The Importance of Agriculture and the Food Industry to the Irish Economy

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Executive Summary

Agriculture and the Food Industry - Importance to the Irish economy

Key points

- *Agriculture and the Irish food industry provide 14-15% of total employment –between 287,000 and 308,000 jobs.*
- *Every €100 of Agricultural Output produces an additional €73 of output – creating a total of €9.25bn output in the Irish economy.*
- *Every €100 of Agricultural Output produces €97 of GNP (National Income).*

The Food Industry - Employment

- The main sectors in the Food Industry in Ireland are agriculture, agricultural inputs, food retailing/food service, food wholesaling & food processing.

- Irish food-related employment, of which agriculture is the main component, is estimated at 14%-15% of total employment.

Economic Impact of Agriculture – High Output Multiplier

- Agricultural production has an important economic impact across other sectors - every €100 worth of agricultural output creates an additional €73 of output in the wider economy.

- This *Output Multiplier* effect is 18% higher than the average of all other manufacturing sectors in the Irish economy.

Low Import Content of Agriculture

- The agriculture sector sources much of its inputs domestically. As a result, the import content of agriculture is 24% lower than other manufacturing sectors

Strong Contribution to National Income

- Agriculture has a very high GNP generating effect - every €100 of final demand for agricultural output results in €97 of GNP (National Income)

Importance of Agriculture to the local Economy

Key Points

- *The economic and social benefits of agriculture and the food industry are widely dispersed throughout the country, creating economic activity in every town and parish in Ireland.*
- *Irish farmers spend almost €8bn per annum on agricultural inputs and living expenses, the majority of which are purchased locally.*

Significant Rural Economy Impact

- Agriculture is a major contributor to the economy outside of Dublin:
  - 36% of agricultural value-added is produced in the BMW (Border, Midland and Western) region, compared to 19% of national economic value-added in this region.
  - 61% of all agricultural value-added is produced in the S&E (South and East) region (excluding Dublin), compared to 41.4% of all national economic value-added in this region.

€8bn Agricultural Expenditure in the local economy

- Irish farmers spend close to €4bn per year on agricultural inputs, most of which is purchased within 35 kilometres of the farm

- In addition, Irish farm households spend another €4bn on living expenses, the majority of which is, again, purchased locally.

Importance of Direct Payments to Agriculture and the Economy

Key Points

- *Direct Payments of €1.8bn are critically important for Agricultural Production & Farm Incomes – comprising over 30% of Agricultural Output.*
- *Direct Payments support the provision by farmers of non-market public goods, including environmental protection and animal welfare standards.*
- *Any reduction in Direct Payments will have a severe effect on Agricultural Production and Farm Incomes.*
- *Calculations undertaken show that a 20% reduction in Direct Payment would result in:*
  - *A fall in Farm Incomes of 9%-39%, dependent on enterprise; and*
  - *A drop in Output in the Cattle and Sheep sector of €450m, with an economy-wide loss of €780m.*
- *The maintenance of Direct Payments is therefore vital to underpin agriculture's contribution to the economy and the achievement of growth targets for the sector.*

Importance of Direct Payments

- Direct Payments of €1.8bn annually, are critically important for Agricultural Production & Farm Incomes, accounting for 31% of the value of gross agricultural output in 2010.

- These national and EU Payments include the Single Farm Payment, REPS/ AEOS, Disadvantaged Areas, Suckler Cow Welfare and Sheep Grassland Schemes.

- Direct Payments also support the provision by farmers of non-market public goods, including environmental protection, landscape management and animal health and welfare standards

- Farmers use a proportion of their Direct Payments to purchase farm inputs and generate agricultural production. In 2009, output of €1.15bn was generated in the economy as a result of the use of €552m of direct payments by farmers to purchase inputs

- The majority of Cattle and Sheep farmers use a significant part of their Direct Payments annually to purchase inputs associated with their farming enterprises.

Effect of Changes in Direct Payments on Farm Incomes

- Any reduction in Direct Payments will have an immediate negative impact on farm enterprises, hitting agricultural production, farm incomes and jobs.

- Calculations show that a 20% reduction in Direct Payments from 2010 levels would lead to a fall in farm incomes ranging from 9% to 39%, dependent on farm enterprise.

- Cattle and Sheep farmers would be most severely affected, ending up with unsustainable incomes in the region of €4,000 to €8,000 per year.

Effect of Changes in Direct Payments on Output

- A decline of €100m in agricultural output will give rise, in total, to a reduction of €173.4m in the economy and a loss of €100m in GNP.

- Calculations show that a 20% reduction in Direct Payments would lead to a reduction of €450m in the value of cattle and sheep output, and an economy-wide Output reduction of €780m.

Outlook for Agriculture

Key Points

- *Demand for food is projected to increase by 50% between now and 2030.*
- *Food Harvest 2020 has set out targets for growth in the food industry, including farm-level output growth of €1.5bn and export growth to €12bn.*
- *Ireland is well placed to meet the growing demand for sustainably-produced food, and has a competitive advantage in food production:*
  - *The grass-based production system provides both a cost-advantage and a low-carbon model of production; and*
  - *The Food Processing sector has grown by of over 2% annually in the last decade compared with negative growth in the traditional manufacturing sector.*

Increasing Demand for Food

- In the medium-term, world population will increase by around 80m per year, to 8.3bn, by 2030; EU population is expected to increase because of inward migration up to a peak of about 520m in 2030.

