Economic contribution of the dairy processing industry to the Irish economy and the processor's forecasts to 2030

Reliance Restricted

23 October 2023 | Draft for Discussion

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Reliance Restricted

23 October 2023

Conor Mulvihill
Dairy Industry Ireland
84/86 Lower Baggot Street
Dublin 2
Ireland

Provision of professional services in respect of analysing the economic contribution of the dairy processing industry to the Irish economy and the processor's forecasts to 2030

Dear Conor

In accordance with the terms of our engagement letter dated 27 June 2023, we have assisted you in assessing the economic contribution of the Irish dairy processing industry to the Irish economy and the processor's forecasts to 2030 (the 'Purpose').

Limitations of Scope

We will not, except to such extent as you request and we agree in writing, seek to verify the accuracy of the data, information and explanations provided by your members and yourselves, and you are solely responsible for this data, information and explanations. We will therefore rely on the information provided by you and the relevant members to be accurate and complete in all material respects.

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We appreciate the opportunity to have provided EY's services to Dairy Industry Ireland.

Should you have any queries or comments regarding this report or if we may be of any further assistance, please do not hesitate to contact me.

Yours sincerely

Draft

John Higgins
Partner

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1 Executive summary

Irish dairy has an opportunity to further increase and enhance its competitive advantage in global markets – sustaining economic opportunity for Ireland

Total impact of the dairy industry on the Irish economy in 2022

€17.6 billion in total output

The dairy industry generates direct output of **€7.0bn**, which through economic multipliers produces **€17.6bn** in total output in the Irish economy.

Output is the total economic activity across all sectors of the economy associated with the dairy industry's activities.

This creates **€4.3bn** in Gross Value Added (GVA) - effectively wages and profits. This GVA is the contribution of the dairy processing industry to the Irish economy.

The €4.3bn GVA generated by the dairy industry is equivalent to 2.0% of modified domestic demand in 2022

The dairy industry plays a critical role in Ireland's rural economy

53,930 jobs supported in Ireland

It supports a total of nearly **54,000 FTE** jobs across the economy (c.2.1% of national employment in 2022). This includes 5,651 FTEs employed directly by the sector in Ireland with a further c. 2,500 people employed internationally.

The majority of these jobs are supported in the rural economy, and throughout Ireland, particularly in the South of the country (with the South-West, Mid-West and South East the three largest contributors to total output).

Dairy is a significant contributor to Ireland's rural economy, supporting jobs across its supply chain and the wider economy

Processors continue to invest in their processing assets over the next five years

€865m capex investment

The industry is a capital intensive industry. Between 2015 and 2022 processors have invested c.€1.6bn to handle the 3.1 bn litres of additional milk produced by Irish dairy farmers. This represents an uplift of 56% on 2014 milk production.

Over the **past five years** the **€1.05bn capital investment** made by the dairy industry has resulted in **€340m GVA** added to the Irish economy. This also has made a positive economic contribution to the rural economy.

Over the next five years processors have forecasted about €192m of an investment in climate action and sustainability initiatives, representing about 22% of the total capex projects planned.

Dairy processors continue to invest in their plants to ensure the highest quality dairy ingredients are produced, this also has a positive economic contribution to the regional economy

Processors are forecasting a 5% uplift in milk volumes between 2022 and 2030

9.2bn litre milk pool by 2030

Representing a **Compounded Annual Growth Rate of 0.6%**.

In terms of the product mix milk powders will continue to be the largest product category accounting for 54% in 2030 (2022: 55%). Butter production is forecasted to rise by 5% to 327k tonnes or 27% (2022: 26%). Cheese is showing a slight decline to 266k tonnes by 2030, down 1%.

Ireland's competitive advantage in growing grass, and the adoption of sustainable farming and processing technologies will be vital to the long term differentiation of its dairy produce.

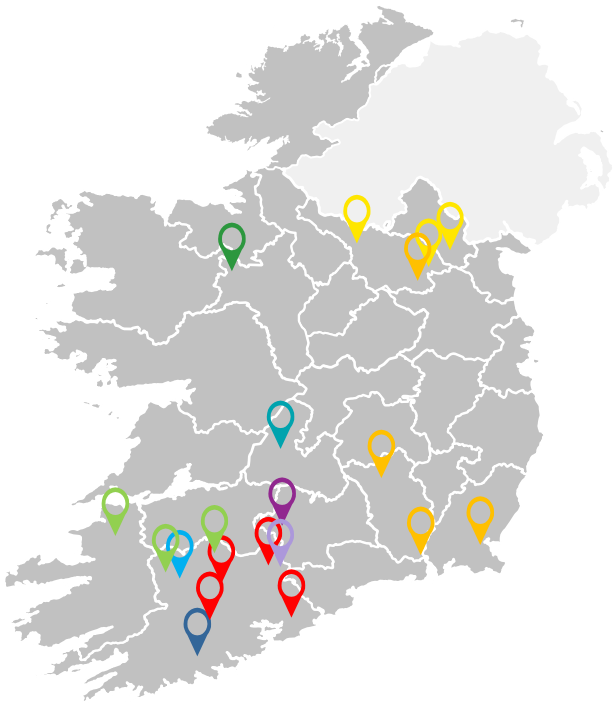
Overall growth has reduced when compared to previous estimates of 10.9 bn litres* by 2030 (down 16%) which reflects the impact of sustainability, nitrates and natural farmer attrition amongst others

