



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Examining the Impact of Competitors on Irish Butter Competitiveness in the Global Market

Lungelo Cele, Thia Hennessy, John Eakins, and Fiona Thorne

Selected presentation for the International Agricultural Trade Research Consortium's (IATRC's) 2022 Annual Meeting: Transforming Global Value Chains, December 11-13, 2022, Clearwater Beach, FL.

Copyright 2022 by Lungelo Cele, Thia Hennessy, John Eakins, and Fiona Thorne. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.



Examining the Impact of Competitors on Irish Butter Competitiveness in the Global Market

Mr Lungelo P. Cele (PhD Researcher)

University College Cork (UCC) and Teagasc in Ireland

International Agricultural Trade Research Consortium's 2022 Annual Meeting

December 11-13, 2022 | Clearwater Beach, Florida, USA.

Session 13 on Aspects of Agricultural Export Competitiveness



Co-authors

Prof. Thia Hennessy, Dr. John Eakins (UCC), and Dr. Fiona Thorne (Teagasc).

Background

- The dairy sector contributed about €5.2 billion to the Irish food and drink export industry (€13 billion) which made it the most significant food export category in 2020.
- Over time, countries have to respond to changes in trade agreements and market dynamics, i.e. facilitated by the Common Agriculture Policy and World Trade Organization, which impact prices in importing and exporting countries.
- Such changes can be captured through the analyses of a country's export competitiveness.
- The rationale to focus on product competitiveness has been amplified in the post-quota removal period, particularly when the EU milk sector is expected to be more integrated with the global dairy market.

Challenge

- Ireland is one of the top three net exporters of butter in the world after New Zealand and the Netherlands.
- Given the significance of Irish butter exports in the world, it is surprising that research on butter export competitiveness remains limited to date.
- Research on the Irish dairy competitiveness has focused on the comparisons of EU member states' performance at the farm rather than product or trade level, which is the main focus of this paper.
- For example, previous studies have not analysed how Ireland prioritizes its dairy products portfolio mix for global export markets.
- The patterns of trade between countries are often ignored in justifying industrial policies.

Introduction

- Competitiveness is described as a relative concept that can be defined relative to the position of different historical point in time, or relative to an existing aggregate group of firms either of different nationalities or pursuing different policies.
- The success of the industry at the export level depends on the success of firms for raw material procurement through vertical integration and firms for developing unique value-added products.
- The paper aims to help improve strategic business planning processes based on industry trends, rankings, and competitiveness.
- Part of the strategic business planning process is the evaluation of the overall market trends (i.e. pricing trends, market position, how quickly the industry is growing, and how are competitors moving).

Key questions?

- How has the competitiveness of Irish butter changed relative to other Irish dairy products, given the competition for scarce resources (i.e. raw milk)?
- Does prioritization or specialization in butter production by other international countries affect Irish butter competitiveness or trade performance in the global export market?
- Addressing these questions is important for improving our understanding of the overall butter market and understanding the changing butter export relationships between countries.
- Providing empirical evidence of how changes in decisions by other countries to allocate more resources to produce butter may have on the Irish butter market and the implications of what that would do to the growth rates of other Irish dairy products.

Originality

- Whilst the development of the EU and global trade policy are beyond the control of the sector, countries often have their national industrial policies to promote strategic sectors.
- Understanding the industry market dynamics may provide industry stakeholders with key insights for their long-term strategic planning of firm operations and market selection.
- This may help with lobbying policymakers to ensure that their plans align with the industrial policy, i.e. Food Vision 2030 which seeks to expand Irish agri-food exports from €14bn to €21bn by 2030.
- The findings in this paper can be used by practitioners and researchers as a template to produce industry competitiveness updates or market assessments, i.e. for market intelligence and production planning.