- This is projected to lead to a 50% increase in demand for food by 2030

Competitiveness of agriculture and food industry

- Irish agriculture and food processing have a proven record of output expansion and growth.

- Irish agriculture has a cost advantage in its grassland; its grass-based production systems also give it an advantage in relation to carbon footprint.

- Food Harvest 2020, the strategy for growth for the Irish food industry over the next decade has set out targets for growth in primary production, the food processing sector and exports. These are:
  - €1.5bn growth in output at farm-level;
  - €3bn growth in value-added food products; and
  - Export growth to €12bn by 2020.

- The removal of EU milk quotas in 2015 will provide the basis for growth in the Irish dairy farm sector, which is projected to increase by 50% in the next decade. In beef and sheep, there is a 20% growth in value projected, with significant growth potential for the pigmeat (50%) and poultry (10%) sectors.

- For the last 20 years the Irish-owned food-processing sector has experienced relatively high growth rates. In the last decade, the average growth rate of 2% compares very favourably with the negative growth of the traditional manufacturing sector.

CHAPTER ONE

1 Agriculture and the Food Industry - importance to the Irish economy

The food industry in Ireland comprises a range of enterprise types from primary agricultural production to food processing and distribution. The purpose of the first part of this study is to arrive at a comprehensive definition of the food industry and to outline and measure its importance to the Irish economy, with particular reference to the contribution of the agricultural sector.

1.1 Defining the Food Industry

There are many ways in which an industry may be defined. A holistic definition that identifies all the economic and employment linkages is useful in representing an industry's true size and importance, and can assist in the avoidance of policy clashes.

The revenue accruing to the final products of an industry at consumer or export level flow through the industry and the general economy, producing three economic effects which are generally described as direct, indirect and induced.

Direct effects refer to the economic effects of production in the immediate or 'front line' sectors. **Indirect** effects refer to the economic effects of demand in the 'secondary' sectors that supply the primary producer with inputs. **Induced** economic effects occur when the income arising in both 'front line' and 'secondary' production and distribution sectors is spent on a range of goods and services.

The food industry may be defined to include all the factor resources (land, labour, capital) whose incomes are derived from the value of final demand for food. This value is made up of the value of consumer food expenditure in the domestic market and the value of food exports.

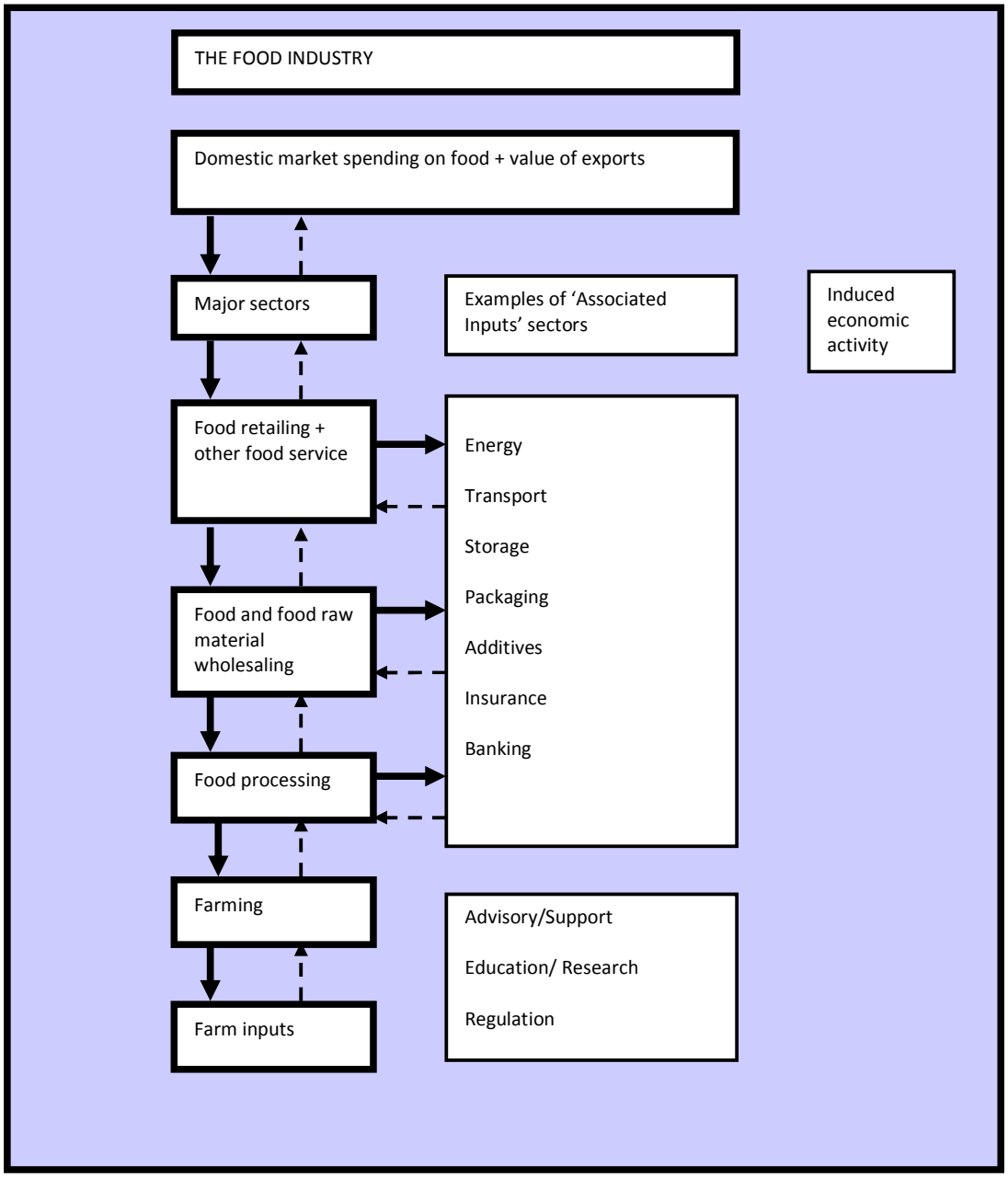
Some of these resources may be very obvious, such as farmers and food processors. Resources that are engaged in the distribution of food and in the food service sectors are equally part of the food industry since they derive their incomes from the value of final demand for food.