* Project C (September 2021)

2 Value of the Irish dairy industry to the economy

Agriculture is Ireland's largest indigenous industry, with the dairy sector being its most significant contributor to the Irish economy

Main Irish Milk Processing Plants



North Cork
Tipperary
Arrabawn
Ornua (Kerrygold Park)
Tirlán
Aurivo
Lakeland
Dairygold
Carbery
Kerry

Source: *Central Statistics Office; EY Analysis

Overview

The dairy sector is one of the largest indigenous contributors to the Irish economy, accounting for €17.6 billion of output in 2022. It is a vital industry to sustain a vibrant rural economy and associated employment.

There are 19 main milk processing sites and Ornua's butter plant located across the country, all of which have had significant capital investment in recent years. The processing industry is a low margin, capital-intensive industry which has seen a significant capital investment programme, with about €1.1bn invested in processing assets over the past five years. In addition, there are a number of global nutrition companies that own and operate infant formula plants in Ireland.

The industry processed 8.8bn litres of milk in 2022, produced by c.16,700 family farms. This was processed into a premium range of branded consumer products and dairy ingredients. The industry is export focused, with customers in over 120 countries and last year Ireland was ranked the 9th largest dairy export nation in the world.

Ireland's geographic location, temperate climate and soils provide ideal conditions to grow grass and to allow cows to graze outdoors for the majority of the lactation period. This natural grass-based diet, supplemented by concentrate feeds to maintain overall cow health, means Irish dairy has significantly greater concentrations of fat, protein and other beneficial nutrients. In addition, grass-based dairy has a more consistent and better taste-and-flavour profile than indoor concentrate fed cows.

Irish dairy industry – Quick facts (for 2022)

As shown below, the dairy sector is a critical component of Ireland's rural economy. Any potential risks to the sector could not only have a detrimental effect on the rural economy but also the wider Irish economy due to impacts on the supply chain.

8.8bn
Litre milk pool in Ireland*

60 cent
Average milk price per litre in 2022

1.5m
Cows in Irish dairy herd*

16,700
Farming families support Irish milk pool

5,651
People employed by dairy processing industry in Ireland

€5.2bn
Total milk payments to farmers

€7.0bn
Estimated Consolidated Industry Revenue

90%+
Irish dairy output is exported

120
Countries exported to across the globe

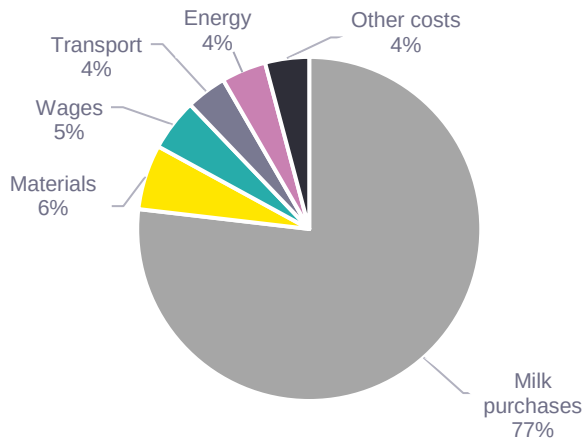
The dairy industry is estimated to have had a total economic impact of €17.6bn on the Irish economy in 2022

2022 Total Output

€17.6bn

Impact of Irish dairy industry	
Direct output (€m)	€7,038
Indirect output (€m)	€9,370
Induced output (€m)	€1,180
Total output (€m)	**€17,588**
Total FTEs	53,930
Total GVA (€m)	€4,320

Milk processor purchases in 2022



Dairy industry in 2022

The Irish dairy market has continued to grow over the last few years and the direct output from the sector in 2022 was €7.0bn. The sector currently supports 5,651 direct jobs across the 19 processing plants in Ireland, and other associated activities in Ireland.

The majority of the spend by the processing factories is on milk purchases. Due to the 2022 milk prices, 77% of all spend by the industry is on milk purchases. However, the processing industry also supports a wide range of other industries. In particular, it spends over €411m on materials per annum (€177m on packaging, €178m on additives to its products and €56m on other materials).

This activity generated €17.6bn of total output in the Irish economy in 2022. This figure includes the purchases of milk and other goods (including imports from abroad). It is estimated that the total impact of the processing industry on Irish GDP, as measured by GVA, is €4.3bn (additional value added to the economy i.e. wages and profits). This is not just through the revenue that it produces, but also through its impact on the supply chain and the wider economy.

