Multifunctional farms vs conventional farms: what can say Italian FADN data?

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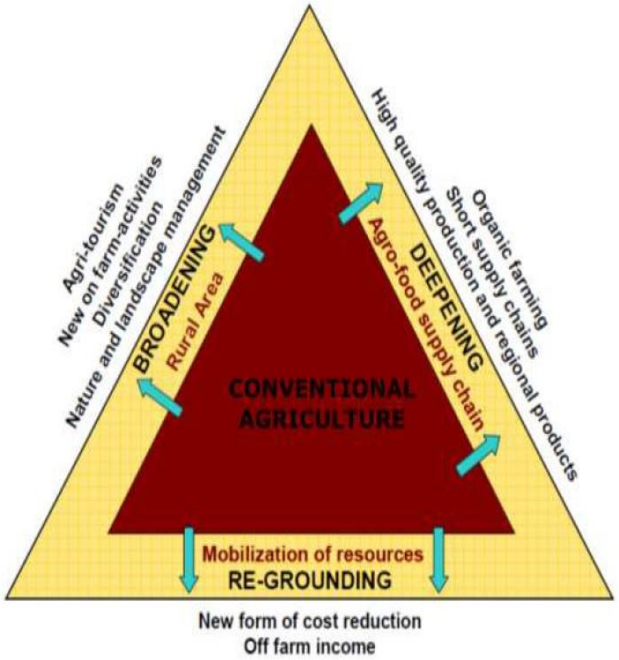
Introduction

New agricultural model: multi-functional agriculture.

It associates to purely agricultural activities aimed at the production of food and fibers (commodities), the production of non-food goods and joint / collateral services (non-commodities).

The multifunctionality of farms can be considered as an adaptation of agriculture to the new model of territorial economy, focused on economic activities more oriented towards the sustainable exploitation of local resources.

Triangle of the Value of Diversified Agriculture



Multifunctional diversification (Source: Van der Ploeg et al., 2002)

Deepening: production of unconventional agricultural goods;

Broadening: new activities alongside the agricultural one;

Re-grounding: multi-activity outside the agricultural sector.

Multifunctional activities on farms also represent a strategy to increase profitability, also following the pressures achieved by the CAP, internalising some stages of the supply chain to retain part of the value added of secondary activities.

Ojectives

Analyze Italian farms in order to:

- evaluate the contribution of multifunctional agriculture to the formation of family income;
- investigate the differences between multifunctional farms and traditional ones

Methodology: data sources

Scarcity of statistical information on multi-functionality in agriculture:

- Aggregated level;
- Ad hoc surveys;

Distribution of the FADN 2015 sample (9.120 farms) in 2 sub-samples depending on the presence or absence of other gainful activities, taking them as proxies of multifunctional agriculture:

- Multifunctional farms: farms WITH other gainful activities (1.028);
- Conventional farms: farms WITHOUT other gainful activities (8.092).

Methodology: the FADN sample

- FADN: Annual sample survey, established by the European Commission (EEC Reg. 79/65, amended by EC Reg. 1217/2009) to meet the information needs for the definition of the Common Agricultural Policy.
- It guarantees the representativeness of agriculture at regional level, for strategic variables (precision at least 95% regional and 97% national);
- FADN Italy is based on a stratified random sample and an individual weight is associated with each farm;
- Stratification by Region, Type of Farming (ToF) and economic size;
- The number of farms to be sampled in each stratum is indicated in the Selection Plan (EEC Regulation 1859/82, amended by EU Reg. 1291/2009);

Methodology: the statistical analysis

- Multivariate analysis: cluster analysis, which aggregates the statistical units (individuals) into homogeneous groups (clusters) based on similarity measures.
- The goal is to bring together the statistical units in clusters, with the highest degree of homogeneity internally and with the highest degree of heterogeneity among them, divided according to their level of "similarity".
- Multiple correspondence analysis and cluster analysis techniques have been applied, which allow the identification of homogeneous groups of farms within the agricultural sector.

