Report of the 25th Meeting of the OECD Network for Farm-Level Analysis (FLA), virtual meeting, 5 June 2020

Participants

1. The meeting was attended by 35 participants from 18 countries: Australia, Canada, Chile, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Korea, Latvia, Netherlands, Norway, Sweden, Switzerland and the United States, and from the European Union, as well as four experts. Participants are contact persons from ministries and research institutions, nominated by their delegation, and invited experts.

Content and structure of the meeting

2. The objectives of the 25th meeting were to:

- Discuss proposals for the implementation of the Network project on the dynamics of farm performance and policy effects, and a presentation on a related topic.
- Discuss additional studies on farm household income and well-being.
- Discuss areas of mutual interest in the context of the OECD programme of work and budget for 2021-22.

3. The agenda of the meeting, the list of participants and the presentations are available on the network website: www.oecd.org/agriculture/farm-level-analysis-network/.

Farm household income and well-being

4. **Will Chancellor** presented an ABARES exploratory analysis revisiting financial position and wellbeing in Australia, using Australian Bureau of Statistics (ABS) household survey data.

5. Participants welcomed the presentation, which provides interesting results using standard aggregate data that are easily accessible. Several participants agreed about the need to improve the measurement of farm household income and well-being, and noted the renewed interest for this topic in their country. A new study on farm household income will be published shortly in France. In this study, farm account data had to be paired with tax and other data sets as there are too few farms in economy-wide surveys. Several participants enquired about the accessibility of individual data, which could be used to analyse risk management and the need for income compensation. Individual data from the ABS household survey do exist, however would be difficult to access and potentially costly. The surveys are run every two years or five years, so annual variability cannot be captured. A participant from Germany outlined the difficulty of engaging with entrepreneurs when conducting surveys. In the ABS household survey, participation is compulsory if selected. Another participant asked about land valuation in this survey. A US participants explained that similar results can be found in US statistics, such as the wide dispersion of income levels. Another common point is that the lowest income quintile has significant assets. In

some US cases, the income of some wealthy farm households is even negative. This is because accrual accounting is not used.

6. **Hans Vrolijk**, Wageningen Economic Research (WUR) in the Netherlands, discussed the increasing complexity of farm business and the implications for measuring farm income. The traditional situation of a farm with one entrepreneur and one household at one location is becoming more rare. The theoretical framework of definitions for farming, the farm (as establishment), the farm business, a farmer and farm household, as put forward by the US National Academy of Science is also relevant for the Netherlands. The results show that Dutch farms are becoming more complex in their organisational arrangements. The complexity in farm organisation has consequences for financial indicators. Income data per farm, entrepreneur and household differ as a result of the complexity, and which one is appropriate depends very much on the research question.

7. Several participants reported sharing the same difficulty in their country and some regretted the resulting deterioration of data as the number of complex farms and partnerships increases, and farm household income becomes more diversified. An expert group set by the USDA Economic Research Service has been discussing issues and options for including complex farms in surveys for several years. USDA still tries to obtain responses from multiple establishment farms, but it is difficult. In the Netherlands, a lot of information is drawn from existing databases, so income information is reliable but direct contact is needed to obtain information on farm practices and environmental performance. It is increasingly important to estimate environmental performance (and accounting) given the policy shift towards sustainability in the European Union. The European Commission will propose legislation to convert its Farm Accountancy Data Network into a Farm Sustainability Data Network with a view to also collect data on the Farm to Fork and Biodiversity Strategies' targets and other sustainability indicators. The network will enable the benchmarking of farm performance against regional, national or sectoral averages. Through tailored advisory services, it will provide feedback and guidance to farmers and link their experience to the European Innovation Partnership and research projects. This was one of the recommendation of the EU-funded project on Farm Level Indicators for New Topic (FLINT) in Policy Evaluation, presented to the FLA network in May 2017.

Drivers and dynamics of farm performance

8. Catherine Moreddu informed participants that the study on drivers of farm performance implemented with the network was in the public domain in three documents:

- [TAD/CA/APM/WP(2020)2/PART1/FINAL] contains an overview of results across countries and policy conclusions. The review of the literature and the detailed description of the methodology used in the analysis are in annexes.
- [TAD/CA/APM/WP(2020)2/PART2/FINAL] contains results by country and farm type.
- [TAD/CA/APM/WP(2020)2/ANN/FINAL] contains background tables presenting the characteristics of sample farms and detailed estimate results.