However, there may also be resources which contribute to serving the final demand for food but which do not share any of the revenue arising from that demand. Personnel in the Department of Agriculture and Teagasc as well as educationalists in agricultural and food science fall into this category.

Thus a wider definition is that ***the food industry comprises all those resources whose incomes are derived from the value of final demand for food and also those resources contributing in a production or distribution sense, whose incomes are dependent on there being a demand for food.***

A definition of the purely Irish food industry would have to be adjusted for food imports. Given any level of food imports, then some of the value of final demand for food arising in Ireland leaks out of the economy, and holds food production and distribution resources in place in foreign countries.

Figure 1: Diagram of the Food Industry[1]



The economic reach of the industry is greater again than just the direct and indirect production effects, as used in the above definition, and includes induced economic effect, although this effect is not included in the industry in any definitional sense.

[1] **Legend:** Solid arrows = money flow, Broken arrows = products/services flow

1.2 Employment in the Food Industry[2]

The numbers employed in an industry is another measure of the contribution of that industry to the economy.

Using the most up-to-date published data, and a set of assumptions, an estimate is made of the numbers employed in the Irish food industry, as defined in Section 1.1 of this report.

In addition, an estimate is then made of the numbers employed in the Irish food industry that are directly relating to Irish food (i.e. taking account of import content). Direct employment in the agricultural and food sectors is outlined in Table 1.1.

Table 1.1 Persons employed in production & distribution of food & food raw materials

Year	Agriculture ILO basis[3]	Food processing ILO basis[4]	Wholesale of agricultural raw materials and live animals[5] NACE 512	Wholesale of food, beverages and tobacco NACE 513	Sales in non-specialized stores with food, beverages or tobacco predominating (Retail) NACE 5211	Sale of food, beverages and tobacco in specialized stores (Retail) NACE 522
2004	111,400	40,523	N/A	20,064	63,925	10,873
2005	109,500	39,180	2,121	20,890	69,974	9,929
2006	107,500	37,669	2,872	21,145	73,230	11,970
2007	108,800	37,105	2,625	24,337	78,741	10,446
2008	117,100	36,727	NA	NA	85,368[6]	11,875

Table 1.2 shows further employment data in the 'Hospitality' sector in which the provision of food is a major component.

Table 1.2 Persons engaged in the Hospitality Sector[7]

Year	Hotels (NACE 551)	Restaurants (NACE 553)	Bars (NACE 554)	Canteens and catering (NACE 555)
2004	39,748	42,429	44,104	7,093
2005	39,753	39,256	41,405	9,344
2006	43,912	43,038	44,249	10,452
2007	49,411	46,155	46,078	10,232

For the retail, wholesale and hospitality sectors identified above in Tables 1.1 and 1.2, food is not the only element in their business. A breakdown of sales into food and non-food in these industries is not available through the CSO.

Therefore, an estimate is made of the minimum and maximum proportion of sales generated by food, and the consequent employment likely to be food-related in such establishments; this is presented in Table 1.3.

[2] The year selected for the employment figures are the most recent comprehensive set available
[3] Folder F1. Compendium of Agricultural Statistics 2008, www.agriculture.gov.ie
[4] Folder F2. Compendium of Agricultural Statistics 2008, www.agriculture.gov.ie
[5] CSO: http://www.cso.ie/px/pxeirestat/database/eirestat/eirestat.asp
[6] NACE 4711. Change of NACE codes after 2007
[7] CSO: http://www.cso.ie/px/pxeirestat/database/eirestat/eirestat.asp

Table 1.3. Estimates of solely food-related employment in certain sectors 2008

Wholesale of food beverages and tobacco*[8]		Sales in non-specialized stores with food, beverages or tobacco predominating		Sale of food, beverages and tobacco in specialized stores		Hotels[9]		Bars[10]	
% Attributable to food									
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
80%	90%	65%	75%	80%	90%	35%	45%	20%	30%
Number attributable to food									
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
19,470	21,903	55,489	64,026	9,500	10,688	17,294	22,235	9,216	13,823

1.2.1 Employment in the Farm Inputs Sector

The Farm Input sector is included in Diagram 1 as one of the six major 'Direct' sectors. This is because major elements of it such as animal feeds, seeds, fertilisers and farm equipment are unique to farming/agricultural production.