Methodology: utilized variables

Geographical Localization	Type of services provided
Type o f Farming (ToF)	Altimetry
Form of conduction	Economic Size (ES)
Gender	Legal form
Age	Education level
Total working units (WU)	Familiar Working Units (FWU)
Utilized Agricultural Area (UAA)	Livestock Units (LU)
Strategic profile	Type of other gainful activity

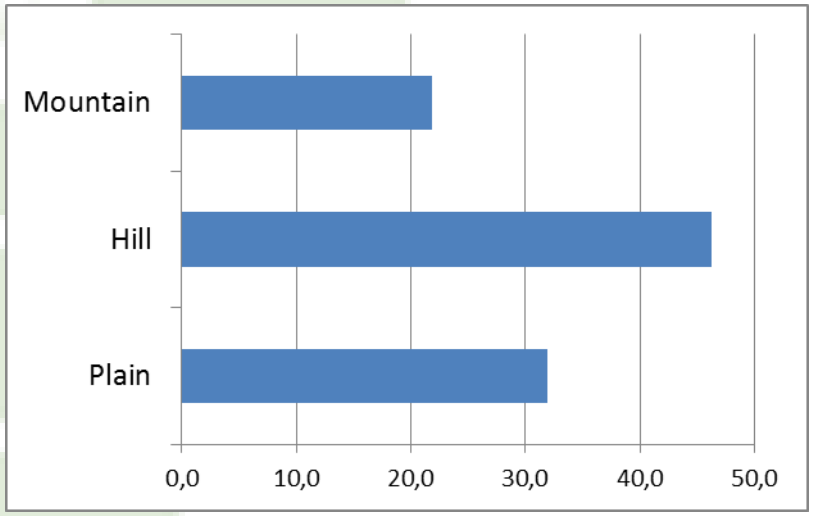
Methodology: economic analysis

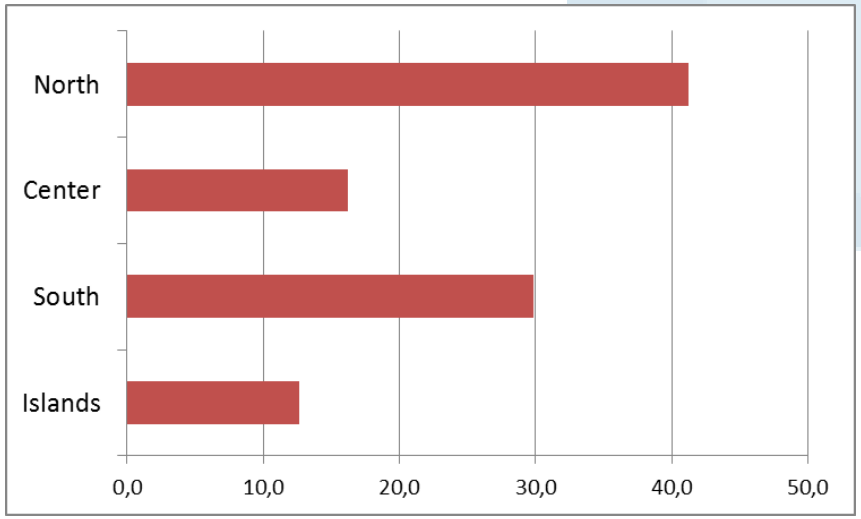
Farms performance was assessed through the values of:

- Farms Total Revenues (TR): values of sales of farms products and services, changes in stocks, public subsidies in operating account (EU and CMO policies);
- Value Added (VA): difference between TR and Current Costs;
- Operating Income (OI): economic result of the characteristic management of the agricultural enterprise;
- Farm Net Income (NI): total economic result of the farm;
- Incidence of revenues deriving from other gainful activities on TR and NI

Results: Conventional Farms - Structural Aspects

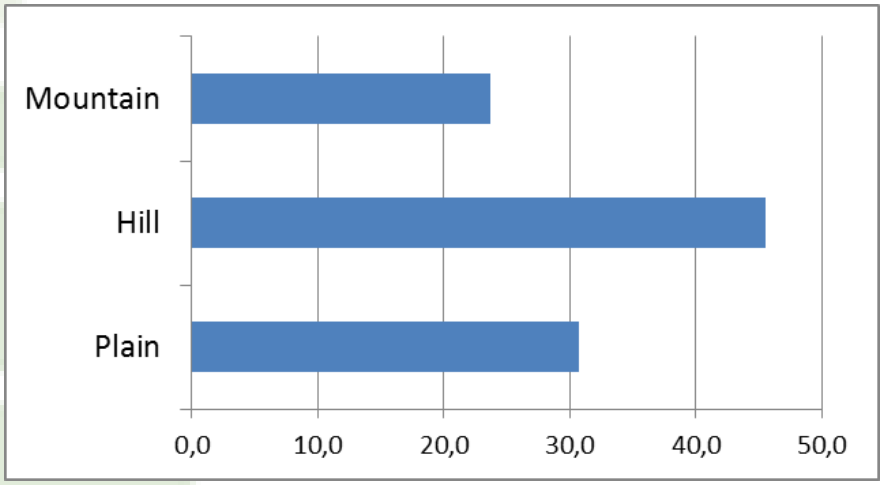
Cluster	Number of farms	%	UAA average (ha)	LSU average	WU average	LWU average
Permanent crops	4.454	55,0	9,4	15,5	1,2	1,0
Herbivores	3.289	40,6	60,0	91,1	2,5	1,4
Granivores	349	4,3	29,5	819,2	2,5	1,7
Total	8.092	100,0	30,8	117,8	1,8	1,2