Methodology

- Recent empirical studies have adopted the use of the normalized revealed comparative advantage (NRCA) index proposed by Yu et al. (2009) as a proxy for export competitiveness.
- The major advantage of using the NRCA is that it allows for symmetry of the data output which helps to preserve the normality assumption in regression analysis and comparability across countries for the same product or commodity.
- $$NRCA_{IRL,t} = \left(\frac{Irish\ butter\ exports}{World\ dairy\ exports} \right) - \left[\left(\frac{Irish\ dairy\ exports}{World\ dairy\ exports} \right) \left(\frac{World\ butter\ exports}{World\ dairy\ exports} \right) \right]$$
- Vector error correction (VEC) system with long-run and short-run relationships:
- $$ECT_t = LNRCA_{IRL,t} - \alpha_0 - \alpha_1 LNRCA_{NZ,t} - \alpha_2 LNRCA_{NED,t} - \alpha_3 LNRCA_{BEL,t}$$
- $$\Delta LNRCA_{IRL,t} = \phi_1 + \sum_{b=1}^{k-1} \delta_{1b} \Delta LNRCA_{IRL,t-1} + \sum_{j=1}^{k-1} \psi_{1j} \Delta LNRCA_{NZ,t-1} + \sum_{m=1}^{k-1} \rho_{1m} \Delta LNRCA_{NED,t-1} + \sum_{q=1}^{k-1} \vartheta_{1q} \Delta LNRCA_{BEL,t-1} + \lambda_1 ECT_{t-1}$$
- The annual time series data were collected from the Food and Agriculture Organization Statistical Databases (FAOSTAT) available from 1970 to 2019 for export prices.

Irish butter export performance compared to other dairy products and countries

Figure 1. Export value for Irish dairy products

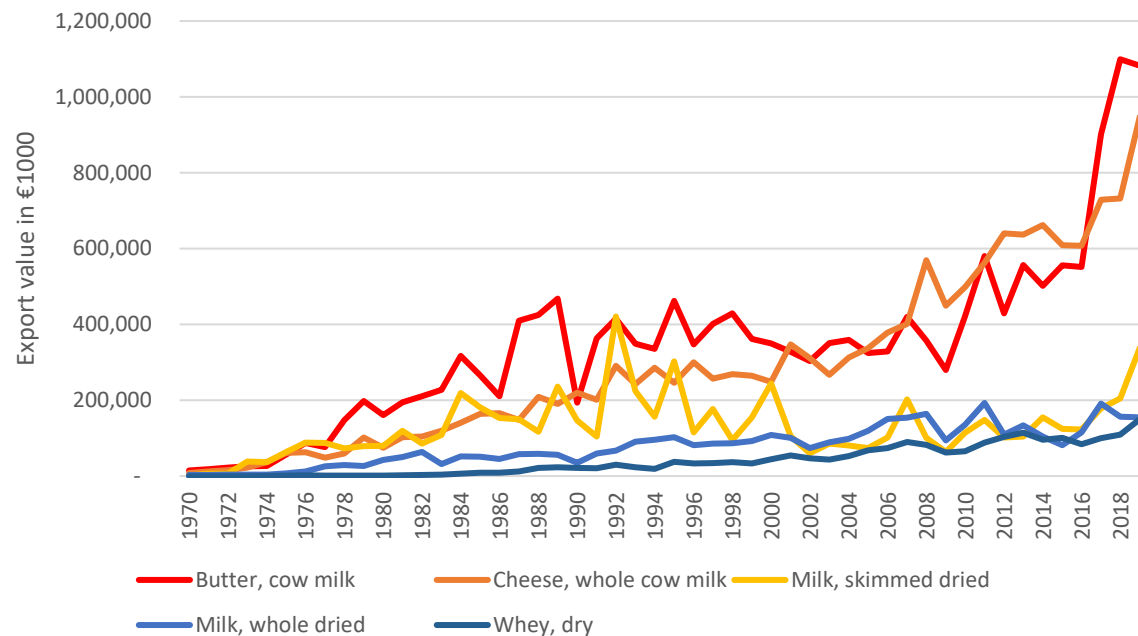
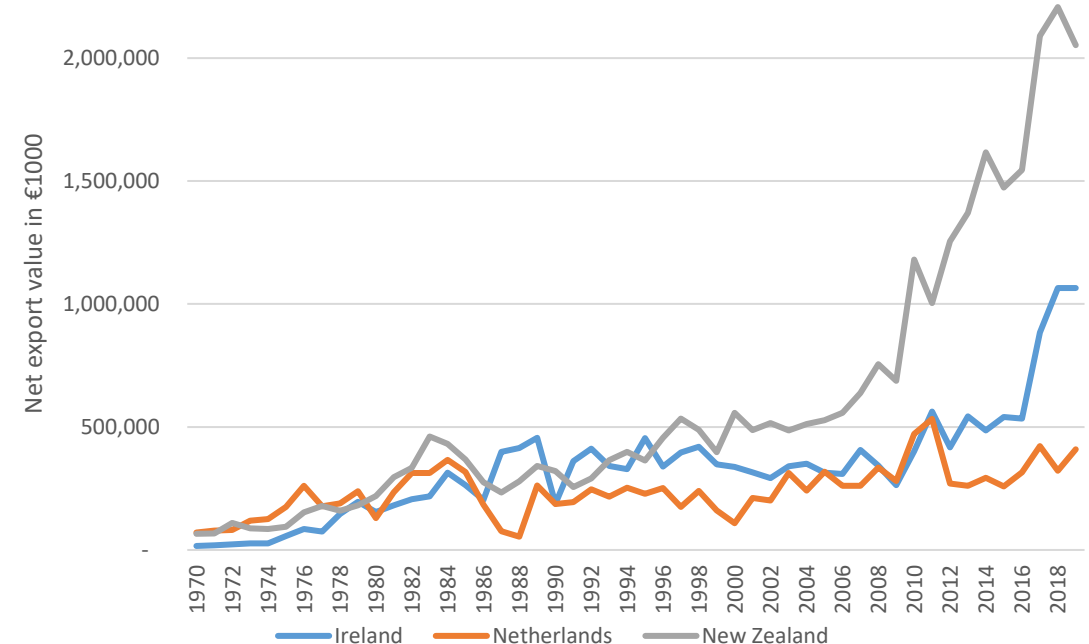