This economic activity supports jobs across the Irish economy. These jobs are not just those which are supported in the supply chain of the processing industry itself (which includes the dairy farmers), but also those which are created by the spending of those employed in the supply chain (for instance in supermarkets or other shops which sell to these workers). Overall, it is estimated that the dairy processing industry supports 53,930 Full Time Equivalent (FTE) jobs in the Irish economy. The dairy sector supports wages of €1.7bn per annum across the Irish economy.

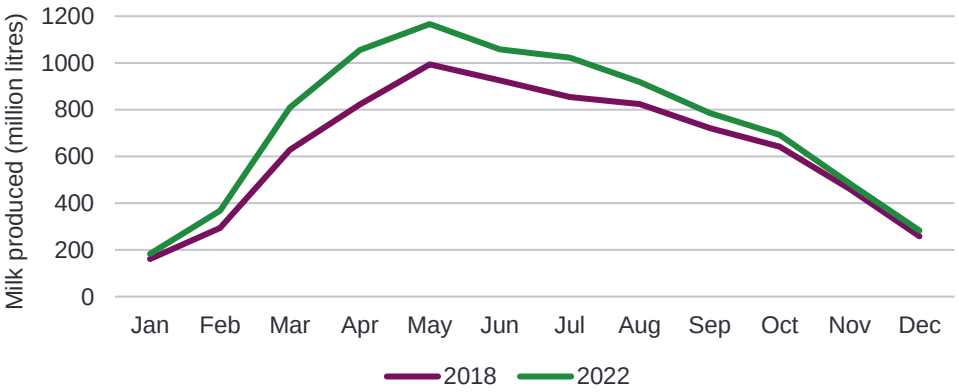
The dairy industry has undertaken a significant capital investment programme over recent years (almost €1.1bn between 2018 and 2022) and will continue to do so, with spending of c. €865m forecasted between the period of 2023-2027.

The Capex investment across the industry in 2022 was €217.9m. However, as not all of this investment is spent on materials and employment in Ireland, the economic multipliers associated with it will not be related to the full €217.9m. Based on market related assumptions, this capital investment leads to a total of €210m output, which generates €76m GVA, supporting 1,200 full time jobs across predominantly the construction sector in Ireland.

Note: The methodology and explanation of the economic impact assessment is detailed on pages 14 and 15.

The Irish milk pool has grown at a CAGR of c.4% since 2018 with about 16,700 farming families depending on the dairy sector

Seasonal production curve*



Ireland has a highly seasonal Irish milk production curve, as milk is produced off grass, similar to New Zealand.

85% of all milk produced in the Republic of Ireland occurs between 1 March and 31 October.

The trough to peak is from January to May each year. For every one litre of milk produced in January, six litres are produced in May.

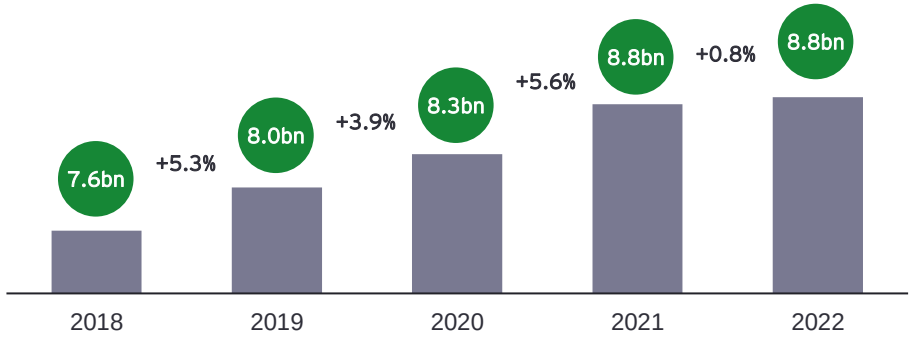
Number of dairy farmers and average herd size

Based on Dairy Industry Ireland members:

- The number of dairy farmer suppliers is c.15,600, with a further 1,100 dairy farmers supplying other dairy co-operatives and companies (c.16,700 total dairy farmers in the Republic of Ireland); and
- The average herd size is 90 cows in 2022.

Source: * Central Statistics Office; EY Analysis

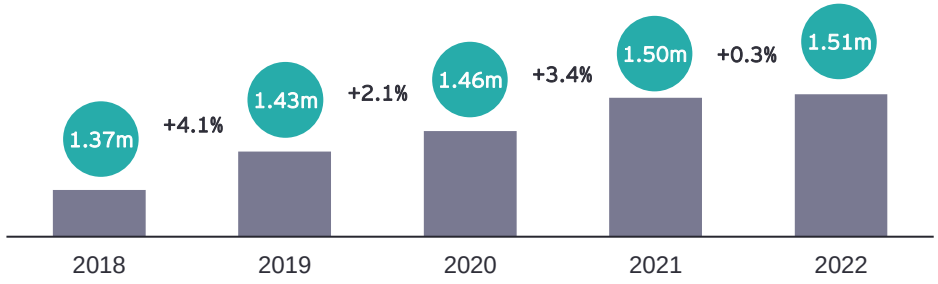
Total Irish milk production*



Milk production has grown significantly since the abolition of milk quotas in 2015.