Research undertaken by Henry and Deane[11] is used as the basis for estimating employment in the farm inputs sector. That work produced 'direct' and 'direct + indirect' Employment Multipliers for the agriculture and farm inputs sector (calculated as the number of man years per £m final demand). The Direct Employment Multiplier was 41.54, while the 'Direct + Indirect' Multiplier was 62.39.

It is assumed that the relationship between direct employment in agriculture and 'direct+indirect' employment remains the same today – i.e. that for every 1 job in agriculture, there is a total of 1.5[12] jobs in agriculture + the farm inputs sector. (It is recognised that this is an assumption and as such is subject to a degree of uncertainty and a possibly relatively wide margin of error).

On this basis, employment in the Farm Inputs sector is estimated at 58,784[13].

1.2.2 Employment in 'Associated Inputs' Sector

The sectors which supply 'associated inputs' (i.e. excluding food and food raw material input) to food production, processing and distribution have not been accounted for in terms of employment. Examples of such inputs are electricity, gas, transport, storage, packaging, additives, insurance and banking services. In the absence of any reliable means of calculating this figure, no estimate has been made of the food-related employment in these sectors.

[8] Most recently available base 'persons engaged' figure relates to 2007
[9] ibid
[10] ibid
[11] *The contribution of tourism to the economy of Ireland in 1990 and 1995*, Henry, E.W. and Deane, B., Tourism Management. Vol. 18, No. 8, pp. 535-553. 1997, Elsevier Science Ltd
[12] 1.502= 62.39/41.54, or ((Direct + Indirect) Employment Multiplier)/Direct Employment Multiplier
[13] 58,784 = 0.502*117,100

1.2.3 The impact of Food Imports

Given that there are food imports, not all of the food-related employment may be attributed to food produced in Ireland. The CSO Trade Statistics provide data on food imports but not on where those imports go once in the country.

Some of these imports go to the food-processing sector where they undergo processing for subsequent sale in the domestic market or to export markets. Some go to the wholesale sector for onward sale to the retail sector and some go directly to retailers for sale to consumers.

Accounting for imports in Irish food consumption is therefore not a simple or straightforward task. Having consulted with industry personnel, a figure of 25% imports was used in the current exercise.

1.2.4 Total employment in the Irish food industry

Table 1.4 summarises employment results derived thus far in the exercise.

Table 1.4 Persons engaged estimates for food industry as per Figure 1 (2008)

Sector	Gross published number	Minimum food-related	Maximum food-related
Farm input	NA	58,784 (Est.)	58,784 (Est.)
Farming	117,100	117,100	117,100
Food processing	36,727	36,727	36,727
Wholesale of agricultural raw materials and live animals	2,625	2,625	2,625
Wholesale of food, beverages and tobacco	24,337	19,470	21,903
Sales in non-specialized stores with food, beverages or tobacco predominating	85,368	55,489	64,026
Sales in non-specialized stores with food, beverages or tobacco predominating	11,875	9,500	10,688
Hotels	49,411	17,294	22,235
Restaurants	46,155	46,155	46,155
Bars	46,078	9,216	13,823
Canteens and catering	10,232	10,232	10,232
Estimated employment in food support functions paid for out of taxation[14]	6,000	6,000	6,000
Total gross published	**494,692**	**-**	**-**
Total food-related	-	**388,592**	**410,298**
Total national employment[15]	**2,052,000**	-	-
Total gross published as % national	**24.1**	-	-
Food-related as % national	-	**18.9**	**20.0**
Irish-food-related as % of total assuming 25% imports	-	**14.2**	**15**

Even omitting the 'Associated inputs' sectors, the estimated employment of the food industry is estimated to account for 19% to 20% of total employment.

Specifically Irish-food-related employment is estimated at 14%-15% of total employment. For 2008 this amounted to between 287,000 and 308,000 jobs.

[14] Includes personnel employed in inspection, regulatory, market development/promotional, research and educational roles specifically related to food and food raw materials.
[15] 4th quarter 2008, *Quarterly National Household Survey* CSO

Despite difficulties in the estimation process and the necessity of making assumptions (all of which are described in the text) the inescapable conclusion is that the food industry, as comprehensively defined in this paper, is a very major provider of employment in the Irish economy.

1.3 Agriculture in the Irish Economy

Irish agriculture is the main production sector of the Irish food industry. The aim of the remainder of this chapter is to focus particularly on Irish agriculture and the role it plays in adding value and generating earnings within the Irish economy.

It should be noted that the figures presented do not show the very significant and relatively unique contribution which agricultural production makes in the regional dispersion of its economic effects throughout all parts of the country.

1.3.1 Agricultural Output Multiplier

A measure of the effect of the activities or output of a sector on the economy is the **Output Multiplier**. This measures *how much direct and indirect output is required, across all domestic products per €1 final demand*[16] of a given product/ service.

In other words, the Output Multiplier measures how much **additional** output is produced in other sectors in order to produce €1 of agricultural output.

Table 1.5 below shows estimates of multipliers derived from Input-Output work carried out by the Central Statistic Office (CSO).

