-eq} the conversion index of 1 ton of CH₄ is equal to 25 ton of CO_{2eq} (IPCC, 2007). In the Azores dairy farms Silva et al. (2016) found the value of 115.5 kg of CH₄ and 2.9 ton of CO_{2-eq} per cow and per year. The dairy cows and other cattle data of 1989, 1999 and 2009 is provided by Sebastião et al.

(2012) and methane emission is provided by IPCC (2007). The VGA and resident population were calculated with information provided by Sebastião et al. (2012) and SREA/INE (n.p.).

4. Results

The average size of agricultural holdings increased from 4.8 ha (1989) to 8.9 ha (2009). The holding number decreased from 24706 (1989) to 13541 (2009) and the VPPT register a value of EUR 316681 thousand (2009) (Table 8).

Table 8. Agricultural holding features in Azores, in the years 1989, 1999 and 2009.

	1989	1999	2009	Variation
1. Average size of agricultural holdings (ha)	4.8	6.3	8.9	↑
Indicators for the community of typology of farms				
2. i) Holdings (No.)	24 706	19 280	13 541	↓
ii) VPPT (10³ €) of farms specializing in livestock production.	n.a.	n.a.	316 681	-

Source: Adjusted from Sebastião et al. (2012).

Over the period 1989 to 2009, in Azores, the animal density increased respectively, from 1.43 to 1.71 as well the cattle per farm, from 15.8 to 32 and dairy cows per farm (from 10.3 to 28.2) (Table 9).

The farm machinery had increased a lot, from 1989 to 2009 (Table 9). The number of farms with agricultural equipment had increased a lot: from 2716 (1989) to 4893 (2009). For instances, the number of tractors had increased from 1899 (1989) to 2630 (1999) and to 3750 (2009). This almost double increase was support by PORURAL program. Before the entrance in EU there were not milking parlours and the most farm had a manual milking. However no data available (n.a.) for the years in 1989 and 1999, in 2009 there were 2166 milking machines and 37 milking parlour.

Table 9. Effective animal and machinery, in Azores, in the years 1989, 1999 and 2009.

	1989	1999	2009	Variation
1. Effective Animal				
i) Livestock (No.) per ha of SAU in RAA	1.43	1.72	1.71	↑
ii) Cattle (No. of animal/farm) by exploration	15.8	24.1	32.0	↑
iii) Dairy cows (No. of animal/farm) farm in RAA	10.3	19.3	28.2	↑
2. Indicators for farm machinery				
i) Farms with farm equipment (No.) and type of agricultural machinery	2 716	4 490	4 893	↑
ii) Tractors(No.) of farms and classes of SAU	1 899	2 630	3 750	↑
iii) Milking parlours (No.) of farms and old milking parlours	n.a	n.a	373	-
iv) Mobile milking machine (No.) of farms and age of the machines.	n.a	n.a	2 166	-

Source: Adjusted from Sebastião et al. (2012).

The importance of family farming population in the resident population had decreased (1989-2009), from 38.8% to 17.2%, as well farmers with agricultural training (24205 to 13360) which decreased about 44.8% (Table 10). The familiar population declined 54% between 1989 and 2009.

Table 10. Agricultural population features, in Azores, in the years 1989, 1999 and 2009.

	1989	1999	2009	Variation
Population and farm labour.				
1. i) Importance of family farming population in the resident population (%)	38.8 %	28.3 %	17.2 %	↓
Population and agricultural labour.				
2. i) Farmers with agricultural training (No. of individuals) and type of agricultural training	24 205	18 670	13 360	↓
ii) Sole holders (No.) who want to maintain agricultural activity and continuity of reason.	n.a	n.a	12 829	-
3. Family farming population (No. of individuals).	92 351	68 340	42 481	↓

Source: Adjusted from Sebastião et al. (2012)

The GVA per capita had increased significantly from 1641€ (1989) to 13244€ (2009), as seen in Table 11. The primary sector GVA per agricultural population had increased, from 970€ per capita (1989) to 6402€/capita.