Figure 2. Net export value of butter from top 3 exporting countries in the world



Butter having the highest export price increase of 79% from 2009 to 2019 and export quantity increased by 45%

Irish butter export performance in importing countries

Figure 3. The proportion of Irish butter exports in different countries

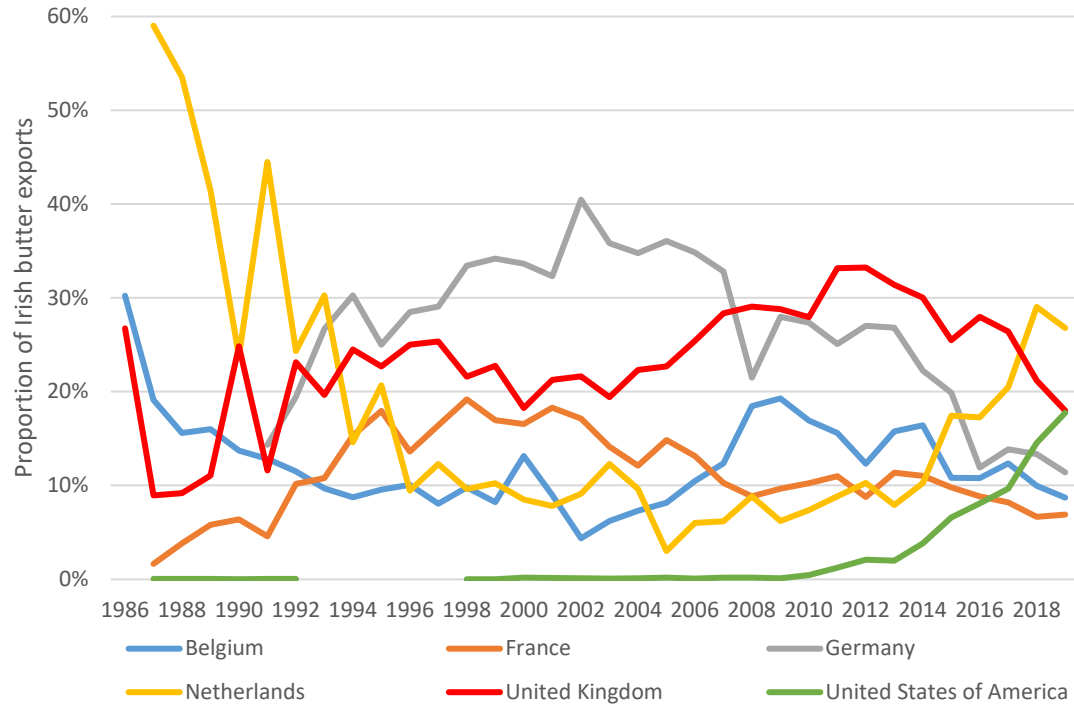
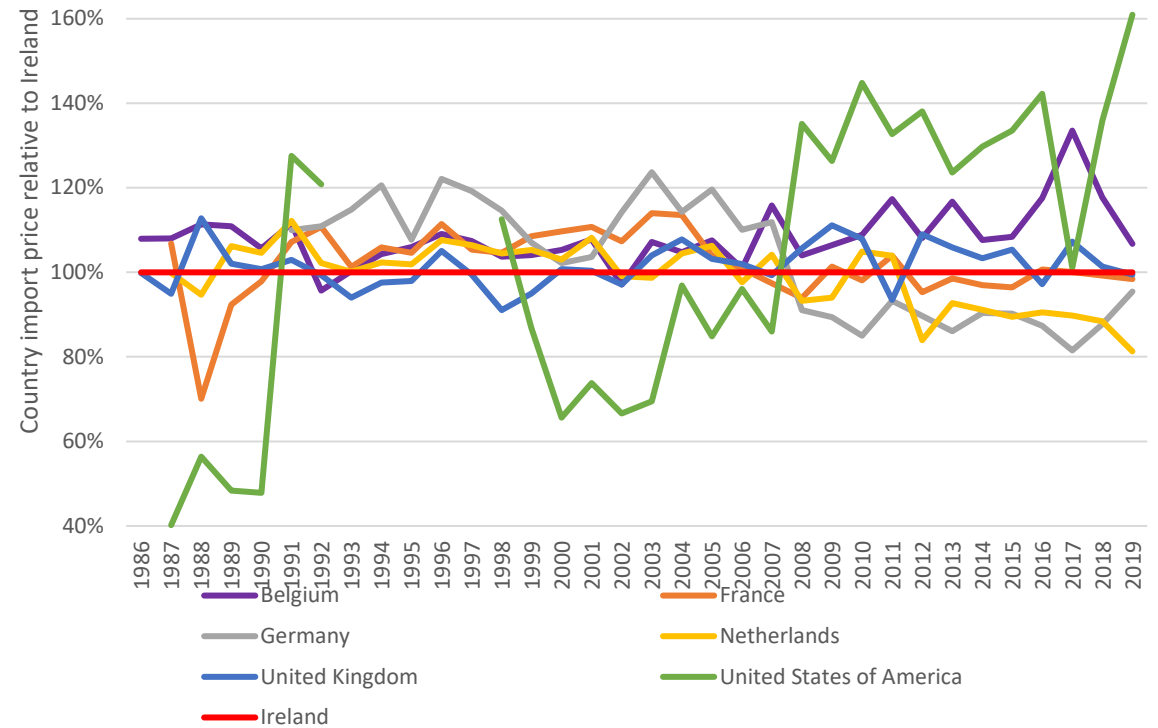


Figure 4. Country import price of Irish butter relative to the Irish export price

