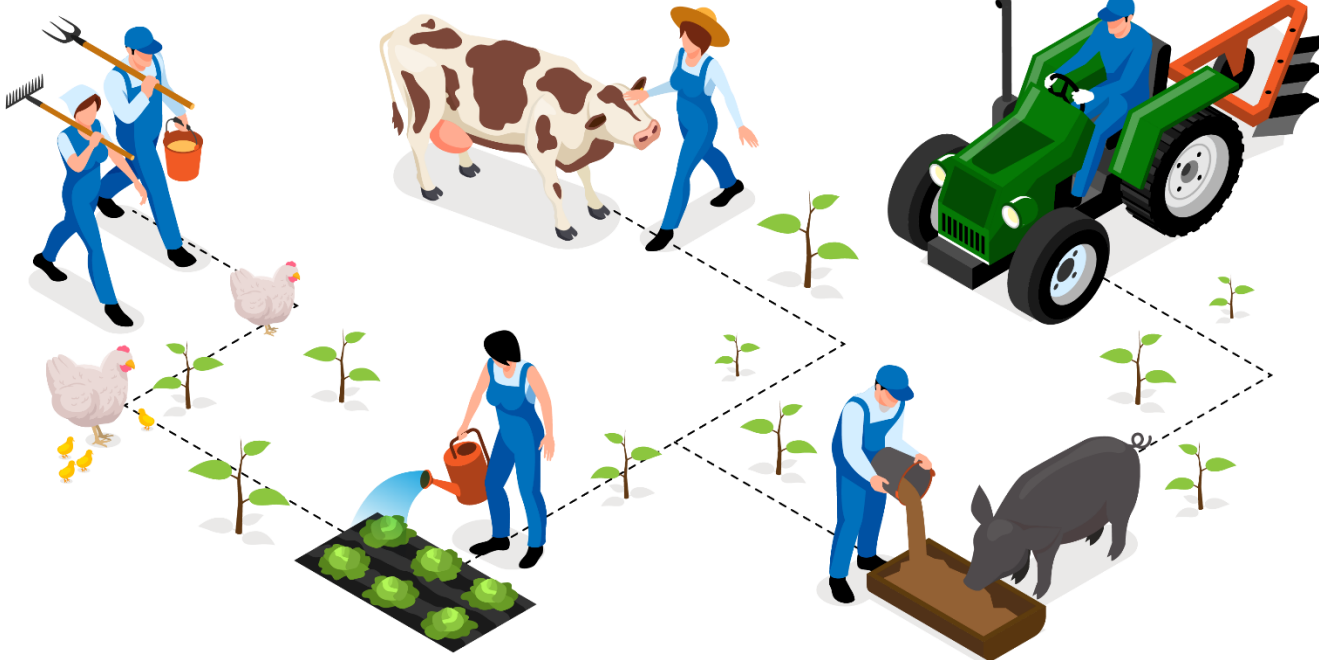


3rd one-day symposium of the Animal Task Force & the EAAP Commission on Livestock Farming Systems: *Sustainable livestock farming – defining metrics and rationalising trade-offs?*

**‘SUSTAINABLE LIVESTOCK SYSTEMS’
– what does this mean?**



“The economic sustainability of dairy production systems in the EU and beyond”

