The taxation of farm income in Italy. Evidences from the EU-SILC database

Tantari A.[1], Severini S. [1], Rocchi B. [2]

[1] Università della Tuscia - DAFNE, Viterbo, Italy
[2] Università degli Studi di Firenze - Italy

Corresponding Author: antonella.tantari@libero.it

Background

- In almost all individual (i.e. non-corporate) farms of Italy the taxation of farm income is based on estimates of the "conventional" (normal) income that can be normally earned by factors in the management of agricultural production according with Land Register data.
- Lack of information on the actual taxation of farm income as a personal income: the Farm Accountancy Data Network (FADN) does not collect data on the taxation of personal incomes → Gross Farming Income (GFI)
- In the Eurostat database EU-SILC income self-employed labour is reported both Gross and Net of taxes
- A small sub-sample in the EU-SILC database includes agricultural households

Objectives and Research Questions

- Operational objective: transforming the before-tax income of agricultural holdings reported by FADN in after-tax income to support an application of statistical matching among different sources of information on farming families (Pizzoli et al., 2012; Rocchi et al., 2012)
- Specific Research Questions:
  - 1) How much the level of taxation of agricultural income is linked to the amount of income actually produced?
  - 2) Which characteristics of households do affect the level of taxation?
  - 3) How strong is the degree of progressivity in the level of taxation of agricultural income?

Data and methods

Data and Methods (1)

- The analysis is performed on the Italian EU-SILC database for the year 2011
- It considers only the subset of households that earn at least one part of their income from agricultural self-employment labour ("broad" definition of agricultural households)
  - Self-employment as the main activity
  - In the agricultural sector
  - With a position classified as "holder of small business" or "specialized farm worker"
- The selected sample includes only households with a single core subject to taxation: 266 observations

Data and Methodology (2)

- The analysis is carried out by applying the following regression model

$$NFI_i = a + bGFI_i + cGFI_i^2 + dFIS_i + eGEO + \varepsilon_i$$

Where:

NFI_i	Net Farm Income (after personal income taxes are subtracted)
GFI_i	Gross Farm Income (before personal income taxes are subtracted)
GFI_i^2	Squared GFI
FIS_i	Farm Income Share in the Total Household Income
GEO (d_nw, d_ne, d_c, d_s)	dummies used to identify the macro-regions where farm families are located
εi	estimation error

Results

Matrix of correlations among independent variables

	GFI	GFI^2	FIS	d_nw	d_ne	d_c	d_s
GFI	1.000						
GFI^2	0.920	1.000					
FIS	0.577	0.422	1.000				
d_nw	0.138	0.180	0.079	1.000			
d_ne	0.043	0.014	-0.112	-0.313	1.000		
d_c	0.090	0.033	0.078	-0.213	-0.305	1.000	
d_s	-0.101	-0.108	0.080	-0.263	-0.376	-0.256	1.000

Source: Own elaborations on EU-Silc data of 2011.

Multicollinearity among independent variables excluded

Robust regression model (1)

Due to the presence of heteroscedasticity, a robust regression model was estimated

	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]	R-squared	0.997791
GFI	0.866	0.007	125.630	0.000	0.852	0.879		
GFI^2	-0.000002	0.000	-23.030	0.000	0.000	0.000		
FIS	426.266	174.086	2.450	0.015	83.430	769.103		
d_nw	352.836	179.988	1.960	0.051	-1.622	707.294		
d_ne	204.169	167.192	1.220	0.223	-125.089	533.428		
d_c	19.191	183.270	0.100	0.917	-341.731	380.114		
d_s	78.634	169.719	0.460	0.644	-255.602	412.870		
cons	16.458	147.559	0.110	0.911	-274.138	307.054		

Robust regression model (2)

- The coefficients related to gross farm income (GFI and GFI^2) and to FIS are significant.
- The coefficient for GFI shows that there is a reference level of taxation (the ratio between net and gross income)
- The coefficient for gross farm income is positive and equal to 0.866. Thus, without considering the role of other variables, net farm income is on average equal to 86% of gross farm income: this corresponds to a **level of taxation of around 14%.**
- The average level of taxation is compatible with the aggregate average tax burden calculated on value added by INEA (9.8 %)

Robust regression model (3)

- As the coefficient for the quadratic gross income is negative, the level of net farm income gradually decreases as income increases (progressivity of taxation).
- However, the estimated coefficient, although significantly different from zero, is extremely small. The Kakwani Index calculated for incomes from farming is low. This jpint results suggest that **the degree of progressivity of agricultural income is almost negligible**
- The coefficient related to FIS is positive and significant. This implies that, **as the share of agricultural income increases, the level of taxation of agricultural income decreases**. As FIS increases with the level of Gross Farming Income this suggests a possible distortion of agricultural taxation with a regressive effect
- The Kakwani Index for the Total Household Incomes is higher that the KI for agricultural incomes alone: a further results suggesting a **regressive impact of agricultural incomes taxation when compared with overall direct taxation.**
- The coefficients related to geographical dummies are not statistically significant. This suggests that the level of farm income does not differ between households located in different geographical areas.

Conclusions

Main findings

- **Methodological results**: the EU- SILC database suitable to study the taxation in farming families and to complement other databases, noticeably FADN (statistical matching approach)

- **Empirical results**: indication of a personal taxes burden on incomes from farming around 14% on average with some individual factors affecting it
  - the tax burden falls in observations where the weight of farm incomes is high (FIS coefficient)
  - the progressivity of the tax burden is positive but extremely small (GFI^2 coefficient)
  - The combination of these two features may lead to a regressive effect on overall direct taxation

Policy considerations

- The results suggest that the level of taxation burdened by the selected households is not very much affected by the amount of income from farming they actually produce.
- Agricultural income taxation is likely to bias the overall direct taxation with a regressive impact → how the ongoing revision of income support under the CAP may correct such a distortion?
- The analysis does not support the hypothesis that the level of taxation significantly differs in the various national areas.

Limitations of the analysis

- The small sample size (266 families)
- The possibility of not having included in the model other relevant explanatory variables

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