Table 1.5 Multipliers in the Irish Economy [17]

Type of multiplier	Agriculture, Forestry & Fishing	Average of all sectors excluding Agriculture, Forestry and Fishing	Average of all sectors excluding Agriculture, Forestry & Fishing & services
Direct and indirect Output	1.734	1.470	1.454
Import	0.335	0.350	0.443

The CSO identifies 95 productive sectors in its input output tables. For every €1 worth of output from Agriculture, Forestry and Fishing, €1.734 worth of output (including that of Agriculture, Forestry and Fishing) in total is created[18]. In 2010, therefore, Agricultural Output of €5.3bn[19] created €9.25bn overall output in the Irish economy.

The Average Multiplier for all sectors excluding Agriculture, Forestry and Fishing is 1.47. Thus, it can be seen that every €1 of agricultural, forestry and fishing production has a production impact on the economy that is 18% higher than the average of all other sectors combined. The difference is somewhat higher again when service sectors are excluded.

[16] *2005 Supply and Use and Input-Output Tables*, CSO, 2009
[17] Taken and derived from Table 5. *Supply and Use and Input Output Tables for Ireland 2005*, CSO, 2009
[18] An explanation of this effect as given by the CSO is presented in Appendix 1
[19] *Output, Input and Income in Agriculture 2010 - Preliminary estimate,* CSO, March 2011

1.3.2 Import Multiplier

Agriculture, Forestry and Fishing has a lower import requirement for its output than the average for all other sectors. It should be noted that the service sectors have, in general, relatively low import contents in their outputs. Therefore, when the comparison is more correctly confined to non-service (i.e. physical production) sectors, the import content for Agriculture, Forestry and Fishing of 0.335 is 24% lower than the average of all other physical production sectors.

While relating to different industry definitions than those of Table 1, a study by Riordan (2008) estimated that imports of goods and services in 2005 for the Biosector[20] amounted to €38 per €100 of exports compared with €58 for the Non-Biosector[21]. Thus, as estimated in that study, the Biosector import content was over 34% lower that that of the Non-Biosector.

1.3.3 Net Contribution of Agriculture to the Balance of Payments

The relatively low import content for agricultural production is one element in the significantly positive contribution that Agriculture makes to the Irish Balance of International Payments.

Riordan states: *"In 2005 the Biosector contributed 32% of the total net foreign earnings of all primary and manufacturing industries in 2005. In contrast the share of the Biosector in exports was 16%..... Reasons for the Biosector's share of net earnings from its exports being twice its share of exports were mainly the lower content of imports in its exports and the smaller role of foreign owned businesses in its export activities"*[22].

1.3.4 GNP Multiplier

When income from the direct and indirect production effects of agricultural production is spent it generates further economic activity and income in the economy and contributes to the maintenance of resources in many other sectors of the economy.

The Input-Output tables published by the CSO do not provide estimates of induced output or income effects. Again, the published results of Henry and Deane (1997) are used to provide an updated estimate for these effects. This work is now somewhat dated relating as it does to the 1990s, and, as a result, the conclusions are more tentative than those arrived at in the preceding paragraphs.

Selected data relating to GNP multipliers are presented in Table 1.6.

[20] The *Biosector* comprises Agriculture, Forestry, Fishing, Food and Beverages and Tobacco while the Non-Biosector was defined as comprising all other manufacturing industries as well as quarrying and mining.
[21] Riordan, Brendan, *The Net Contribution of the Agri-Food Sector to the Inflow of Funds into Ireland: a New Estimate.* Department of Agriculture, Fisheries and Food, May 2008
[22] Ibid, page 36

Table 1.6 GNP multipliers for Agriculture, Forestry and Fishing

Type of multiplier	Henry and Deane 1990[23]	CSO Input-Output Tables 2005[24]	Current study estimate for 2005
Direct + indirect	0.7704	0.666[25]	0.666
Direct + indirect + induced	1.1197	Not available	0.9674

The estimate of 0.666 derived from the 2005 CSO Input Output Tables shows that for every €100 of final demand for agricultural output, €66.6 of GNP is generated directly and indirectly. This figure still does not include the induced effect.

The more recent CSO estimate is 13.6% lower than that of Henry and Deane. This is consistent with an increasing import multiplier over time for this sector. The industry definition for the CSO direct + indirect multiplier estimates is the same as that used by Henry and Deane for their estimates so that the estimates are comparable.

As an approximation the 13.6% reduction in the 'Direct +Indirect' multiplier between 1990 and 2005 has been applied to the Henry and Deane 'Direct + Indirect + Induced' 1990 multiplier to obtain the corresponding estimate, 0.9674, in this study for 2005.

This can be interpreted as ***every €100 of final demand for agricultural output generates €96.74 of GNP, when the induced effect is added to the direct and indirect effects.***

Thus the **overall** GNP generating effect of increased agricultural output is 45% greater than the **purely production** GNP generating effect of €66.6. This compares with an estimate of 50% obtained by Matthews and O'Toole in 2000[26].

In their conclusions Matthews and O'Toole state: "*The results suggest that the off-farm impacts of changes in the agricultural sector are important. Processing sector output changes by more than twice the change in the output of primary agriculture. Economy-wide household income and GNP impacts are approximately 30% and 50% greater, respectively, than the changes in the farm sector alone.*"

1.4 Regional Impact of Irish Agriculture

More than any other industry the benefits of agriculture, both economic and social, are widely dispersed throughout the country. It is of particular economic importance in the rural economy, as outlined in Table 1.7.