**Thorne, F¹, Dillon, E.¹, Donnellan, T¹, Jeanneaux, P².,
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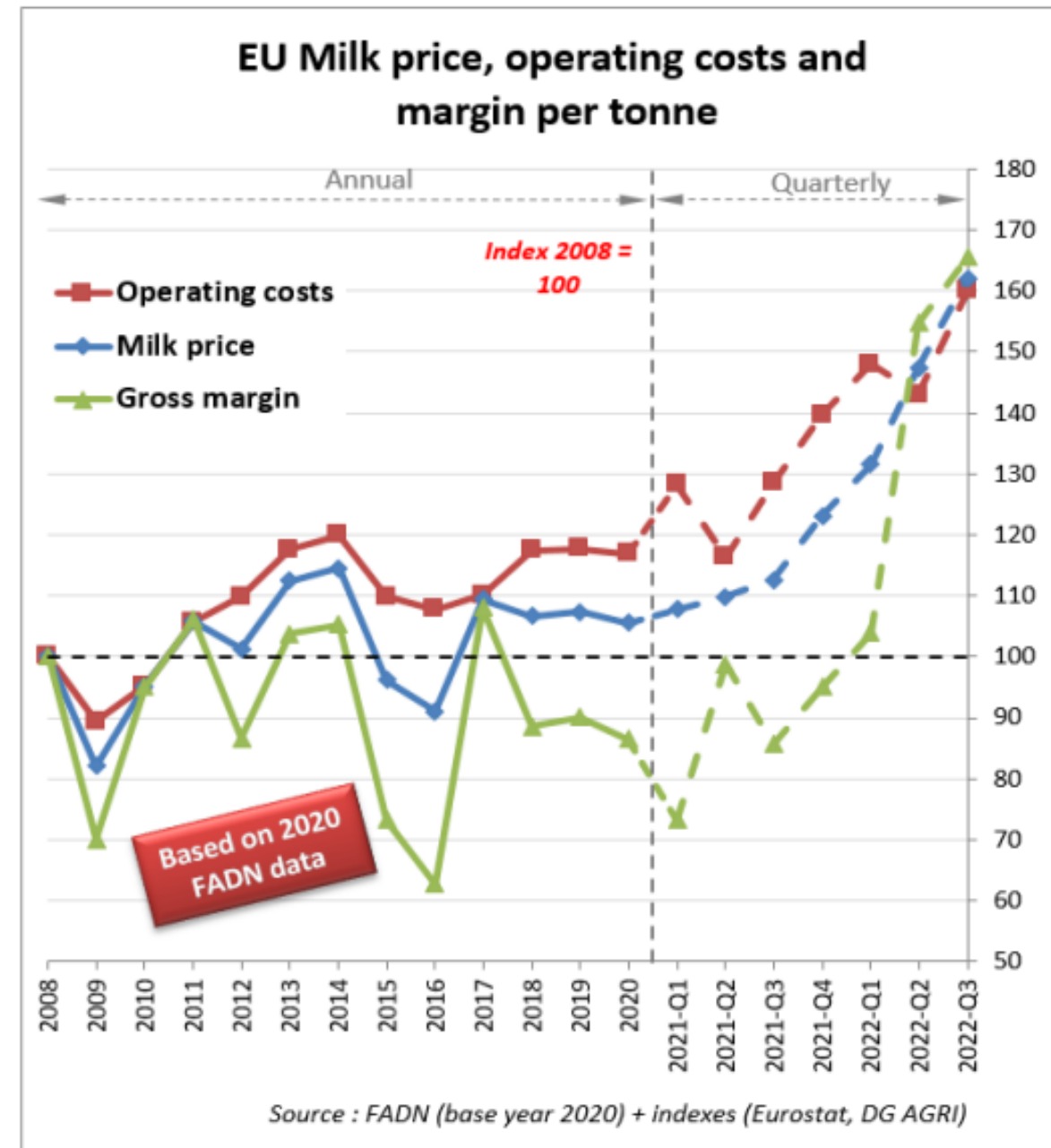
Overview

- Background & Rationale
- Defining Economic Sustainability
- Methods
- Findings (metrics and drivers)
- Where to next with measurement
 - The policy arena
 - What this means for measurement of economic sustainability?
- Concluding Remarks



Background and rationale

- Why it is important to assess **economic sustainability** on a **periodic basis**?
- **Market** based drivers
 - Changes in relative costs and prices received
- **Policy** Reform
 - EU Enlargement, CAP Reform , WTO Reform, Quota Abolition, Brexit
- **Structural** drivers
 - Farm size, generational renewal