The content of the first document (Part 1) was published in the OECD Food, Agriculture and Fisheries paper series on 8 June 2020 and can be accessed at: https://doi.org/10.1787/248380e9-en.

9. **Johannes Sauer**, from the Technical University of Munich, presented proposals for implementing follow-up work on the dynamics of farm performance and policy effects, which had been circulated in a note to participants before the meeting. His presentation

included detailed methodologies and possible case studies for the three stages of the study presented at previous network meetings and to country delegates at the Working Party on Agricultural Policies and Markets (APM) [TAD/CA/APM/WP(2019)21]:

- The identification, description and evaluation of essential characteristics of farms and their respective technologies in each class (stage 1).
- The systematic analysis of farms' class membership over time, its dynamics and potential significant class switching patterns (stage 2).
- The evaluation of significant drivers for class membership patterns with a strong focus on the potential effect of policy measures (stage 3).
- The identification of effective and efficient policy measures to increase the probability of farms' switching to more productive, sustainable and innovative technologies (stage 3).

10. Case studies will be selected among the farm types and countries, which were included in the analysis of drivers of farm performance, and subject to countries' participation. Voluntary financial contributions are also welcome to help with implementation.

11. Discussion has already taken place with ABARES to study the impact of dairy market deregulation, achieved in 2008, on farm and sector using a three step procedure. First, farm-level data would be used to generate estimates for economic and other performances at the farm- as well as the sector-level. Second, dynamic panel methods would be applied to study the impacts of various policy measures on these respective outcomes. Finally, a structural break analysis would be applied at the sector-(or class-) level time series. The same method could also be applied to analyse policy effect in the Australian crop and sheep sectors.

12. At the EU level, differences in implementation of the Common Agricultural Policy (CAP) measures across countries allow a Difference-in-Difference (DID) approach to estimate causal inference. Preliminary estimates of the impact of dairy-specific payments introduced in the Czech Republic were presented, the control group being dairy farms in Estonia as they did not receive this type of payment. Other types of CAP payments could be studied using differences across EU member states such as the implementation of single and commodity-specific payments in France and the United Kingdom, the Small Farmer Scheme implementation, and the allocation of funds across themes (e.g. innovation, agri-environment, investment) in rural development programmes.

13. This presentation generated both methodological and policy questions, mainly on the estimation of policy effects. The suggestion was made to study the variance between farms over time as part of the analysis of class dynamics. Many questions related to the choice of a control group, including the need to avoid self-selection bias and to account for annual differences (e.g. in weather). Statistical tests can be performed to ensure that the control group is comparable, as was done for Estonia and the Czech Republic. Estonia was chosen because of similar dairy technology, macroeconomic policy and economic history. There are enough farms in the sample to control for differences. Some would prefer choosing a neighbouring country, but so far, estimates for Hungary are for crop farms, not dairy farms. Participants outlined that policy relevance, size and sensitivities are important criteria for choosing case studies. At the EU level, a focus on rural development policies would be relevant as this is an area of increasing importance. Participants were invited to provide written comments on the proposals by the end of June.

14. **Habtamu Alem** from the Norwegian Institute of Bioeconomy Research (NIBIO) presented a Stochastic Frontier (SF) analysis of dynamic efficiencies and determinants under investment applied to Norwegian dairy farms. The static modelling ignores the inter-temporal nature of production decisions thus under estimate the performance of the farmers. The dynamic production model provides a more realistic approach to measure the performance of the Norwegian dairy farm. It is applied to an unbalanced panel of 663 Norwegian dairy farms for the period 2000-18. Estimates suggest Investment based technical progress and increasing returns to scale for the average farm over the period 2000-18. The dynamic efficiency score implies that the Norwegian dairy farms can reduce the input requirement of producing the average output by 10 % if the operation becomes technical efficient. There is no statistically significant difference across regions, but small and medium farms perform better than large ones. This may be because subsidy levels and debt-asset ratio are negatively correlated with performance. Conversely, the marginal effects of farm manager experience is positively correlated with dairy farm performance. Finally, off-farm activity does not significantly affect performance.