The industry has seen milk production increase by 16% from 2018 to 2022. DII members are forecasting a slight 0.3% decline in current year volumes versus 2022.

Total number of dairy cows in Ireland*

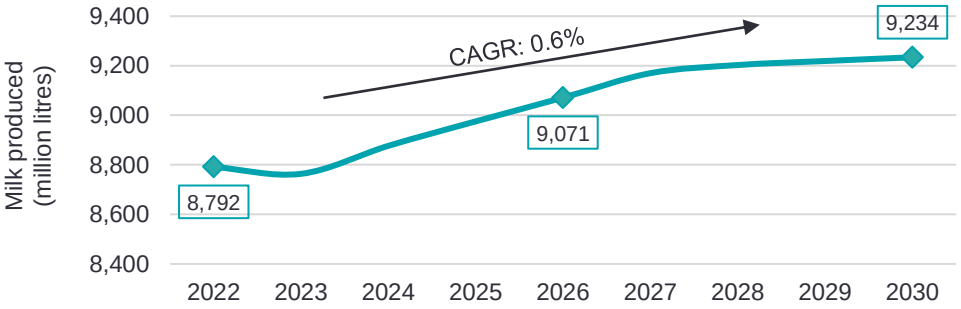


Dairy cow numbers have increased to 1.51m as at 31 December 2022, up 10% since 31 December 2018.

3 Product mix forecast 2022 to 2030

The capital intensive nature of dairy processing is set to continue as milk production is forecast to reach 9.2 billion litres in 2030

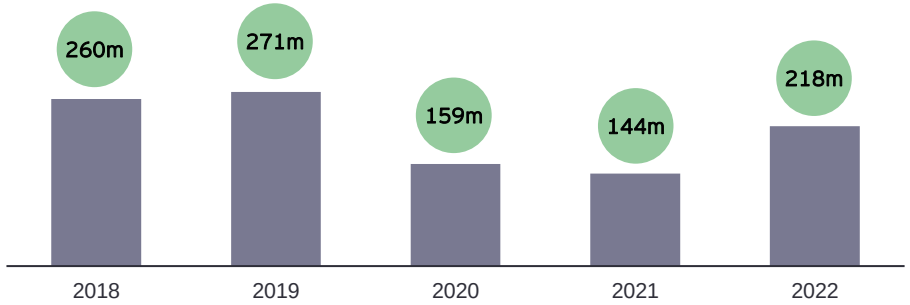
Forecast milk production in Ireland*



Global demand for dairy products continues to increase and this is reflected in the forecast Irish milk production across the country.

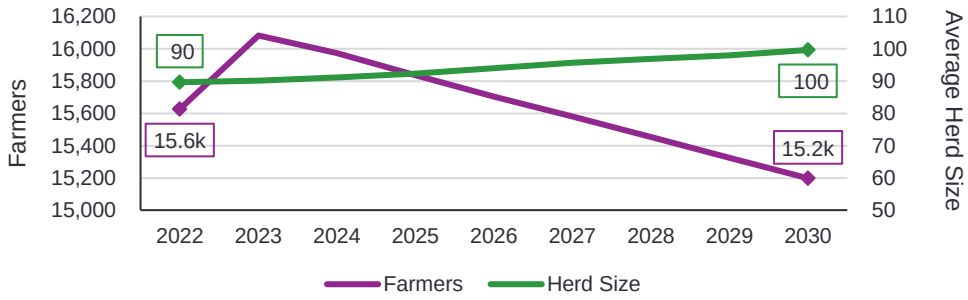
Production is expected to reach over 9.2 billion litres in 2030, which represents a 5% increase on 2022 volumes.

Historic capital investment* (€)



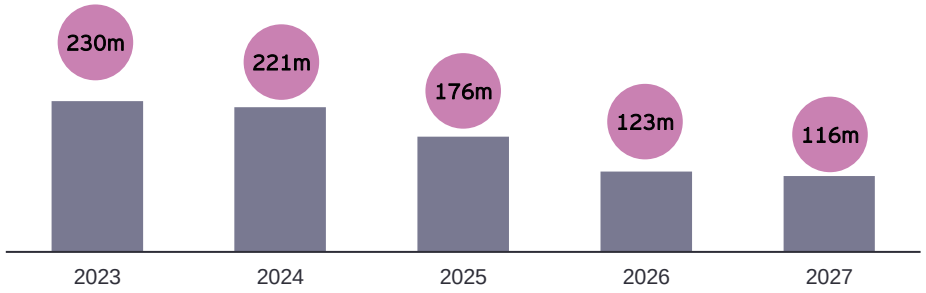
The Irish dairy processing industry has made significant capital investment of almost €1.1bn since 2018 to ensure the rising milk pool can be processed. Of note since 2015 the industry has invested just shy of €1.6bn in capital investment programmes. Some of this investment has focused on improving efficiency and sustainability in the processing industry and this is expected to continue.