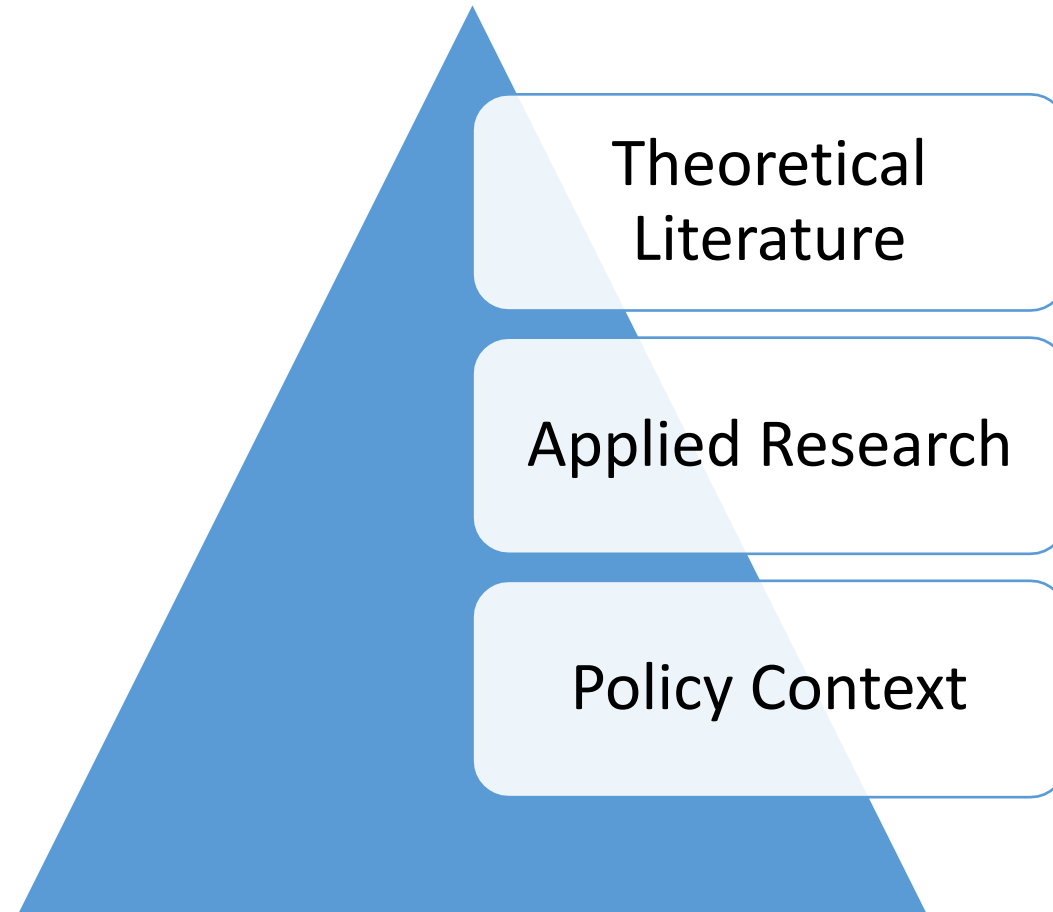


Why the focus on dairying?

- Key factors for consideration
 - Contribution to the economy
 - Quota abolition
 - Climate change impacts
 - Generational renewal
- Heterogeneity
 - Understanding economic sustainability drivers
 - Pedioclimatic differences
 - Structural and production system differences
 - Regulatory environment
- Evolving challenges
 - Market (and volatility)
 - Climate change and environmental policy



What do we mean by Economic Sustainability?



What does theory tell us?

- Economic theory provides **no clear definition** of economic sustainability
 - Strategic Management and Industrial organisation (IO) theories
- Strategic Management Literature - different levels of competitiveness
 - Competitive performance, potential and process
- Studies adopt their own definition
 - Pitts and Lagnevik (1998) “a competitive industry is one that possesses the sustained ability to **profitably** gain and maintain market share in domestic and/or foreign markets”
 - Definition from original/seminal economic sustainability papers
 - **OECD** definition of sustainable agriculture: agricultural production that is **economically viable** and does not degrade the environment over the long run [OECD 2000a]
 - **FAO**: The concept must **extend** to social, institutional and economic sustainability and not exclusively environmental sustainability (FAO, 2011)
 - Sustainable Food Systems (FAO, 2018)

What does the 'applied literature' tell us?

- Systematic review of **agricultural sustainability indicators**
 - Profitability, liquidity, stability, and productivity, primary indicators of **economic viability**
 - Bathaei et al., (2023, Agriculture)
 - OECD, European Commission, USDA also focus on **economic viability**
 - Remember **levels** of competitiveness from the theoretical literature
 - Competitive Performance – **Profitability**, liquidity, stability
 - Competitive Potential – **Productivity, efficiency**
- Examples of **economic sustainability measurement** in the literature
 - Research projects: FLINT, MEF4CAP, LIFT
 - Institutes: Wageningen, INRAE, Teagasc
- Also important to look at **drivers** of performance and potential
 - Latruffe et al. (2023, European Review of Agricultural Economics)
- **Key Indicators: Profitability, productivity/efficiency and drivers**

What is Economic Sustainability in Terms of Policy ?

- Now 10 CAP **objectives**
 - 3 Economic, 3 Environmental, 3 Social, 1 Innovation
 - Of these the economic objectives are most established
- The **economic objectives of the CAP 2023-27**
 1. Ensure a fair income for farmers
 2. Increase competitiveness
 3. Improve the position of farmers in the food chain
- Indicators necessary to monitor **progress** towards meeting policy objectives
 - Farm Accountancy Data Network (FADN), Eurostat
- Economic dimension relatively **well established**
 - Further detail required in some instances
 - Overlapping between dimensions



**MEF
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From definition to measurement



Farm Accountancy Data Network (FADN)