[23] *The contribution of tourism to the economy of Ireland in 1990 and 1995*, Henry, E.W. and Deane, B., Tourism Management Vol. 18, No. 8, Table 17, 1997

[24] *Supply and Use and Input Output Tables for Ireland 2005*, CSO, 2009

[25] Derived as sum of direct and indirect multipliers for 'Product taxes less subsidies', Compensation of employees', 'Net operating surplus', 'Consumption of fixed capital', 'Other taxes less subsidies on production'.

[26] *Agribusiness and economy-wide effects of the Agenda 2000 CAP EU reform*, Alan Matthews and Ronnie O'Toole, Trinity College Dublin, Outlook 2000 Conference Proceedings www.Teagasc.ie/publications/outlook2000/paper 04.asp.

Table 1.7 Percentage share of Gross Value Added (GVA[27]) at Factor Cost 2008[28]

Region	% of national agricultural output (A)	% of national economic output (B)	Region dependence on Agriculture (C) = A/B
Border, Midland and West (BMW):	**36.2**	**19.0**	**1.91**
Border	15.5	7.9	1.96
Midland	7.8	4.0	1.95
West	13.1	7.1	1.85
Southern and Eastern (S&E):	**63.8**	**81.0**	**0.79**
S&E excluding Dublin	**61.3**	**41.4**	**1.48**
Dublin	2.4	39.6	0.061
Mid East	8.8	8.9	0.99
Dublin + Mid East	*11.3*	*48.6*	*0.23*
Mid West	11.1	7.1	1.56
South East	19.6	8.3	2.36
South West	21.7	17.0	1.28
State	100	100	2.3

Agricultural GVA is, in relative terms, significantly more important to the economy of the Border, Midland and West region than is the case for the Southern and Eastern. When Dublin is taken out of the calculation the difference is narrowed substantially.

- **36% of all agricultural output is produced in the BMW region, while 19% of national economic output is produced in this region**.

- **61% of all agricultural output is produced in the S&E region (excluding Dublin), while 41.4% of all national economic output is produced in this region.**

Included in GVA data at factor cost are net EU Direct Payments, which are significant in the case of agriculture and therefore in the regional economies more dependent on agriculture.

1.5 Indirect Economic Effects of Agriculture

1.5.1 Expenditure on Farm Inputs by Farmers

The revenues generated by agricultural production activity are used in the first instance to pay for the inputs used in that production. This expenditure gives rise to the indirect economic effect discussed at the start of this paper.

In 2009 Irish farmers spent almost €3.7bn on inputs used directly and indirectly in the agricultural production process. While some of the inputs are, by necessity, imported, the majority of this expenditure contributes to the maintenance of resources and the provision of incomes for people within Ireland, in the wide range of industries producing and distributing these inputs.

[27] GVA at factor cost is a measure of the value of the final goods and services produced in a region (less the materials and services used which come from outside the region) including all subsidies and excluding all taxes.
[28] Derived from County Incomes and Regional GDP, CSO, February 2011.

A small-scale consultation exercise was carried out for this study in which a total of 27 farmers from 8 counties were interviewed in connection with their farming practices. One of the topics discussed was that of farm inputs. The vast bulk of input purchases by all farmers were made locally i.e. within a 35 kilometre radius of the farm. This behaviour has a relatively huge impact on local economies throughout the country and is a major part of the reason why agriculture has the highest direct and indirect output multiplier of 1.74 discussed earlier in this report. Table 1.8 presents data on the magnitude of expenditure by farmers on a range of inputs.

Table 1.8 Expenditure on farming inputs 2009[29]

Cost item	Average expenditure per farm (€)	Total expenditure (€m)
Direct costs:		
- of which		
Purchased concentrates	5,841	597.4
Purchased bulky feed	824	84.3
Fertiliser	3,767	385.3
Crop protection	651	66.6
Purchased seed	415	42.4
Hire of machinery	2,945	301.2
Transport	160	16.4
Livestock (AI. Vet etc.)	2,297	234.9
Casual Labour	103	10.5
Other	1,519	155.3
Sub-total	18,521	1,894.1
Fodder Crop Adjustment	351	35.9
Total Direct costs	**18,872**	**1,930**
Overhead Costs	17,113	
- of which:		
Rent of conacre	1,552	158.7
Car, electricity, phone	1,843	188.5
Current hired labour	957	97.9
Interest charges	968	99.0
Machinery depreciation	2,989	305.7
Machinery operating	3,548	362.9
Buildings depreciation	1,387	141.8
Buildings maintenance	702	71.8
Land improvement depreciation	150	15.3
Land improvement maintenance	776	79.4
Lime	162	16.6
Other	2,230	228.1
Total overhead costs	**17,113**	**1750.1**
Total net expenses	**35,985**	**3,680.2**

1.5.2 Induced Economic Activity

In addition to spending on farm inputs, farmers also spend their incomes under the heading of household expenditure. Such expenditure by farm households contributes a major component of the induced GNP effect arising from agricultural production.

[29] Source: Taken and derived from National Farm Survey (ibid.)

Data from the report of the most recent Household Budget Survey (2004/2005) are presented in Table 1.9 below to illustrate aspects of expenditure of farm households.

