



Impact of Andalusia's RDP 07-13 on the agro-food industry

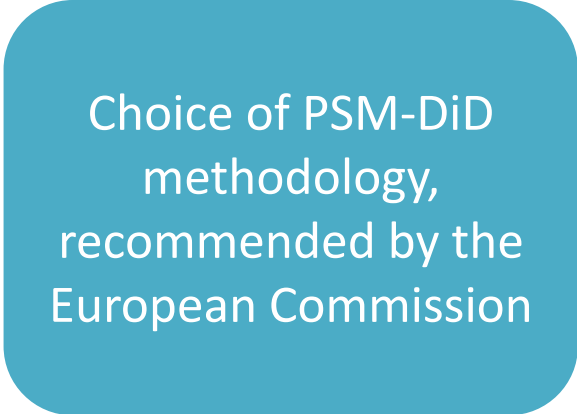
Ex-Post Evaluation

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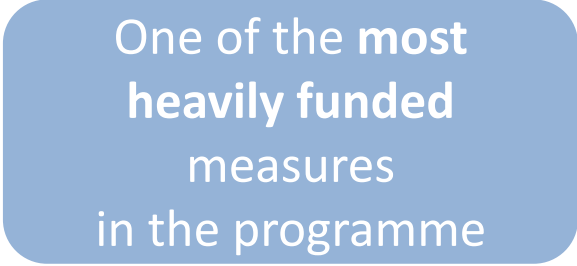


Background / Context

- **Evaluation Ex-Post**, RDP 07-13 of Andalusia.
- **Commission recommendation:** improve data collection on outcome and impact indicators + use of counterfactual analysis, in line with the requirements of the ESFM
- **Why focus on the impact of the measure** that deals with “**Adding value to agricultural and forestry products**” in the agri-food industry ?



Choice of PSM-DiD methodology, recommended by the European Commission



One of the **most heavily funded** measures in the programme



Measure **particularly affected by the 2008 economic crisis** and the difficulties in financing major projects

Data source: SABI

Beneficiaries of the measure

- ✓ Micro, small and medium sized agro-food companies.
- ✓ Big companies with requirements: < 750 employees or turnover < €200 million.

SABI TOP 200,000 database

- ✓ Information on the 200,000 largest companies in Spain and Portugal.

1 Check the information available

Accounting, financial and more detailed information

2 Identification of companies belonging to the food industry

Accounting, financial and more detailed information

3 Identification of beneficiary and non-beneficiary companies: cross with the database of the Management Unit

4 Elimination of companies that did not meet minimum information availability requirements

SABI includes:

18% of all agro-industrial companies of Andalusia.

26% of the beneficiary companies.

	Andalusian agro-industrial sector		Beneficiaries	
Total	5.201	100%	826	100%
Available in SABI	944	18,15%	215	26,03%
Available in SABI for the analyse	410	7,88%	93	11,26%

3 Socio-economic impact

indicators, according to European Commission guidelines:



1) Economic growth: Net change in Gross Value Added expressed in Purchasing Power Standards

2) Job creation: Additional net (full-time equivalent) employment created

3) Labour productivity: Change in GVA per EDP (GVA/EDP)

Information available from SABI

✓ Value added (VA) per company and year, in thousands of euros: a measure of economic growth

✓ Number of workers employed by each company and year: measure of job creation.

We can deduce, in a very simple way, the third impact indicator:

✓ Value added per employee (VA/number of employees), in thousands of euros: measure of labour productivity.

Statistical baseline differences between beneficiary and non-beneficiary enterprises

❖ Differences in the starting point:

- Seniority of the company (benef >)
- Initial added value (benef <)
- Number of employees (benef <)
- Initial productivity (benef >)
- Legal form, foreign activity, main economic activity, location.



It can't be concluded that these divergent developments have occurred as a direct consequence of the programme.