- EU FADN collects annual structural and accountancy data on farms using surveys across MS's
- Aim: Monitor agricultural holdings' incomes & evaluate CAP impacts
- Coverage: Farms exceeding a minimum economic size (threshold)
 - At least 90% of the standard output and 90 % of utilised agricultural area (UAA) covered by Eurostat
 - Over 80 000 holdings in the EU-28, 5 million commercial farms
- About the data
 - Representative data by region, economic size and type of farming activity
 - Only harmonised source of microeconomic data in all EU MS's
 - At present, the most recent FADN data available – year 2020
- Transition to the Farm Sustainability Data Network (FSDN) under way



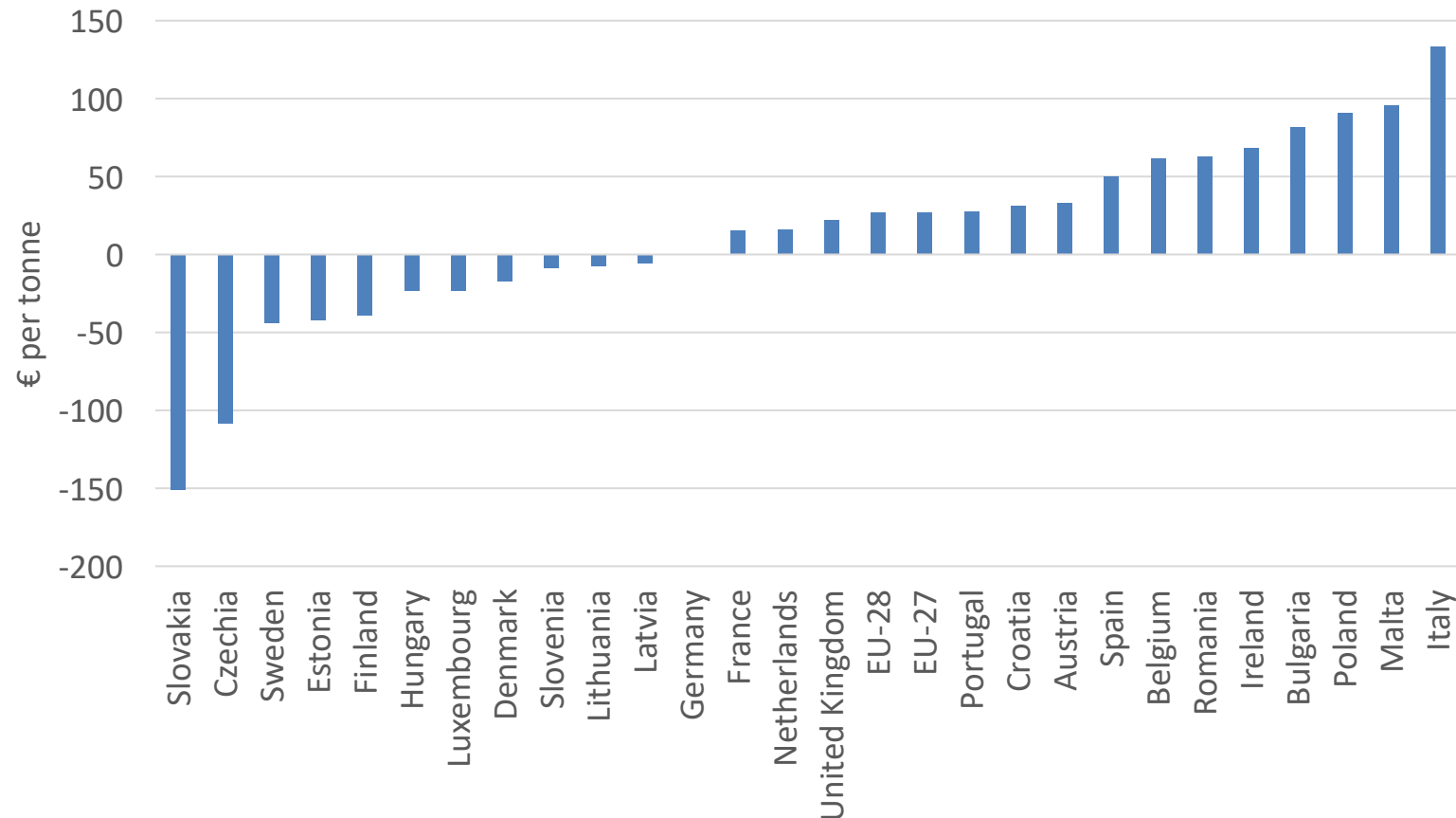
Economic Sustainability of EU Dairying – Competitive Performance



