

## **Factors explaining farmers' behaviours and intentions about agricultural methods of production. Organic vs. conventional comparison.**

Canavari, M.<sup>1</sup>, Lombardi, P.<sup>2</sup>, & Cantore, N.<sup>3</sup>

Key words: Organic farming, ethnocentrism, local origin, conversion

### **Abstract**

*We investigate the factors explaining behaviours and attitudes of farmers towards organic practices. Among a wide set of motivational, economic and environmental variables, we focus on those factors related to ethnocentrism of farmers and the importance of local origin labels. We find that ethnocentrism cannot explain neither the present status of farmers (organic vs. conventional) nor their future intentions about the adoption of agricultural methods of production. However, the absence of local origin labels is significantly affecting the choice of conventional farmers who do not convert to organic farming.*

### **Introduction**

Organic farming is receiving growing attention from policy makers and scientists over time. The reason would lie on the fact that it provides a beneficial environmental impact in terms of biodiversity and greenhouse emissions and on the healthiness of products obtained by natural methods of production. An abundant scientific literature focussing on different stages of the organic supply chain underlines the high social value of organic farming. Production, distribution and consumption issues are strongly analysed by scholars aimed at investigating the reasons and the driving forces behind the diffusion of organic food. In particular, this paper adds to the strand of literature focussing on the production side. Previous literature about production of organic food raised two main research questions that can be summarised as follows:

- Are organic farms efficient and profitable?
- What are the motivations behind the conversion from conventional to organic farming?

As the first research question previous studies confirm that though input costs for organic farms are much higher (Padel and Lampkin, 1994), organic farms are generally more profitable because of the higher premium prices and the policy subsidies (Lien *et al.* 2006, Kerselaers 2007). However, the market share for organic products is small and the organic market is still a "niche market".

Acs *et al.* (2007) by an inter-temporal optimisation problem stress that the conversion period in which farmers sell at stable prices is the main problem for organic farmers. An interesting scientific literature finds that other than economic reasons, technical, ideological and social reasons can explain farmers' choices about the adoption of

---

<sup>1</sup> Alma Mater Studiorum-University of Bologna. Dip. Economia e Ingegneria agrarie, Viale G. Fanin 50, 40127 Bologna, Italy, E-Mail [maurizio.canavari@unibo.it](mailto:maurizio.canavari@unibo.it), Internet [www.unibo.it](http://www.unibo.it)

<sup>2</sup> As above, E-Mail [pamela.lombardi@unibo.it](mailto:pamela.lombardi@unibo.it)

<sup>3</sup> As above and Università Cattolica del Sacro Cuore, Milan, E-Mail [nicola.cantore@unibo.it](mailto:nicola.cantore@unibo.it)

organic production practices (Stock 2007). Our paper stems from this strand of literature. In particular, we will investigate the impact on organic farmers' behaviours and intentions deriving from crucial factors such as economic, technical, individual, environmental and social ones.

Previous scientific literature points out that organic farming represents an opportunity to valorise the local development of rural areas. The original contribution of our work will be the investigation of the ethnocentrism and products local origins labels as key variables affecting farmers' behaviours and future intentions about the conversion towards organic agricultural practices. We focus on these two variables because they represent two different but complementary concepts. Ethnocentrism is the subjective attitude towards the local origin issue, whereas the presence of local origin labels represents the external condition for farmers concerning the valorisation of local products (Shimp & Sharma, 1987). Moreover, another novelty of our paper is that differing from previous studies assuming a relationship between ethnocentrism and consumers' behaviour we test the same hypothesis for farmers' choices about the production practices. In the next paragraph, we will explain the methodology, in the section 3 the results, and finally we will draw our conclusions.

## **Methodology**

We drive a survey of 332 farmers in the Emilia-Romagna Region (organic, conventional and mixed producers) out of a sample of 874 initial selected individuals by a non-probabilistic sample (phone interviews, fax and e-mails). We outlined the survey instrument based on a literature review and qualitative analysis (focus group).