Number of dairy farmers and average herd size*



Over the next 8 years, Irish dairy farm numbers are expected to decrease by 3% while the average dairy herd size is forecast to reach 100 cows, an increase of 11%.

Forecast capital investment* (€)



Capex between 2023 and 2027 is forecast to be c.€865m with €191m invested in climate action and sustainability initiatives, representing about 22% of the total. The 2022 depreciation charge is c.€122m with the overall 5 year, (2023 to 2027) forecast depreciation at c.€733m, averaging €147m per year.

Source: EY Analysis *Based on DII members only

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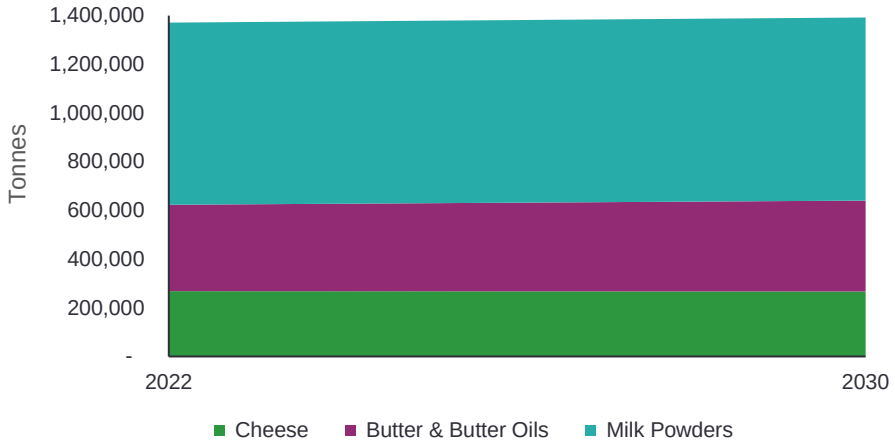
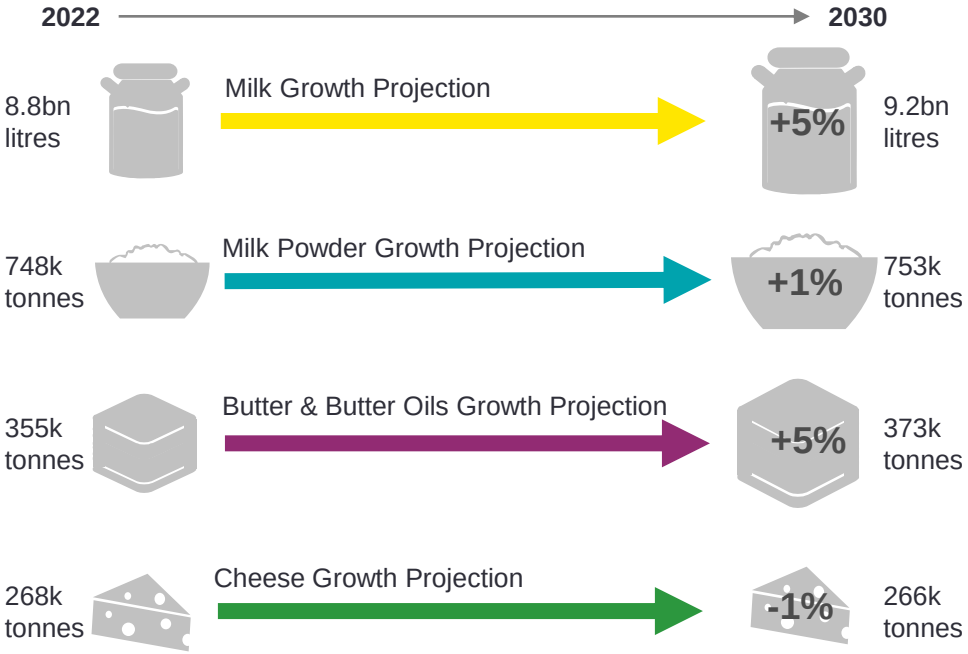
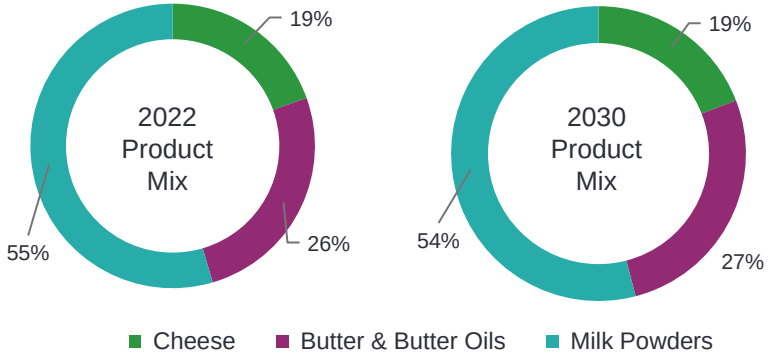
Based on current forecasts the Irish dairy industry is set to significantly increase dairy product output over the next decade