Measuring Economic Sustainability

*Competitive Performance – Margins and Income, **Specialist Milk Farms***

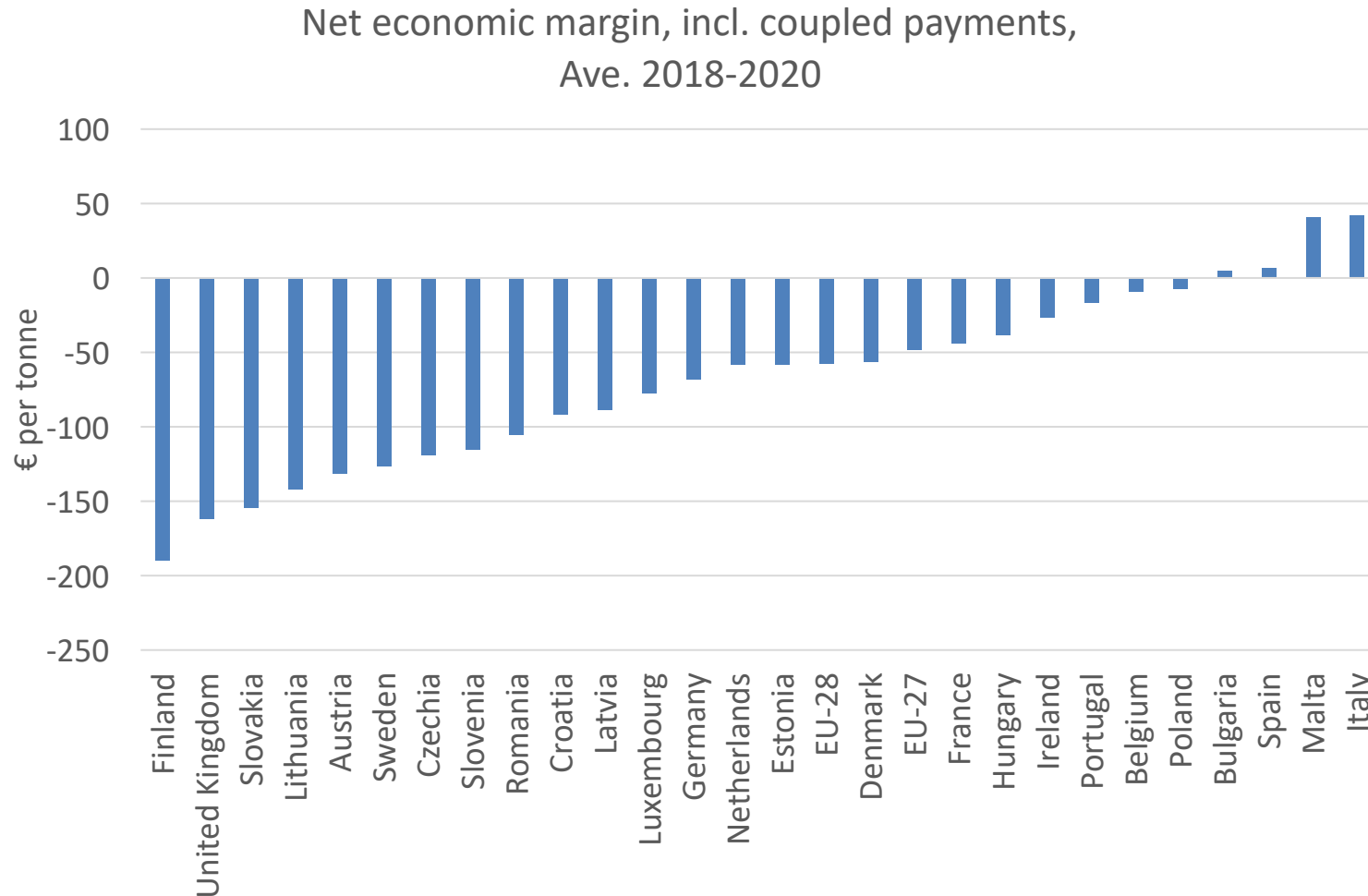
Net Margin, incl. coupled payments
Average 2018-2020



- What this indicator is **good** at telling us?
 - Costs and returns matter
 - Resilience in a cost price squeeze scenario
- What this indicator is **not good** at telling us?
 - Opportunity cost of owned resources
 - Viability/competitiveness with other sectors and wider economy
 - Sources of competitiveness – the 'so what problem'

Measuring Economic Sustainability

*Competitive Performance – Margins incl. **opp. cost**, Specialist Milk Farms*



- What this indicator is **good** at telling us?

- Opportunity cost of owned resources
- Viability/competitiveness with wider economy??