Table 1.9 Household expenditure 2004/2005[30]

Expenditure Item	Farm Households	All households
Total weekly expenditure per household (€)	681.42	787.12
Estimated total yearly expenditure per household[31] (€)	35,434	40,930
Estimated total annual expenditure of all households (€b)[32]	4.0	57.0

Farm Households spent €4bn in the 12 monthly period of 2004/05. Farm households comprised 8% of all households in 2004/05 and are estimated to have accounted for 7% of all household expenditure in the same period.

It has already been shown that farmers as producers spent €3.7bn on farm inputs in 2009. The €4bn expenditure by farm households in 2004/05 equates to €4.44bn in terms of 2009 prices.

In sum, agriculture in both production and consumption terms spends about €8bn a year in the Irish economy.

When interviewing farmers as described earlier it was also found (not unexpectedly) that the great bulk of farm household expenditure is made within 35 kilometres of the farm. Given the geographical spread of farming, this major level of expenditure contributes to the maintenance of the economic and social life of every town and townsland in Ireland.

[30] Source: Taken and derived from Report of Household Budget Survey 2004/2005. CSO
[31] Estimated as weekly expenditure x 52
[32] Estimated as (Yearly expenditure x 113,261) for Farm Households and (Yearly expenditure x 1.4m) for all households

CHAPTER TWO

2 The importance of Direct Payments for Irish Agriculture and the Economy

Direct payments, comprising mainly EU Common Agricultural Policy payments and supplementary national funding for specific schemes, are a significant component of Irish agricultural income and underpin agricultural production both in Ireland and throughout the EU.

These national and EU Payments include the Single Farm Payment, REPS/AEOS, Disadvantaged Areas, Suckler Cow Welfare and Sheep Grassland Schemes.

Direct Payments also support the provision by farmers of non-market public goods, including environmental protection, landscape management and animal health and welfare standards

2.1 Levels of Direct Payments[33]

Table 2.1 Estimated Direct Payments by region: Ireland 2009[34]

Region[35]	Total (€m)
	2009
1 (BMW)	290.0
3	147.8
4 (BMW)	217.5
5	219.7
6	313.6
7	324.5
8 (BMW)	328.4
Total	1,841.5

In 2009, Regions 1, 4 and 8 the Border, Midland and Western (BMW) region accrued €835.9m while the remaining regions designated as Southern and Eastern (S&E) accrued €1,005.6m.

Payments are also distributed across the different farm enterprise types. The National Farm Survey provides data on Direct Payments for REPS and non-REPS farms by enterprise type, with the accompanying average farm size for each enterprise. The level of Direct Payments per hectare by farm enterprise type is presented in Table 2.2.

[33] The year 2009 was an atypical year in relation to agricultural incomes. Where available, data for other years is used.

[34] Derived from *National Farm Survey 2009,* Connolly, L., Kinsella, A., Quinlan, G., and B. Moran, Teagasc, 2010

[35] Region 1 – Louth, Leitrim, Sligo, Cavan, Donegal, Monaghan
Region 3 – Kildare, Meath, Wicklow
Region 4 - Laois, Longford, Offaly, Westmeath
Region 5 – Clare, Limerick, Tipperary NR
Region 6 – Carlow, Kilkenny, Wexford, Tipperary SR, Waterford
Region 7 – Cork, Kerry
Region 8 – Galway, Mayo, Roscommon

Table 2.2 Direct Payments per hectare (€) 2009[36]

	Dairying	Dairying/ Other	Cattle Rearing	Cattle Other	Sheep	Tillage	All
REPS farms	524	504	541	586	503	516	540
REPS farms excl. REPS payment	*381*	*470*	*374*	*448*	*335*	*387*	*391*
Non-REPS farms	386	394	333	401	340	383	379

Table 2.2 shows the importance of the REPS payment as an enhancer of per hectare revenue. In addition, there is a trend towards a degree of equality in the payments per hectare across the farm enterprises, within both the REPS and non-REPS farms.

2.2 Importance of payments for farm income and output

EU payments are of crucial importance at farm level for both production and income, as is illustrated by the data in Tables 2.3-2.4 below.

Table 2.3 Direct Payments as a % of Gross Output[37] *2010*[38]

Specialist Dairying		Cattle Rearing		Sheep		Tillage		Cattle Other		All	
€/farm	% GO	€/farm	%GO	€/farm	%GO	€/farm	%GO	€/farm	%GO	€/farm	%GO
20,043	15%	13,625	50%	15,200	49%	24,668	32%	14,665	45%	17,005	31%

The importance of Direct Payments in the value of gross output has been trending upwards since 1990 and stood at 31% in 2010 (36% in 2009) on average for the main farm enterprises[39].

The data in Table 2.4 further breaks down the financial situation on farms.

Table 2.4 Gross Output, Direct Payments and Farm Incomes per farming enterprise 2010[40]

	All Farms					
	Dairying	Mixed Livestock	Cattle Rearing	Cattle Other	Mainly Sheep	Mainly Tillage
Gross Output incl. EU payments	129,363	98,024	27,486	32,174	30,871	53,748
Gross Output excl. EU payments €	109,320	73,724	13,861	17,509	15,671	29,080
Total Net Expenses (€)	82,192	63,620	20,473	22,393	19,285	20,367
Income without EU payments (€)	**27,128**	**10,104**	**-6,612**	**-4,884**	**-3,614**	**8,713**
EU Payments (€)	20,043	24,300	13,625	14,665	15,200	24,668
Income with EU payments (€)	47,171	34,404	7,013	9,781	11,586	33,381

[36] Derived from NFS 2009 (ibid.)