Forecast growth of Irish dairy products from 2022 to 2030





Dairy product mix



- This analysis is based on the aggregate data provided by the milk processors and includes forecast milk production and the production activity of milk processors. (Average growth of 5% comprising uplift in cow numbers of 8% and volume/productivity decline of 3% - See appendix B)
- Each dairy processor has applied their own conversion factors to the whole milk supplied for processing. For the purposes of this analysis, we have presented the production activity under three headings: Milk Powders, Butter and Butter oils, and Cheese.
- Milk powders includes whole milk powders, skim milk powders, whey and casein. In 2022 whey accounts for 26% and casein 9% of milk powders. We have excluded cream and liquid milk from the analysis. Dairy products are recorded in terms of their weight in thousands of tonnes.

Source: Analysis is based on DII members, EY Analysis

4 Economic impact assessment

Methodology: The impact on the economy of the Irish dairy industry can be calculated using the Input Output Model

Key Terms explained

Direct, indirect, induced effects

Direct (Dairy Processors)
Direct economic activity of processors (spending, taxes, profits and employment)

Indirect (supply chain)
Economic activities of dairy processor's Irish supply chain

Induced (spending)
Economic activities generated by wages spent by direct and indirect employees

Economic multipliers

Every time there is an injection of new demand into the economy, there is a multiplier effect. This is because an injection of extra income leads to more spending, which creates more output by firms, which continues throughout the supply chain. An economic multiplier shows the total additional activity generated across all sectors of the economy associated with an €1 increase in output by the dairy processers. Key multipliers include output, GDP and employment.

Output

The output multiplier shows the total output (revenue) across all sectors of the economy associated with dairy processor activities. The industry supports a level of revenue on farm and in other firms through its supply chain purchases and wages paid. This measure contains an element of double counting and therefore GDP is more commonly used to measure the value added or additional wealth generated.

Gross Domestic Product (GDP)

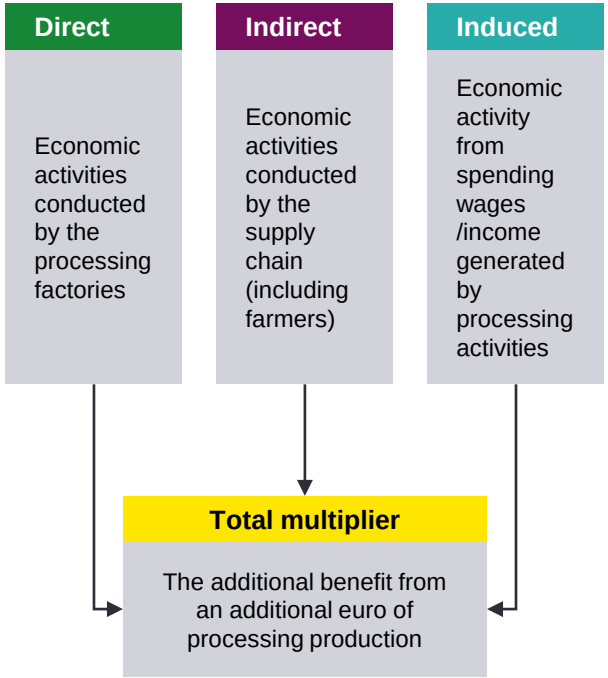
A sector's contribution to national GDP can crudely be measured in terms of the additional payroll and profits generated throughout the economy as a result of its activities. GDP is the additional value added in the economy attributable to the dairy processors operations. This can also be expressed in Modified Gross National Income (GNI*) or Modified Domestic Demand (MDD) terms, which both give an estimate of domestic economic activity in Ireland, which strip out certain multinational activity.

Employment

The employment impact shows the number of people employed throughout the economy in order to support dairy industry activities. This includes the number of people employed by the processors, employment in the supply chain and employment generated as direct and indirect wages are spent throughout the wider economy.

Methodology (cont'd): The impact on the economy of the Irish dairy industry can be calculated using the Input Output Model

Total multiplier



Direct, indirect and induced impacts

Direct impacts

The direct economic effect of any activity on its local economy can be quantified as:

- The number of individuals directly employed by the activity
- The wages and salaries these workers are paid
- The value of purchases directly attributable to the conduct of the activity

Measuring only the direct impacts captures the minimum economic significance of a given activity, but excludes the linkages which a business activity has with other sectors of the economy. These linkages can be described in terms of indirect and induced economic impacts and constitute the downstream economic effects which create business, support jobs, and provide wages for other sectors of the economy. In this study, we analyse and quantify these downstream effects using the IO method.