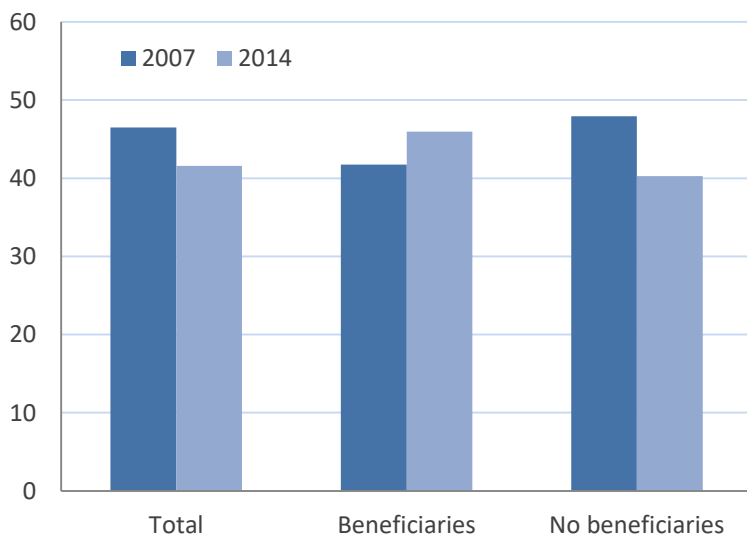


❖ Different evolution:

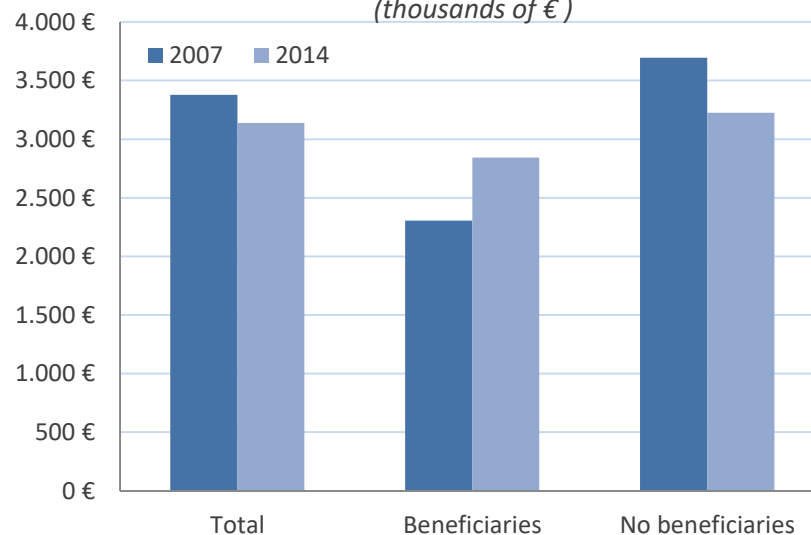
Positive evolution of value added and employment for beneficiary companies (negative for non-beneficiaries and the whole sample)

Try to isolate the effects of the **Measure** "Adding value to agricultural and forestry products"

Evolution of the average number of employees



Evolution of the average value added
(thousands of €)



Application of the PSM-DiD approach

❖ Objective of the PSM-DiD approach



To compare the results of beneficiaries and non-beneficiaries between two time periods, **isolating the effects of the programme from the effects of other external factors common to both groups**, building a control group statistically equivalent to the treatment group.

❖ Application to the ex-post evaluation of the impact of Measure “Adding value to agricultural and forestry products”



1. Selection of relevant observed variables and estimation of propensity score
2. Matching of companies that are beneficiaries and non-beneficiaries, i.e. definition of treatment and control groups.
3. Calculation of the impact (average values) on the treatment group before and after the implementation of the programme.

PSM-DiD. Selection of the variables of interest and matching

The *propensity score* was based on a set of variables observed by a probit model. The vector of covariates has been selected through an iterative process.

Matching: with the Kernel matching algorithm.

