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ENHANCING SUSTAINABLE AND COMPETITIVE ORGANIC PRODUCTION IN FINLAND

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1. Abstract

This work in progress addresses the economic, efficiency and social sustainability aspects of organic production that need to be considered in supporting and promoting organic production in the future. The economic performance and technical efficiency of the farms as well as occupational health and strategic choices of organic producers are analysed.

2. Introduction

Common Agricultural Policy is changing which is affecting payments to farmers in member states after 2020. Besides the basis of payments in the future, current debate is also focused on the EU-budget and BREXIT effects. In Finland, the current debate is focused on the justification of higher subsidies for organic farms in the future, while statistics show that organic farms are already more profitable than conventional farms (The Economy Doctor, 2018). At this time when organic production is facing decreasing subsidies, there is also an objective set by the government to increase the land area being farmed organically from the current 12% to 20% by 2020. It is not known how organic farming will be affected by these conflicting demands.

This study aims to answer these questions by analysing the special attributes of organic production from different perspectives and utilizing two different kinds of datasets. In the first part, the economic performance of organic and conventional farms is compared. Further, technical efficiency analysis is applied to find out if it is possible to improve the economic performance of organic farming under the lower subsidies scenario by making production processes more productive and efficient.

Occupational health indicators will be analysed to identify possible added value from organic production for the health and well-being of producers. New information is needed to meet challenges in occupational health care and advisory services. The strategic choices and business concepts of organic farms will be analysed to find out the educational and advisory needs of organic producers.

This project provides important information for farmers considering switching to organic production, as well as policy makers considering appropriate levels of subsidies for organic production that support reaching the stated goals. This study addresses the economic, efficiency and social sustainability aspects of organic production that need to be considered in supporting organic production in the future. The information is particularly needed as the political environment is increasingly challenging for agricultural production. At the same time, consumer demand for organic products is increasing, which in part encourages farmers to convert from conventional farming to organic production.

3. Data and methods

Economic performance

The economic performance of organic farms is evaluated using a dataset of bookkeeping farms comprising production and economic data. The number of organic bookkeeping farms is relatively small (100), and all of them are included in the dataset. Also, all conventional farms are included to gain maximum statistical power for analyses. Both groups represent various types of farms in Finland. The follow-up time period is 2000–2016. Separate analyses are conducted for a subset of

farms that have shifted to organic farming a long time ago. This approach enables the monitoring of the economic performance and development of these organic farms over time. The development of organic yield levels is compared against yields on conventional farms. The economic performance of organic farms is calculated using different scenarios of future subsidy levels, e.g., current extra subsidy, -25%, -50% and no extra subsidy. The results will indicate to what extent better economic performance of organic farms is caused by higher subsidies and provide evidence for the debate and anticipated policy reforms in Finland.

DEA

The non-parametric Data Envelopment Analysis (DEA) framework provides a feasible approach to investigate the technical and economic efficiency of firms, including the development of efficiency over a certain time period. Identifying and investigating the most efficient firms makes it possible to do benchmarking and find input and output combinations that lead to the best technical and/or economic performance. This knowledge helps in making decisions that improve production and finding solutions for how to survive if the subsidies are reduced. Benchmarking is done for all farms, as well using subgroups of organic and conventional farms. At the second stage, linear regression models are fitted to identify significant contributors to the efficiency of organic farms. The analysis is based on bookkeeping farm data.

Occupational health indicators in organic production

Occupational health and safety concerns have been found to be important motivators for farmers in converting from conventional to organic production (Cranfield et al. 2010). However, the actual health effects of organic production are unknown; only a few articles have been published addressing this issue. Costa et al. (2014) found some evidence that production methods may have an effect on the health status of agriculture workers. Cross et al. (2008) compared migrant farm workers' self-reported health in conventional and organic horticultural systems in the United Kingdom by using four different methods. One of these methods indicated that workers on organic farms had better health. According to Mzoughi (2014), organic farmers in France reported higher levels of life satisfaction compared to conventional farmers.

Our study is based on interview data (n= 2169) collected by the Finnish Institute of Occupational Health in 2014. The data contains agricultural production, work exposure and health outcome information for full-time farmers. A de-identified subset is requested, containing relevant variables for analysis. Data will be analysed using multivariable logistic regression modelling. The association of selected health indicator and organic production (vs. not) is examined while controlling for personal demographic and agricultural production variables. The hypothesis is that health indicators are better among organic producers while controlling for potential confounding factors.

Strategic choices of organic producers

Organic production is often considered and mentioned as a strategic choice for a farm. However, there is great variation among organic farms, too. There are bigger farms specialised in a few crops and smaller ones marketing their products directly from the farm. In particular, those farms specializing in food processing and/or direct selling have been found to consider that organic production increases their competitiveness (Rikkonen et al., 2017). Increasing and improving the compatibility of organic production requires both developing the farms and farmers' know-how. Know-how is also the key factor when developing your business (e.g. Rikkonen et al., 2013). The different business strategies of organic farms are analysed to be able to promote organic production,

and to plan the educational and advisory services targeted to the farmers, especially to those converting their production to organic in the future. This analysis is based on the farm survey data.

References

Costa, C., García-Lestón, J., Costa, S., Coelho, P., Silva, S., Pingarilho, M., Valdiglesias, V., Mattei, F., Dall'Armi, V., Bonassi, S., Laffon, B., Snawder, J. & Teixeira, J. (2014). Is organic farming safer to farmers' health? A comparison between organic and traditional farming. *Toxicology Letters* 230: 166–176. <http://dx.doi.org/10.1016/j.toxlet.2014.02.011>

Cranfield, J., Henson, S. & Holliday, J. (2010). The motives, benefits, and problems of conversion to organic production. *Agriculture and Human Values* 27: 291 – 306.

Cross, P., Rhiannon, T.E., Hounsome, B. & Edwards-Jones, G. (2008). Comparative assessment of migrant farm worker health in conventional and organic horticultural systems in the United Kingdom. *Science of the Total Environment* 391: 55 – 65.

Mzoughi, N. (2014). Do organic farmers feel happier than conventional ones? An exploratory analysis. *Ecological Economics* 103: 38–43.

Rikkonen, P., Toikkanen, H. and Väre, M. (2013). Liiketoiminnan kehittämistarpeet maatilayrityksissä – viljelijäkyselyn tuloksia. MTT Raportti 90. 42 s. Abstract in English.

Rikkonen, P. Korhonen, K. Helander, A-S., Väre, M. Heikkilä, L. and Kotro, J. (2017). Onko lähiruokayrittäminen kannattavaa? – yrittäjien kokemuksia jakelukanavista. Luonnonvara- ja biotalouden tutkimus 24/2017. Luonnonvarakeskus, Helsinki. 74 p. Abstract in English.

The Economy Doctor (2018). Available at: www.luke.fi/taloustohtori. Referred to: 26th of March 2018.