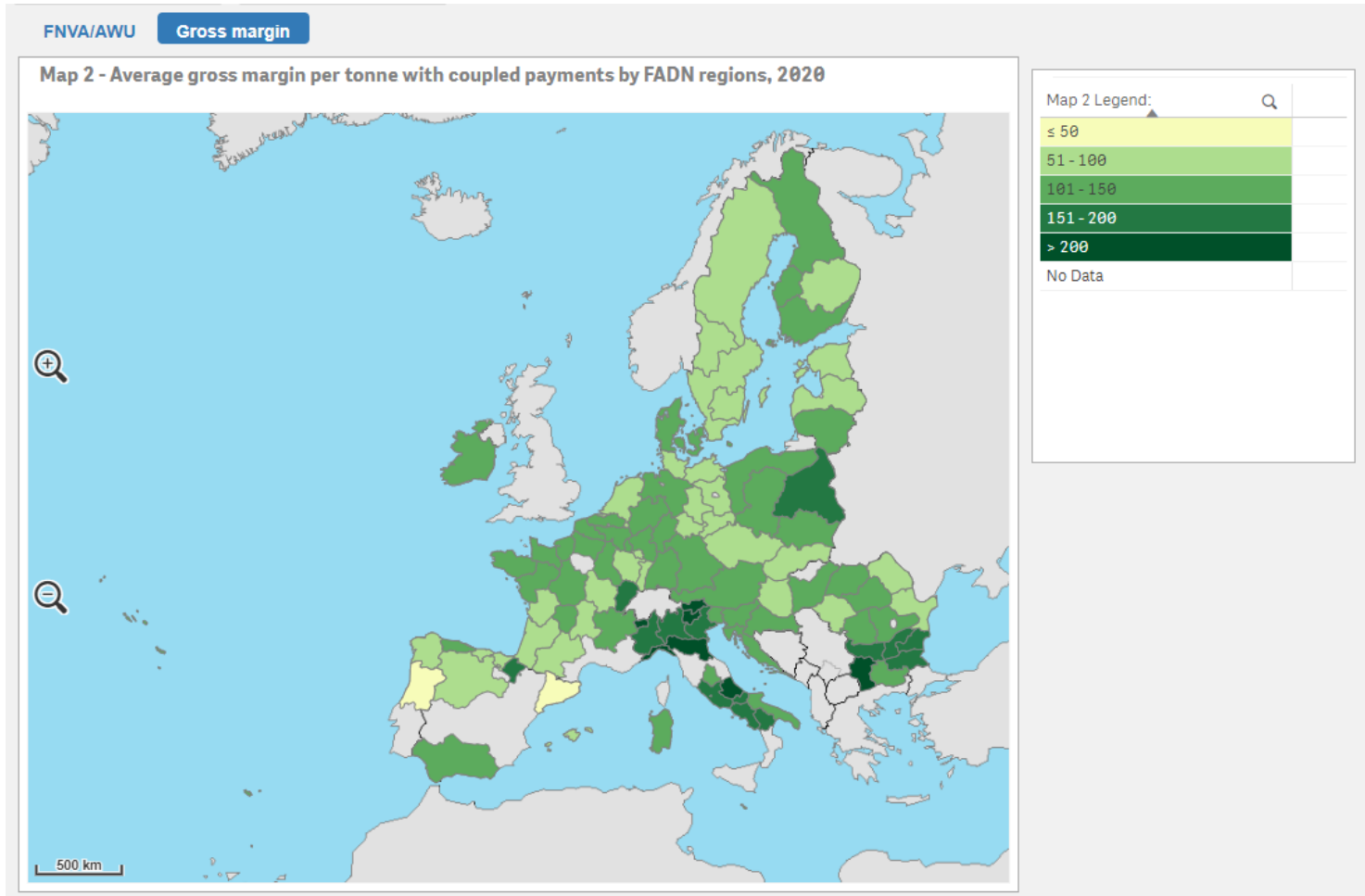
- What this indicator is **not good** at telling us?

- Sources of competitiveness – the ‘so what problem’