Balancing test: check that the differences observed between the treatment and control groups have been eliminated after matching.

Set of variables

Seniority
Initial Added Value
Initial N° employees
Initial productivity
Legal form
Foreign activity
Economic activity
Province

Seniority
Initial Added Value
Initial N° employees
Initial productivity
Legal form
Foreign activity
Economic activity
Province

Differences
between
treatment and
control
groups
eliminated

Pre-matching			
Media T = 1	Media T = 0	Sesgo	P-valor
27,72	26,14	9,9%	0,193
2.304,70	3.693,70	-7,6%	0,462
41,75	47,91	-4,3%	0,667
54,24	47,87	14,5%	0,095*
3,13	3,37	-23,8%	0,003**
2,48	2,96	-37,8%	0,000***
9,84	12,57	-35,0%	0,000***
4,65	5,37	-32,1%	0,000***




Post-matching			
Media T = 1	Media T = 0	Sesgo	P-valor
27,72	27,63	0,5%	0,958
2.304,70	2.041,20	1,4%	0,723
41,75	47,91	2,6%	0,709
54,24	54,03	0,5%	0,965
3,13	3,15	-0,9%	0,937
2,48	2,51	-2,8%	0,796
9,84	9,90	-0,7%	0,946
4,65	4,66	-0,3%	0,975

Source: Own elaboration based on data from SABI Top 200.000.

Notes: *Statistically significant impact estimate at 10%; **Statistically significant impact estimate at 5%;

***Statistically significant impact estimate at 1%.

PSM-DiD. Estimation of the socioeconomic impact of “Adding value to agricultural and forestry products”

	Obs.	PSM-DiD			
		2007	2014	Change	%
<i>Beneficiaries</i>	186	2.304,68	2.843,96	539,28	23,40%
<i>No beneficiaries</i>	604	2.041,17	1.786,00	-255,17	-12,50%
Change		263,51	1.057,96	794,45 (262,73)**	35,90% 
<i>Beneficiaries</i>	186	41,75	45,97	4,22	9,18%
<i>No beneficiaries</i>	604	37,95	33,30	-4,65	-13,96%
Change		3,80	12,67	8,87 (7,98)	23,14% 
<i>Beneficiaries</i>	186	54,24	69,33	15,09	21,77%
<i>No beneficiaries</i>	604	54,03	51,99	-2,04	-3,92%
Change		0,21	17,34	17,13 (10,94)	25,69% 

The results indicate a **positive net impact** of the measure on the beneficiary agri-food companies.

Contribution of the measure “Adding value to agricultural and forestry products” to the growth of the agro-industrial sector