Indirect impacts

Indirect impacts result primarily from related economic activities that are conducted by service providers other than the processing industry. The distinguishing feature of indirect impacts is that the activity can be attributed to the presence and operation of the company, even though the actual activity is conducted outside of it. An example would be the expenditure on feed by milk suppliers.

Induced impacts

Induced impacts result from the spending of wages generated from activities directly and indirectly related to the dairy processing industry's activities. Induced impacts are the knock-on impacts which occur as dairy processing employees, suppliers and others spend their wages, creating further impacts through the economy.

Total economic impact is the sum of the direct, indirect, and induced impacts and represents the quantifiable economic contribution of the industry nationally.

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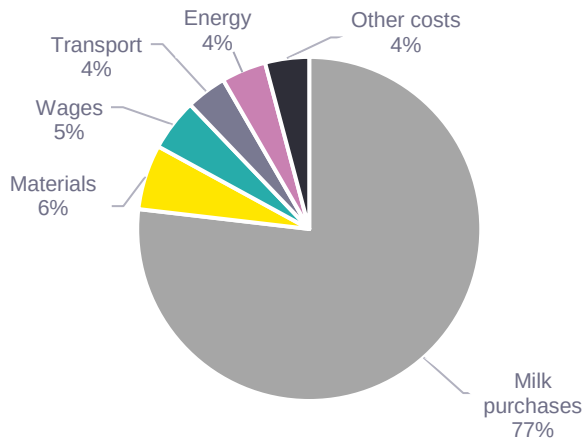
The dairy industry is estimated to have had a total economic impact of €17.6bn on the Irish economy in 2022

2022 Total Output

€17.6bn

Impact of Irish dairy industry	
Direct output (€m)	€7,038
Indirect output (€m)	€9,370
Induced output (€m)	€1,180
Total output (€m)	**€17,588**
Total FTEs	53,930
Total GVA (€m)	€4,320

Milk processor purchases in 2022



Dairy industry in 2022

The Irish dairy market has continued to grow over the last few years and the direct output from the sector in 2022 was €7.0bn. The sector currently supports 5,651 direct jobs across the 19 processing plants in Ireland, and other associated activities in Ireland.

The majority of the spend by the processing factories is on milk purchases. Due to the 2022 milk prices, 77% of all spend by the industry is on milk purchases. However, the processing industry also supports a wide range of other industries. In particular, it spends over €411m on materials per annum (€177m on packaging, €178m on additives to its products and €56m on other materials).

This activity generated €17.6bn of total output in the Irish economy in 2022. This figure includes the purchases of milk and other goods (including imports from abroad). It is estimated that the total impact of the processing industry on Irish GDP, as measured by GVA, is €4.3bn (additional value added to the economy i.e. wages and profits). This is not just through the revenue that it produces, but also through its impact on the supply chain and the wider economy.

This economic activity supports jobs across the Irish economy. These jobs are not just those which are supported in the supply chain of the processing industry itself (which includes the dairy farmers), but also those which are created by the spending of those employed in the supply chain (for instance in supermarkets or other shops which sell to these workers). Overall, it is estimated that the dairy processing industry supports 53,930 Full Time Equivalent (FTE) jobs in the Irish economy. The dairy sector supports wages of €1.7bn per annum across the Irish economy.

Top 5 sectors supported by the dairy industry (GVA)

Rank	Sector	GVA (€m)
1	Agriculture	2,315
2	Electricity, gas, steam and air conditioning supply	278
3	Retail trade	153
4	Administrative and support service activities	153
5	Food products	146

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The dairy industry invested €218m in capital in the Irish economy in 2022

2022 Total Capex Output

€193m

Capex impact of Irish dairy industry	
Direct output (€m)	€109
Indirect output (€m)	€62
Induced output (€m)	€20
Total output (€m)	**€193**
Total FTEs	1,100
Total GVA (€m)	€70

2018 - 2022 Total Capex Output

€940m

Historic Capex impact (2018 – 2022)	
Direct output (€m)	€526
Indirect output (€m)	€306
Induced output (€m)	€108
Total output (€m)	**€940**
Total FTEs (average per year)	1,210
Total GVA (€m)	€340

Note: Numbers may not sum due to rounding

Dairy industry capital expenditure in 2022

The Irish dairy market invested €217.9m in capital in 2022. This capital investment generates further economic activity in Ireland, however, as not all of this investment is spent on materials and employment in Ireland, the economic multipliers associated with it will not be related to the full amount.

Based on a market related assumption on the amount of Capex which would be spent in Ireland, this capital investment leads to a total of €193m output, which generates €70m GVA, supporting 1,100 full time jobs across predominantly the construction sector in Ireland.

Of this total 2022 Capex, €6.1m was capital expenditure on climate action initiatives (2.8% of total Capex spend).