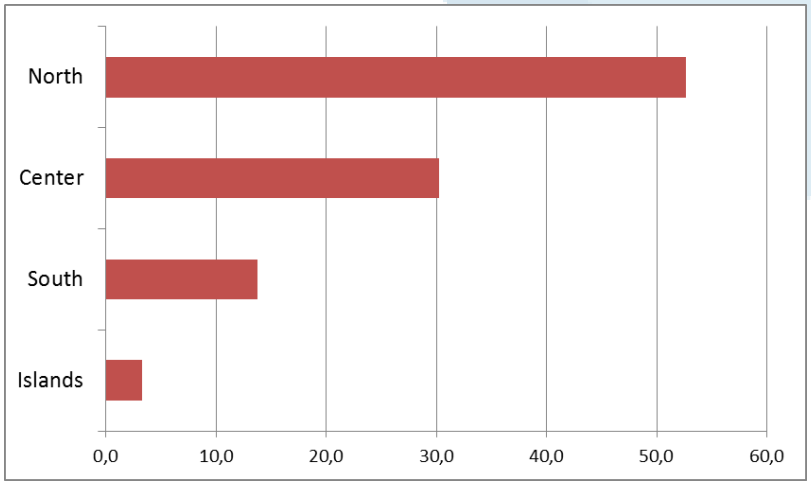




Results: Multifunctional Farms - Structural Aspects

Cluster	Number of farms	%	UAA average (ha)	LSU average	WU average	LWU average
Contract work	492	47,9	60,4	55,4	2,4	1,7
Agritourism	383	37,3	13,9	14,4	1,8	1,3
Mixed farms	30	2,9	169,0	485,9	5,7	1,4
Renewable energy production	123	12,0	94,9	1151,5	4,6	2,1
Total	1.028	100,0	51,0	212,2	2,6	1,6





Results: socio-economic aspects

Cluster	Males			Females		
	Less than 40	40-65	More than 65	Less than 40	40-65	More than 65
Conventional		**77,6%**			**22,4%**	
Permanent crops	9,4	52,8	37,8	10,1	62,9	27,0
Herbivores	17,2	67,2	15,6	18,9	70,1	11,0
Granivores	13,9	66,2	19,9	4,3	76,6	19,1
Total	***13,1***	***59,9***	***26,9***	***12,1***	***65,1***	***22,8***
Multifunctional		**79,9%**			**20,1%**	
Contract work	16,4	64,9	18,7	10,0	75,7	14,3
Agritourism	21,4	66,8	11,8	20,5	67,9	11,6
Mixed farms	27,3	54,5	18,2	25,0	62,5	12,5
Renewable energy production	9,4	75,5	15,1	11,8	64,7	23,5
Total	***17,4***	***66,6***	***16,0***	***16,4***	***70,0***	***13,5***