To extrapolate the analysis to the total of the regional agro-industrial sector

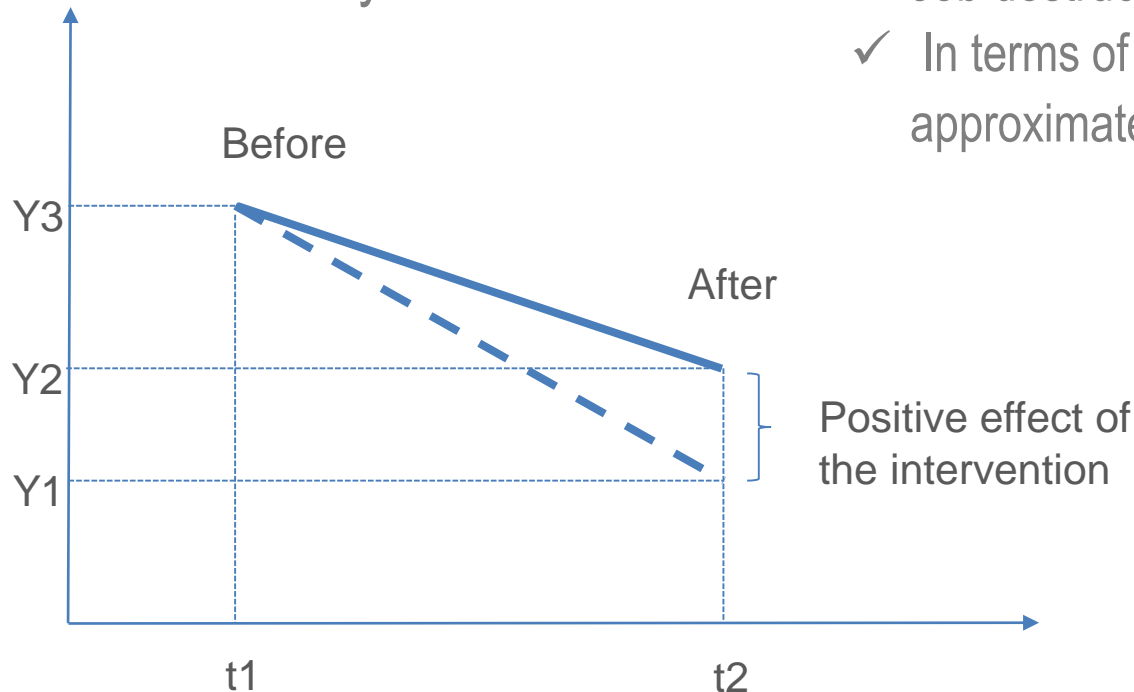


Necessity to take into account the data on the evolution of the food industry (in terms of: number of companies, GVA, employment, labour productivity).

Positive results on the three socio-economic impact indicators analysed



- ✓ Value added destruction has been 6% less than it would have been without this aid
- ✓ Job destruction has been almost 4% less
- ✓ In terms of productivity improvement, approximately 5% was due to the RDP.



The real effect of the Plan is not directly observable!

> The analysis allows to overcome one of the impact evaluation challenges

Qualitative analysis

❖ The PSM-DiD analysis was complemented with **qualitative analysis**

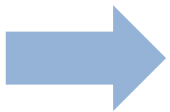
- Interviews with the programme authorities (Managing Authority, Paying Agency, etc.)
- Interviews with people identified by the RDP management units (including: DG Sustainable Development of the Rural Environment (LEADER), DG Industry and Agri-food Quality)
- Interviews with other internal and external agents of the programme
- Focus Groups with LAGs.
- Telephone survey of RDP beneficiaries.

Limitations/Recommendations

How can we address the **lack of availability of information on companies in the sector** ?



- ✓ Include in the documentation signed by the beneficiary a consent for the use of the beneficiary's tax data within the RDP evaluation activities.
- ✓ For all measures related to economic growth and labour productivity indicators, request a similar authorisation from existing business registers, so that beneficiaries and non-beneficiaries can be treated equally.
- ✓ Encourage a fluid relationship with the corresponding Finance Departments -> It would be highly recommended that agreements be established and solid before the start of the calculation.



All this could **improve the quality of the PSM model** by testing additional variables that have not been accessed.

Limitations/Recommendations

❖ The **sample analysed is not representative of the entire agro-industrial sector** in Andalusia:

- Under-representation of small and medium-sized enterprises and cooperatives
- Only the strongest companies have been able to carry out the projects supported (large scale of the investments + context of economic crisis)

➔ The impact of the RDP support on other companies of a smaller economic dimension must have been of a **lesser magnitude**.

- Small % of the total number of beneficiary companies.
- The companies included in the database are not selected based on their participation in the rural development programme.

❖ **Indicative results**: the impact cannot be generalised to all companies in the agro-food sector in Andalusia.

❖ **Time frame of the analysis**: the last year available is 2014. However, the effects derived from these investments take years to develop.

❖ Although it has not been possible to calculate it, the programme is potentially responsible not only for the growth of the indicators analysed, but also for the **maintenance of some of these figures** (important given the context of the economic crisis).



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Thank you for your attention

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