Source: EC, FADN

Measuring Economic Sustainability

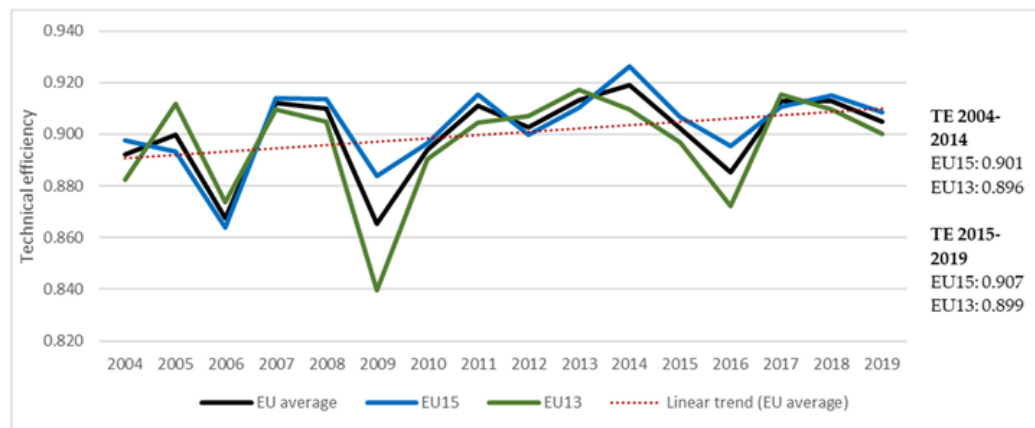
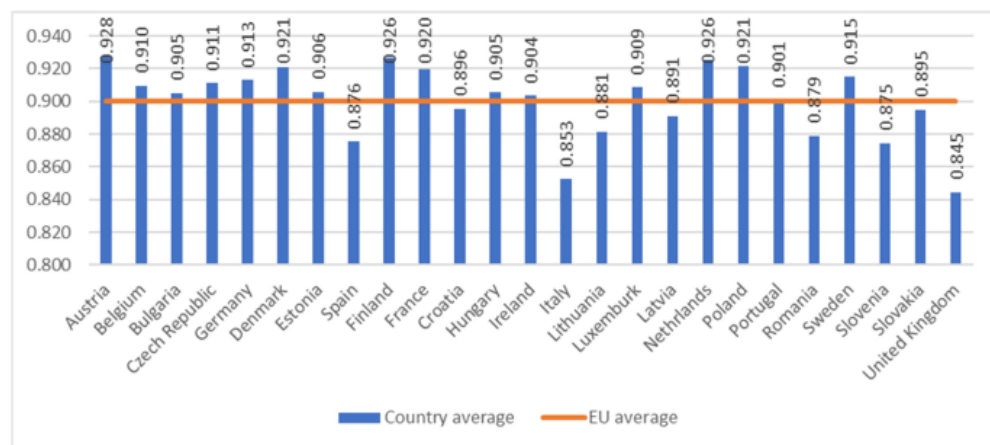
*Competitive Performance – Margins and Income by Region, **Specialist Milk Farms***



- What this indicator is **good** at telling us?
 - Goes some way towards the ‘so what problem’
- What this indicator is **not good** at telling us?
 - Still a lot of unknowns about sources and implications of interventions

Source: EC, FADN

Economic Sustainability of EU Dairying – Competitive Potential (Technical efficiency), Specialist Milk farms



- What these indicators **are good** at telling us?
 - The average TE in the EU is 0.90 (i.e. 90% of max possible output with unchanged inputs)
 - EU dairy farms are relatively efficient
 - EU-13 versus EU-15
 - Progress over time
 - Difference between potential and performance
 - But only one source of performance
- What these indicators **are not good** at telling us?
 - Only quantitative indicator, no cost or milk price
 - Need for further micro analysis

Source: Náglová, Z.; Rudinskaya, 2021

Factors affecting inefficiency

‘Scope for efficiency gains’

Factors have control over

In general, no clear findings on this category of variables



Size, type of production, degree of specialisation, reliance on external inputs, age, time spent off farm



Exception: Positive effect of education



Factors haven't control over

Negative impact of poor climatic and soil conditions



Positive impact of transport and market infrastructures



No clear cut findings on the role of public subsidies to farms



Where to from here?

- Factors affecting economic sustainability in the medium term
- **Economic** Factors
 - Market perspective, volatility in both milk prices and production cost
 - Competing land use
- **Environmental** and **Social** Factors
 - Environmental sustainability concerns
 - Climate change
 - Generational renewal
- Where to **next** with measurement?
 - What this means for measurement of economic sustainability
 - The policy arena



Measuring Economic Sustainability – Data Needs

- Three pillars of sustainability
 - Most **data** exists on economic sustainability
 - But **additional data** is required to better understand policy effectiveness
 - More precise measurement of capital (owned vs contracting) and labour time (often underestimated)
 - Income disparities
 - Market concentration
 - Diversification and innovation
 - Externalities and public goods
 - Resilience to market shocks
- **Challenges** for CAP monitoring and evaluation
 - Data availability and quality
 - Lack of comprehensive indicators
 - Long-term impact assessment
 - External factors and market dynamics
 - Social and environmental dimensions

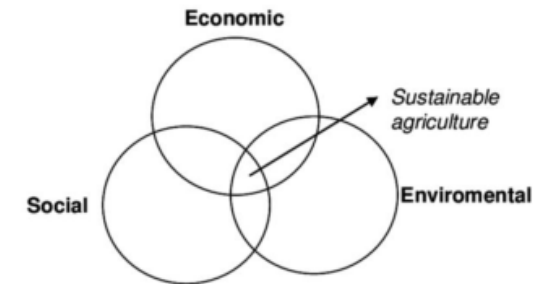
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The evolving role of EU policy