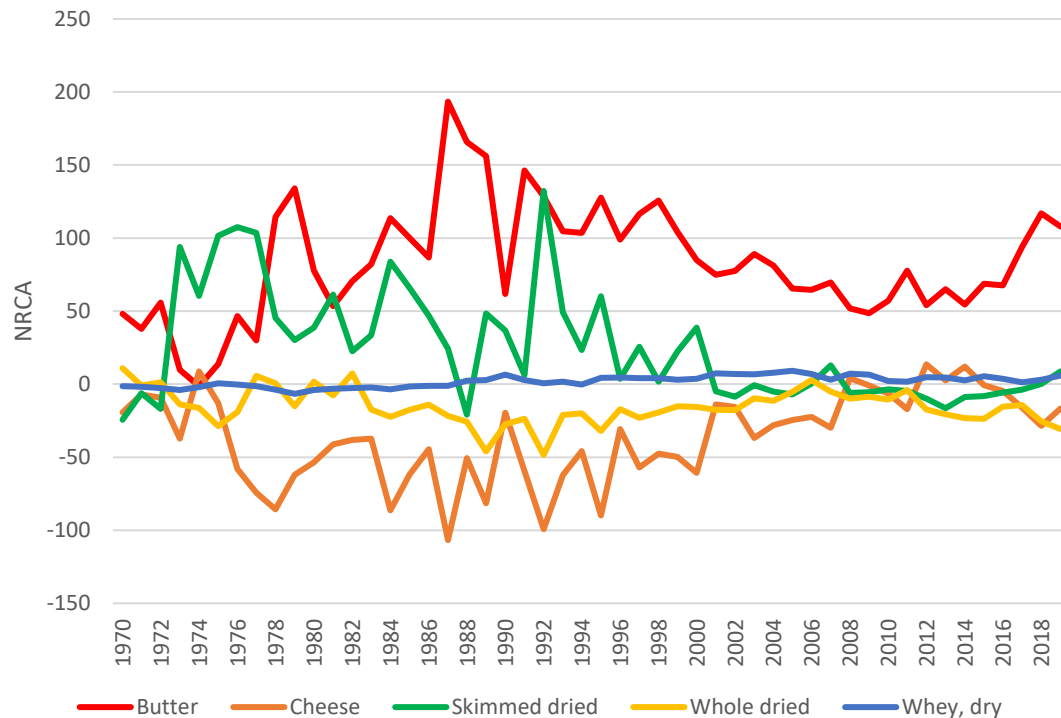


In 2019, Irish butter constituted 64% of the butter imports in the US, 61% in the UK, and 57% in the Netherlands.

US Airbus ad valorem tariff imposed on Irish butter imports as a result of a WTO ruling from 2015-2019

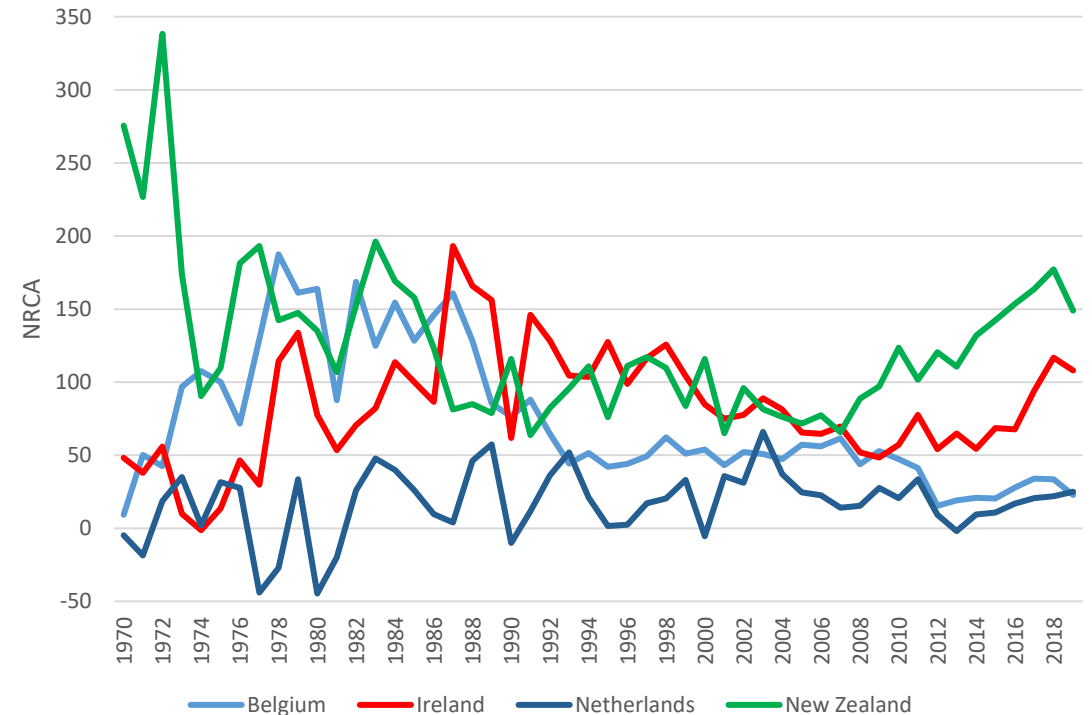
NRCA trends

Figure 5. NRCA for Irish dairy products in the global dairy market



Before 1987, there were no butter restriction which resulted in high stockpiles and from 1987, a limit of 180,000 tonnes was introduced.