Overall, expenditure on climate action initiatives is forecasted to increase from 2022 to 2028. Over the next five years (2023 – 2027), capital expenditure is forecasted at €865m, of which investment on climate action initiatives is, on average, 22%, with the percentage of the total increasing each year. For instance, in 2023 Capex on climate action initiatives is forecast to increase to €31m (13.4% of total Capex spend), and by 2027 is forecasted to be 38.0% of total Capex spend.

Historic capital investment

The dairy industry has undertaken a significant capital investment programme over recent years (€1.05bn between 2018 and 2022) and will continue to do so, with spending of c. €865m forecasted between the period of 2023-2027.

Over the period 2018 – 2022, based on the same assumption above regarding the split of Irish-based capital spend, the Irish Dairy Industry made a €526m direct capital investment, which is calculated to have generated €940m total economic output.

This economic activity generated €340m GVA over these five years, and supported an average of 1,210 FTE jobs in the economy each of the five years.

5 Appendix

Appendix A: Economic impact analysis

Impact assessment by Republic of Ireland provinces

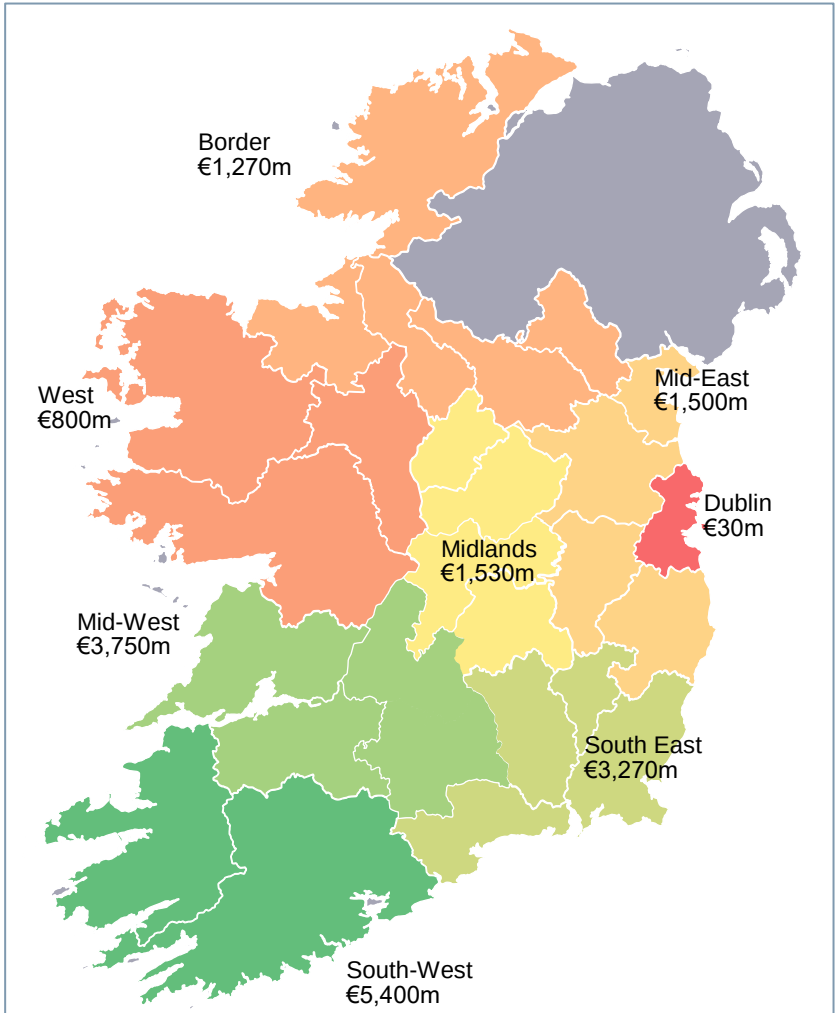
	2022 Cow Numbers ('000)	% of Total	Economic Output (€bn)
Munster	951.1	57.6%	10.1
Leinster	502.0	30.4%	5.3
Ulster	107.9	6.5%	1.2
Connacht	86.3	5.2%	0.9
Total	**1,647.3**	**100%**	**17.6**

Note: Numbers may not sum due to rounding. Cow numbers are from the ICBF, and are based on 1 June 2022 cow numbers.

Regional impact

		2022 Cow Numbers ('000)	% of Total	Economic Output (€bn)
1	South-West	506.7	30.7%	5.4
2	Mid-West	352.3	21.3%	3.8
3	South East	306.6	18.6%	3.3
4	Midlands	143.9	8.7%	1.5
5	Mid-East	140.6	8.5%	1.5
6	Border	119.5	7.2%	1.3
7	West	74.7	4.5%	0.8
8	Dublin	3.1	0.2%	0.03

Note: Regions identified based on their NUTS 3 classification (as per CSO).
A note on the modelling, we have apportioned total output to each region based on the cow numbers per region. The limitation therefore is that the Euro values of output could be affected by differing milk yields per county.



Note: Numbers may not sum due to rounding.

Source: Dairy Cow Numbers ICBF, EY Analysis

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