15. Dairy farmers are receiving different types of government support based on various criteria. Further work could investigate whether different subsidies have a different effect on dairy farm-performance. It would also be necessary to repeat the analysis with less aggregated data.

16. Participants found the results interesting, and noted in particular the differences across regions. They enquired whether large farms being less performant was a regional issue. They also asked whether the analysis could shed light on the increase in capital intensity. This is mainly due to the increase in labour cost. Jesus Anton asked if they could be reported in the OECD Review of Norwegian policies to foster productivity, sustainability and resilience in food and agriculture. This is possible as the results of this study are already published in the two papers below:

- Alem, H., Lien, G., Kumbhakar, S. C., & Hardaker, J. B. (2019). Are diversification and structural change good policy? An empirical analysis of Norwegian agriculture. *Journal of Agricultural and Applied Economics*, *51*(1), pp. 1-26. https://www.cambridge.org/core/journals/journal-of-agricultural-and-applied-economics/article/are-diversification-and-structural-change-good-policy-an-empirical-analysis-of-norwegian-agriculture/1C51DFE28C8453EA4AABF29580D1D877
- Alem, H., Lien, G., Hardaker, J. B., & Guttormsen, A. (2019). Regional differences in technical efficiency and technological gap of Norwegian dairy farms: a stochastic meta-frontier model. *Applied Economics*, *51*(4), pp. 409-421. https://www.tandfonline.com/doi/full/10.1080/00036846.2018.1502867?casa_token=q293Yc88rwAAAAAA%3Ab4g4po0DeUZV3Ra2CPuqK5Si8nYcj1e-XYVQzsSAlB8ePRgAmM2AADPNtghC-VB28l00YyDDuCY5dg

Future work for 2021-22

17. **The OECD Secretariat** informed participants that the network is included in the OECD Programme of Work and Budget (PWB) for 2021-22 approved by the Committee for Agriculture at the end of April 2020. According to this document [TAD/CA(2020)1/REV1], the Farm Level Analysis Network is part of the core area of work on Agricultural Policy Monitoring and Evaluation and will support the Committee's work on agricultural policies generally, and the Productivity, Sustainability, Resilience (PSR) Framework in particular [TAD/CA/APM/WP(2019)25/FINAL]. Work under the

network for 2021-22 "will seek to investigate the policy and structural drivers of farm performance, including family and hired labour characteristics and the role of gender".

18. Work planned on the dynamics of farm productivity and sustainability performance will help shed light on these issues. There is already quite interesting information in the work on drivers of farm performance recently released on the characteristics of the labour force in farm classes with different technologies and performance that can contribute to the work on strengthening human capital for innovation and structural change. Participants were asked about their views on possible contributions and they expressed interest on the specific approach to resilience in OECD work, and whether it is linked to structural change. Resilience is included as a desired outcome of agricultural policies in the 2016 Communiqué of Agricultural Ministers. It is defined as the ability of the farm to absorb, adapt and transform in response to shocks and, therefore, intrinsically linked to the dynamic performance of farms. OECD work on resilience emphasises preparedness to shocks. In the Netherlands, circularity is high on the agenda and included in the EU "farm to fork" strategy. A participant outlined that circularity is even more difficult to measure than resilience because of the linkages with other sectors.

Summary of next steps

19. The OECD Secretariat will undertake the following:

- Send the Summary Record to participants for comments. Contributions by speakers are welcome.
- Prepare a written report including the Summary Record, Agenda and List of participants for the APM meeting on 24-26 November 2020.
- Organise the next meeting of the Network planned on 27 November 2020; following the APM meeting, and a short joint seminar between the network and the APM.

20. Participants were invited to:

- Provide written comments on the proposals for work on the dynamics of farm performance and policy effects by the end of June (to Johannes Sauer, Catherine Moreddu and Jesus Anton).
- Continue to liaise with Johannes Sauer.
- Indicate areas of work of interest for their country.

21. Concerning the website:

- The final Agendas, Lists of Participants, and Summary Records will be posted on the website: www.oecd.org/agriculture/farm-level-analysis-network
- Presentations made at the meeting will be posted if the authors send a version to be shared.