We run three logistic regressions. In the first regression, the dependant variable is a binary variable expressing the status of farmers (organic or non-organic agricultural production practices). In the second logistic regression, the dependant variable is a binary variable expressing the intention of farmers who adopt conventional and mixed (organic and conventional) methods of production or who adopted in the past organic methods of production to convert to organic farming. In the third logistic regression, the dependant variable is a binary variable expressing the intention of organic and mixed farmers to convert to conventional practices.

For each of the three logistic regressions we use the same set of independent variables. They can be summarised as variables concerning the social status, the characteristics of the organic farm, the motivational factors (economic, ideological, fashion and innovation attitude of farmers) the business constraints, the ethnocentrism and another group of heterogeneous variables which cannot easily included in a specific group such as the social pressure variables.

Our set of variables is very wide (about 70), therefore we use a principal components analysis to reduce the dimensionality of the motivational and the business constraints factors. We then use a stepwise forward procedure based on the Likelihood Ratio in order to select only the variables which are significant or which provide significance to the regression estimation. In the next section, we present the results.

## **Results and discussion**

From our results, we can underline some interesting findings. To summarize we cite only the ones that seem to us more important. In the first regression (Table1) we underline that the probability to adopt organic practices is affected by ideological

motivations such as the environmental protection, animal welfare and health care. Conversely, the adoption of organic practices is more limited when farmers show the perception to believe that organic farming introduction follows a fashion trend. Internal financial and technical farm resources and difficulties in creating associations and consortia among farmers are other factors, which represent an obstacle to the adoption of organic practices.

**Tab. 1: Factors affecting the intention to convert to Organic Farming**

| Variables                                              | B      | S.E.  | Wald   | Df | Sig.     | Exp(B) |
|--------------------------------------------------------|--------|-------|--------|----|----------|--------|
| Suitability of the territory towards organic practices |        |       | 9,966  | 4  | 0,041**  |        |
| 1= I disagree                                          | -2,561 | 0,887 | 8,346  | 1  | 0,004*** | 0,077  |
| 2= I partially disagree                                | -0,332 | 0,547 | 0,370  | 1  | 0,543    | 0,717  |
| 3= Neither agree nor disagree;                         | -1,044 | 0,681 | 2,352  | 1  | 0,125    | 0,352  |
| 4= I partially agree                                   | -0,096 | 0,532 | 0,032  | 1  | 0,857    | 0,909  |
| Favourable opinions of relatives and friends on OF     |        |       | 11,477 | 4  | 0,022**  |        |
| 1= I disagree                                          | -1,123 | 0,921 | 1,488  | 1  | 0,223    | 0,325  |
| 2= I partially disagree                                | -1,074 | 0,690 | 2,425  | 1  | 0,119    | 0,342  |
| 3= Neither agree nor disagree;                         | -0,922 | 0,651 | 2,006  | 1  | 0,157    | 0,398  |
| 4= I partially agree                                   | 0,698  | 0,509 | 1,882  | 1  | 0,170    | 2,009  |
| Farm size (hectares)                                   | -0,004 | 0,002 | 2,900  | 1  | 0,089*   | 0,996  |
| Personal satisfaction                                  |        |       | 11,574 | 3  | 0,009*** |        |
| 1= very satisfied                                      | -1,370 | 1,048 | 1,709  | 1  | 0,191    | 0,254  |
| 2= satisfied                                           | 0,013  | 1,001 | 0,000  | 1  | 0,989    | 1,014  |
| 3= not satisfied                                       | -1,365 | 1,142 | 1,429  | 1  | 0,232    | 0,255  |
| Farm typology                                          |        |       | 5,248  | 2  | 0,073*   |        |
| 2= Mixed (conventional and organic)                    | 1,599  | 0,739 | 4,685  | 1  | 0,030**  | 4,950  |
| 3= Conventional                                        | 0,842  | 0,697 | 1,460  | 1  | 0,227    | 2,321  |
| OA is only a fashion                                   | -0,354 | 0,200 | 3,134  | 1  | 0,077*   | 0,702  |
| Motivations linked to farm's characteristics           | 0,414  | 0,218 | 3,619  | 1  | 0,057*   | 1,513  |
| Problems related to the certification system           | -0,498 | 0,203 | 6,014  | 1  | 0,014**  | 0,607  |