- In **achieving economic sustainability**
 - Policy interventions in many MS either directly or indirectly affect the livestock sector
 - This is understandable given its economic significance
 - 3.7 million holdings
 - About 40% of the EU's total farm population
- The livestock sector is at the heart of often competing and **conflicting policy objectives**
- Remember **other pillars** of sustainability
 - Role of the livestock sector with respect to the environment, climate, consumer issues, animal welfare, health concerns, genetic conservation, farmer living standards, rural development, landscape and land use
 - Assessing economic sustainability in a multi criteria framework:
 - Chopin et al., 2021, Georgios and Komnitsas, 2019, Bertochi et al., 2016, Kyrgiakos et al., 2023, de Olde et al., 2016, Niedermayr et al., 2022
- How to **preserve productivity growth** within the broad set of sustainability objectives
- **Need for:**
 - Targeting of policy interventions
 - Locally tailored approaches under the new CAP (Strategic Plans)
 - Several MSs (e.g. NL, BE, DK, IE)



Conclusions

- **Metrics**

- Need to be **clear** on definitions and metrics
 - Depends on the objectives and use of the metrics
 - Implications for data needs and role for technology
- Economic viability and sources of performance are **equally valid**
- Still a need for **continuous** monitoring and metric definitions

- **Results**

- The EU dairy system despite its appearance is **quite heterogeneous**
- Both **internal and external sources** of performance are important

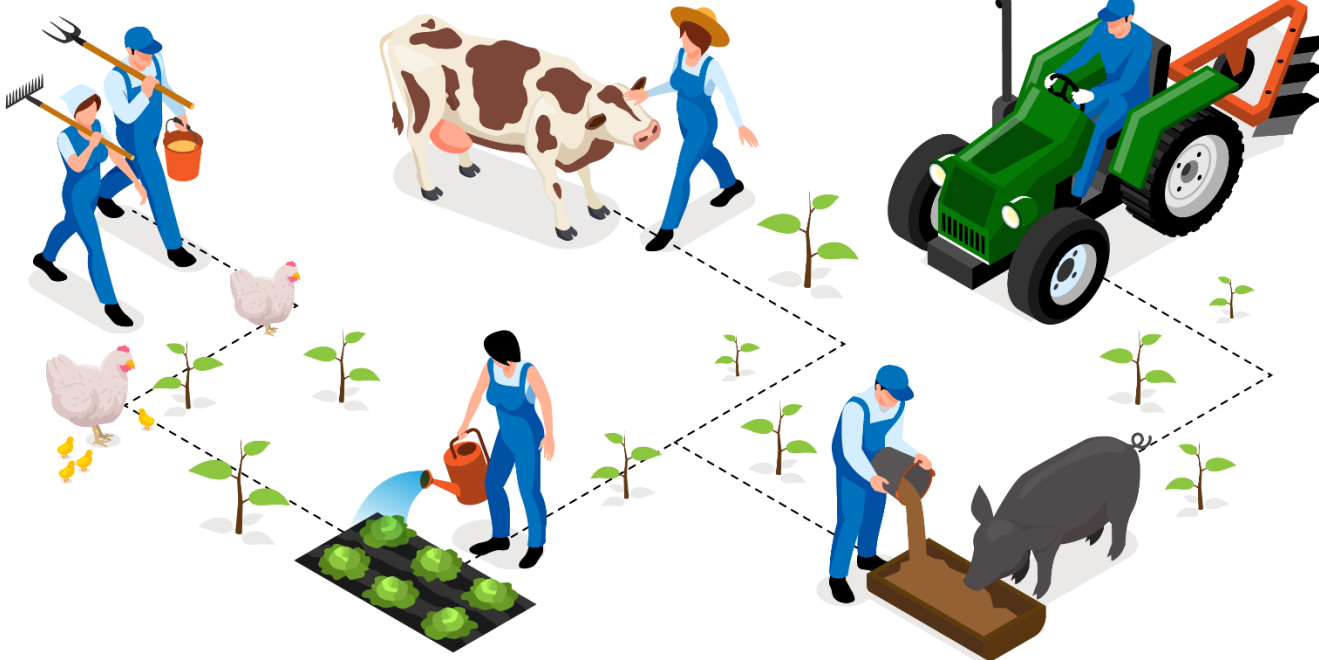
- **Future Direction of Metrics**

- Economic, environmental and social sustainability **interconnected**
- Policy related challenges likely to intensify
- Learnings regarding nature of policy and evolving **CAP Strategic Plans**



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