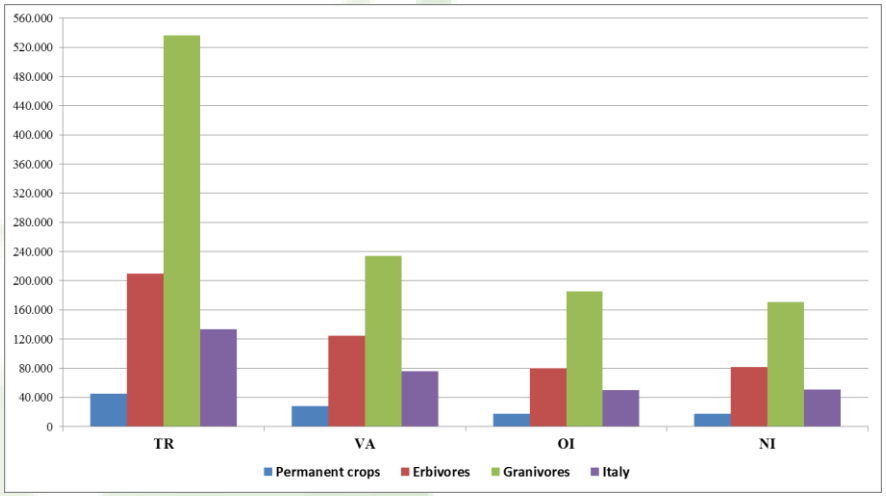
Results: level of education

Cluster	Males				Females			
	Primary	Secondary	High school	Degree	Primary	Secondary	High school	Degree
Conventional								
Permanent crops	27,1	34,4	33,3	5,2	20,7	37,2	35,8	6,4
Herbivores	13,4	35,5	43,2	7,8	7,9	35,1	46,5	10,6
Granivores	21,9	33,8	40,1	4,3	25,5	36,2	36,2	2,1
Total	***20,7***	***34,9***	***38,1***	***6,3***	***17,6***	***36,7***	***38,4***	***7,3***
Multifunctional								
Contract work	15,9	42,9	37,2	4,0	11,4	41,4	45,7	1,4
Agritourism	11,8	20,3	59,4	8,5	8,9	23,2	50,0	17,9
Mixed farms	9,1	9,1	54,5	27,3	37,5	0,0	62,5	0,0
Renewable energy production	8,5	28,3	51,9	11,3	5,9	29,4	58,8	5,9
Total	***13,4***	***32,6***	***46,9***	***7,1***	***10,6***	***29,0***	***49,8***	***10,6***

Results: Strategic Profile

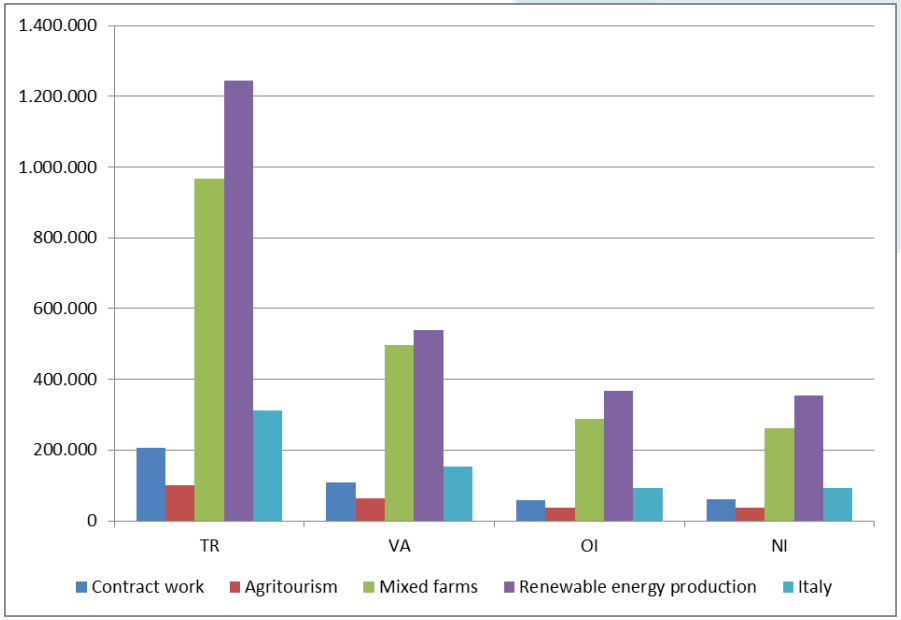
Cluster	Micro	Conventional Small	Conventional Large	Differentiated	Diversified	Differentiated and Diversified
Conventional farms						
Permanent crops	93,8	64,3	14,6	68,0	54,4	65,5
Herbivores	5,5	35,5	77,1	32,0	29,5	32,8
Granivores	0,7	0,1	8,3	0,0	16,1	1,7
Total	***12,6***	***48,0***	***23,6***	***1,5***	***13,6***	***0,7***
Multifunctional farms						
Contract work	32,1	66,5	61,5	27,3	29,8	34,5
Agritourism	64,3	31,7	15,3	63,6	52,9	58,6
Mixed farms	3,6	0,9	3,5	0,0	3,4	6,9
Renewable energy production	0,0	0,9	19,7	9,1	13,9	0,0
Total	***2,7***	***22,4***	***30,5***	***1,1***	***40,5***	***2,8***