Logistic regression. Dependant variable: Intention to convert to organic farming (1) vs. no intention (0). The sub-sample is composed by conventional, mixed and formerly organic farmers. \*\*\*p-value  $\leq$  0,01; \*\*p-value  $\leq$  0,05; \*p-value  $\leq$  0,10.

In the second regression (we omit the data for the sake of brevity), we focus specifically on conventional farmers, farmers who adopt a mixed strategy (organic and non-organic), or who used organic practices in the past. In this sub-sample, the management skills of farmers and in particular their attitude towards innovation influence adoption or rejection of organic methods and they are limited by the bureaucratic procedures concerning the certification system. Social pressures (opinion leaders and family opinions) could also play a role in inducing the conversion towards organic practices.

In the third regression, we find that low education methods are relevant in explaining future farmers' behaviours of organic farmers intended to leave organic practices and to adopt conventional practices.

Finally, if we focus on the variables expressing local origins we find a set of interesting results. The variable representing ethnocentrism is not significant in all the three regressions. The variables representing the necessity to create a local origin label for organic products and a generic appropriateness of origin territory to organise organic methods of production are significant in the first and in the second regression.

## Conclusions

In our paper we investigate by discrete choice models the role of a wide set of factors on the behaviours and intentions of farmers towards agricultural methods of production. We find that a set of variables referring to the social and economic condition, which the past literature identified as relevant, are significant in our study. However, the specific contribution of our paper is that we investigate the role of local origin issues as driving force for the adoption of agricultural practices. In particular, we investigate the impact of ethnocentrism and origin labels. We find that ethnocentrism is not relevant in explaining organic farming adoption, but one of the reason for which farmers do not convert to organic farming is that they feel that laws and appropriate labels do not protect the local origin of organic products.

We deem this is an important policy implication. The local origin issue is not important to stimulate organic farming if we consider subjective and personal beliefs, but is important in terms of rules and at institutional level. The interesting policy insight is that policy makers should produce the appropriate laws in order to valorise local origin of food. Strategies aimed at implementing opportune origin labels together with organic labels could represent the right policy tool.

## Acknowledgements

The authors acknowledge the support of the RISBIO project, funded by the Italian Ministry of Agricultural, Food, and Forestry Policies.

## References

- Acs S., Berentsen P.B.M., Huirne R.B.M. (2007): Conversion to organic arable farming in The Netherlands: A dynamic linear programming analysis. *Agricultural Systems* 94(2):405-415.
- Kerselaers E., De Cock L., Lauwers L., van Huylenbroeck G. (2007): Modelling farm-level economic potential for conversion to organic farming. *Agricultural Systems* 94(3):671-682.
- Lien G., Flaten O., Korsæth A., Schumann K., Richardson J., Eltun R., Hardaker B. (2006): Comparison of risk in organic, integrated and conventional cropping systems in Eastern Norway. *Journal of Farm Management* 12:385-401.
- Padel S., Lampkin N. (1994): Farm level performance of organic farming systems: an overview. In Lampkin N., Padel S. (eds.): *The economics of organic farming. An international perspective.* CAB International, Wallingford, p. 201-219.
- Shimp T.A., Sharma S. (1987): Consumer Ethnocentrism: Construction and Validation of the CETSCALE. *Journal of Marketing Research* 24(3):280-289.

Stock P. (2007): Good farmers as reflexive producers: an examination of family organic farmers in the US Midwest. *Sociologia Ruralis* 47:83-102.