The milk production almost doubles its value from 1989 to 2009, which is in last year, the amount of 540.2 million litres. In these economic indicators, there is a positive impact (Table 11).

Table 11. Economic, social and environmental indicators from 1989 to 2009, in Azores.

	1989	1999	2009	Variation
Economic indicators:				
i. Gross Added value per capita ⁽¹⁾⁽²⁾	1 641	10 425	13 244	↑
ii. GVA of the Primary sector per agricultural population ⁽¹⁾⁽²⁾	970	3 702	6 402	↑
iii. Milk Production(10 ⁶ litres) ^{(3) (4) (5)}	270.3	474.2	540.2	↑
Environmental indicators:				
i. CO _{2-eq} emission Bovine (ton/year)	395 407	487 747	493 058	↑
ii. Density stock (animals per hectare)	1.43	1.72	1.71	↑
Social Indicators				
i. Percentage of rural population ⁽¹⁾	38.8%	28.3%	17.8%	↓
ii. Farmers >64 years old (%) ⁽¹⁾	13.6	15.2	16.0	↑
iii. Farmers <34 years old (%) ⁽¹⁾	51.7	46.4	38.5	↓

Source: ⁽¹⁾ Adjusted of Sebastião et al. (2012). ⁽²⁾ SREA/INE, (n.p); ⁽³⁾ Séries Estatísticas: 1980 – 1995 (SREA, 1995); ⁽⁴⁾Séries Estatísticas: 1996 – 2006 (SREA, 2009); ⁽⁵⁾Açores em Números 2009 (SREA, 2010).

In environmental indicators, Table 11, the Bovine CO_{2-eq} emission increases slightly its value, from 395407 ton/year (1989) to 493058 ton/year (2009), as well the density stocks (1.43 to 1.71 animals per hectare). There is a negative impact in these two environmental indicators.

The following table shows the calculation of the Tons of CO_{2-eq}/Year dairy cows and for other cattle.

Table 12. Emission (ton) in CO_{2-eq}, in the Azorean agriculture over the years 1989, 1999 and 2009.

	1989	1999	2009
Number of dairy cows	78 132	98 688	92 371
Number of other cattle	117 103	139 709	156 382
Tons of CO_{2-eq}/Year dairy cows	228 536	288 662	270 214
Tons of CO_{2-eq}/Year other cattle	166 871	199 085	222 844
Total tons of CO_{2-eq}/Year	395 407	487 747	493 058

Source: Elaborated by the authors.

In 2009, the agriculture farming population was 42481 people, which represents 17.8% of total Azores population Sebastião et al. (2012). This percentage had decreased along the period, from 38.8% to 17.8%. In spite of measure, Young Establishment, the farmers are getting older as seen, by increasing percentage of farmers more than 64 years old and less than 34 years old, the first one is increasing (13.6% to 16%) and the second is decreasing (from 51.7 to 38.5%).

5. Conclusions

The Azorean agriculture had changed a lot over the period of 1989 to 2009 with the contribution of the European programs support of PRORURAL and POSEI, mainly regarding their economic results (GVA) and the providing capital (equipment and building) of farms. However, there are other factors which contributes, also, for this development provided by own

Azores Regional Government: such as support of SAFIAGRI - Financial Investment, support which the operating fund with a low interest rate.

The agricultural population is getting older, in spite of the good execution of the Farmers Young Establishment measure and replenish of the population is far away of the desirable agricultural population rejuvenation.

The Professional Training measure is not enough to promote a desirable rural development and this missing professional training is realized by farmers and others local agents (Silva and Mendes, 2012).

The dairy activity is the main measure of POSEI and the PRORURAL promote, mainly, the investment of the agricultural equipment.

The diversification agriculture is increasing but is not enough to reach the Azorean food security; which is one of the objectives of PRORURAL.

In general, in economic and social contexts, the POSEI and PRORURAL programs had increased the production of agricultural development in Azores. However the environmental indicators have a negative tendency and present an apparent conflictive impact which is highlighted between economic and environmental indicators, as seen in animal density stock and in environmental emissions.

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