Results: economic index

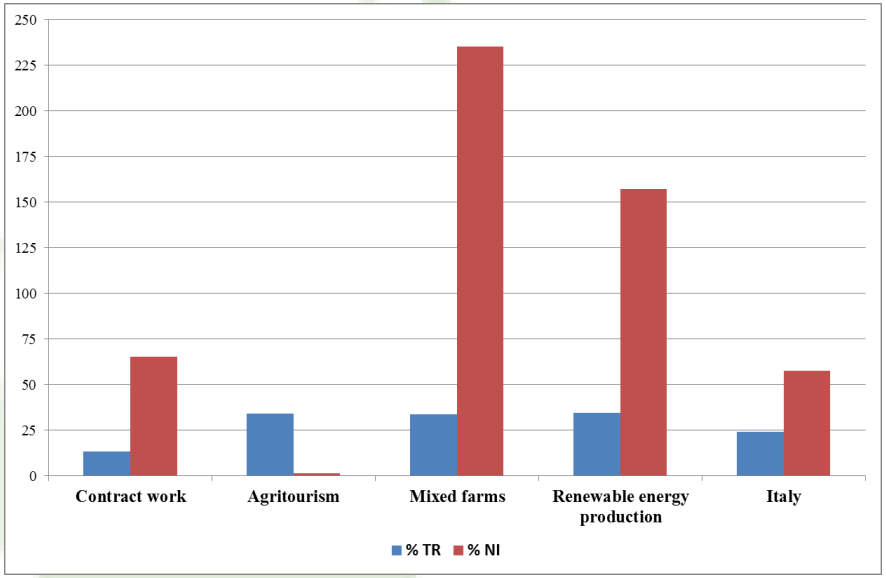


Conventional Farms

Multifunctional Farms

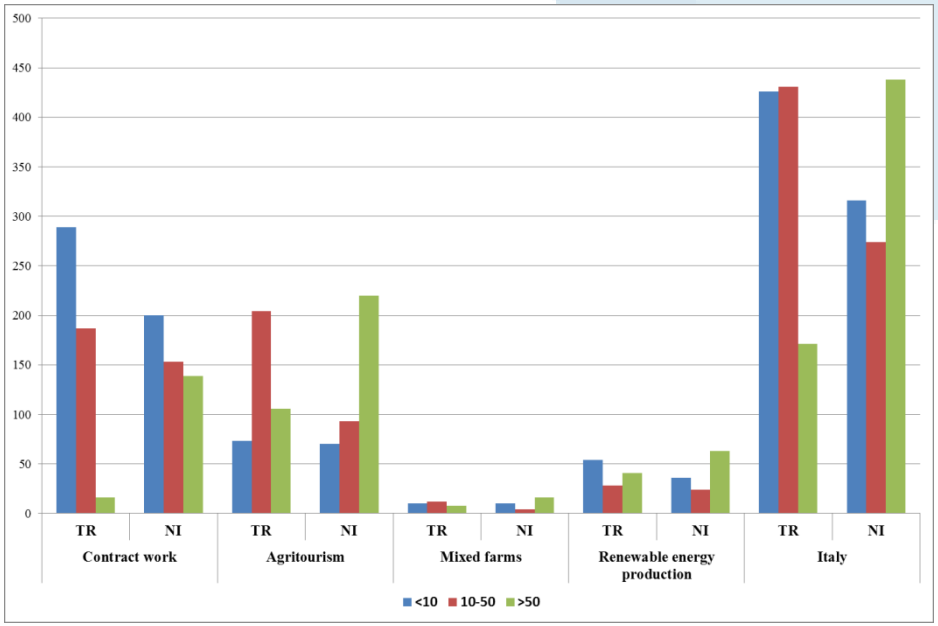


Results: incidence of other gainful activities



Incidence % on Total Revenues and Net Income

Distribution by class of incidence



Conclusions 1

- Different number of clusters between the two sub-samples;
- Equitable territorial distribution by altimetry;
- Different distribution by geographical area;
- Different distribution by class of economic size;
- Different ToF;
- Younger farmers with a higher level of education in multi-functional farms;
- Different contribution of other gainful activities to the formation of farm income depending on the characteristics of farms.

Conclusions 2

- Substantial equi-allocation of multifunctional farms in terms of the impact of other gainful activities. However, there is a tendency towards a polarization of the same farms that varies according to the cluster;

- The information in the FADN database is:
  - ✓ Sufficient to define the economic-social dimensions of multi-functionality in agriculture;
  - ✓ Deficient for the distinction of different multifunctional practices.

Thank you

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