Figure 6. Trends in butter competitiveness in the global butter market



The competitiveness of NZ and Ireland grew by 126% and 64%, respectively, from 2007 to 2019.

Causality?

Empirical findings

Table 1. Transmission effects on Irish butter competitiveness in the long-run

	$\text{LNRCA}_{\text{IRL}, t}$
Constant	28.01
$\text{LNRCA}_{\text{NZ}, t}$	-4.35***
$\text{LNRCA}_{\text{NED}, t}$	-2.91***
$\text{LNRCA}_{\text{BEL}, t}$	1.38**
$\text{ECT}_1 (\chi^2)$	37.01***

Note(s): ***1% **5% *10%

- The Netherlands and NZ butter competitiveness had a negative elastic (elasticity is < -1) impact (rivalry effect) on Irish butter competitiveness in the long-run at a 1% significance level, suggesting substitution competition between the two countries and Ireland.
- Ireland has to consider this outcome to improve its competitive position, especially since the EU no longer offers the support it did for butter.

Empirical findings

Table 2. VECM estimates the speed of adjustment in the short-run

	$\Delta \text{LNRCA}_{\text{IRL}, t}$	$\Delta \text{LNRCA}_{\text{NZ}, t}$	$\Delta \text{LNRCA}_{\text{NED}, t-1}$	$\Delta \text{LNRCA}_{\text{BEL}, t-1}$
Constant	0.02	-0.01	-0.004	-0.01
$\Delta \text{LNRCA}_{\text{IRL}, t-1}$	-0.22	0.21***	0.81***	-0.08
$\Delta \text{LNRCA}_{\text{NZ}, t-1}$	0.3	-0.24	0.84*	0.22
$\Delta \text{LNRCA}_{\text{NED}, t-1}$	0.1	0.10**	0.06	-0.1*
$\Delta \text{LNRCA}_{\text{BEL}, t-1}$	0.34**	-0.06	0.10	-0.14
$\text{ECT}_{1, t-1}$	-0.06**	-0.04**	-0.21***	0.02

Note(s): ***1% **5% *10%

- The growth rate of Irish butter competitiveness tended to adjust to deviations from the equilibrium growth rate at a faster speed at 6% compared to the growth rate of NZ butter competitiveness at 4% .
- The inter-country comparisons of competitiveness show the potential areas of improvement to structural changes in the short-run, i.e. taking better advantage of the easing of the EU market restrictions, the degree of country openness, and competition.

Conclusion

- The paper has displayed how Irish butter markets responded over time in an increasingly competitive environment, i.e. due to increased price volatility and policy changes or trade disruptions.
- The competitiveness of a country or product over time demonstrates the ability to adjust and/or adapt to global economic changes or conditions.
- The economic analysis of market developments provides insights for value chain coordination and structured trade in a way that creates efficiency in achieving overall sectoral objectives for policymakers and stakeholders in the agri-food industry.
- The market and competitor analysis presented here serves to close critical gaps in the strategic planning process by identifying correlations and trends of competitive positioning.

Practical Implications

- The national strategic plans often position the country to be the low-cost producer in an industry and to develop products that are considered different from the products of the competition.
- Whilst there could be national policies and strategies for the dairy industry, strategies on product portfolios are usually established by individual companies.
- Industry stakeholders need to identify macro-level imbalances based on the analyses of the dynamic aspects of the Irish butter performance and make long-term strategic plans to ensure international competitiveness and viability of the sector.
- Data-driven risk management mechanisms can be developed for the next planning period by diversification or restructuring dairy product portfolios, relative to the global trends.

Future Research Areas

- There are some gaps regarding concept of competitiveness which is multifractal and multidimensional for Irish dairy.
- The scope of competitiveness used in this paper did not consider the impact of product quality and added value for consumers (i.e. consumer preferences and change in life style, e.g. developed vs developing nations).
- Future research could further explore how Irish firms' shortcomings and/or competencies, and beyond market forces translate into strategic challenges and/or opportunities across dairy product portfolios.