[37] Gross output for the farm is defined as total sales less purchases of livestock, plus value of farm produce used in the house, plus receipts for hire work, services, fees etc. It also includes net change in inventory, which in the case of cows, cattle and sheep is calculated as the change in numbers valued at closing inventory prices. All non-capital grants, subsidies, premiums, headage payments etc. are included in gross output. They are allocated to the enterprise in the year in which they are paid. In the National Farm Survey, Gross Output also includes income from land and quota let.

[38] Estimate, derived from *Teagasc National Farm Survey (NFS) 2010 Estimates,* Hennessy, T., Kinsella, A., Quinlan, G., and B. Moran, Teagasc, 2011

[39] "The monetary benefits accruing to Ireland because of the CAP have been prolonged and significant. The effect has permeated rural Ireland and provided improved quality of life for many." (O'Connell, John, Irish Banking Review, Spring 2004).

[40] Estimate, derived from *Teagasc National Farm Survey (NFS) 2010 Estimates* (ibid)

It is obvious from the figures in Table 2.4 that Irish farming in 2010 was highly dependent for its viability on EU payments. It is also worth remembering that 2010 was, in general, a much better year for Irish farming than 2009, where almost all farm enterprises were reliant on direct payments for their entire farm income.

In 2010, as with previous years, 'Cattle rearing', Cattle Other' and 'Mainly Sheep' would have not had any positive income in the absence of EU payments. Farmers in each of these sectors used part of their Direct Payments to pay the costs associated with their farming. The overall picture for Irish agriculture is of high dependence on EU payments for farm income and production.

2.2.1 Importance of Direct Payments in underpinning Agricultural Output

The importance of direct payments in underpinning agricultural production is particularly highlighted in a year where commodity prices are low. In 2009, commodity prices fell across almost all sectors, and, on average at farm level, €5,141 out of €17,109, that is, 30% of direct payments were used to pay for inputs. (The corresponding figure in 2008 was only 2.7%).

Table 2.5 summarises the position for the various enterprises.

Table 2.5 Incomes and Direct Enterprises by farming enterprise 2009 (2008)[41]

	Dairying (€)	Dairy and other system (€)	Cattle rearing (€)	Cattle other (€)	Mainly sheep (€)	Mainly tillage (€)	All (€)
Average income	23,684	17,281	6,563	9,302	9,688	15,247	11,968 (17,000)
Subsidies and direct payments	20,663	24,351	13,396	15,437	15,780	24,668	17,109 (17,467)
Direct payment used to pay costs	-	7,070	6,833	6,135	6,092	9,421	5,141 (467)

Direct payment receipts in 2009 amounted to €1,841.5bn. Transposing the farm-level figures above onto the national figure gives an estimated €552.5m of direct payments which were spent nationally on farm inputs.

For 2009 the output of agricultural goods nationally was €4.8bn and the average intermediate consumption used to produce that level of output was €4.1bn[42] Therefore the ratio of output to input was 1.2.

Applying this ratio to the €552.5m of direct payments used for input purchase, we get an approximate value for Agricultural Output of €663m[43] that was dependent on the purchase of inputs using direct payments.

[41] Derived from Tables 2 and 5, *National Farm Survey 2009,* Teagasc (ibid.)
[42] *Output, Input and Income in Agriculture,* CSO, June 2010
[43] Since the estimated direct+indirect+ induced **GNP** multiplier for agricultural output is 0.9674 (See Table 1.6) the GNP generated by the €663m of agricultural output is estimated as €640m.

Applying the Agricultural Output Multiplier, it is estimated that for 2009, that output of €1.15bn was generated in the economy as a result of the use of €552.5m in direct payments to purchase inputs.[44]

Direct payments do not have as direct an effect on production in higher income years. In 2008 and 2010 for example, a very small proportion of total subsidies was used to purchase inputs.

Nevertheless, it continues to be the case that Cattle and Sheep farmers in particular use significant proportions of their subsidies annually for production purposes. A reduction in direct payments would, therefore, be expected to have a significant output impact. This is examined in Section 2.3.3

2.3 Potential Effect of Changes in Direct Payments

Given the extreme importance of direct payments to Irish agriculture, reductions in these payments can have very negative consequences not just for agriculture itself but also for the wider economy. The two main areas of impact are:

- A negative production effect driven by the high output and GNP multipliers associated with agricultural production; and
- A reduced induced economic effect arising because of the lower buying power of farmers and their families.

At farm level, the effect of reduced direct payments is exacerbated by the reduction in off-farm opportunities resulting in the current downturn. The percentage of farm households where the farmer and/or spouse has off-farm work has declined from 58% in 2007 to 49% in 2010[45].

2.3.1 Direct Income Effect of a Reduction in Farm Schemes

Any reduction in farm schemes will have an immediate income effect on farm enterprises. Table 2.6 illustrates the immediate farm income effects of a 20% reduction in Direct Payments (assuming no compensatory increase in market prices).

Table 2.6 Farm Incomes with a 20% reduction in Direct Payments, 2010 Estimate[46]

All Farms						
	Dairying	Mixed Livestock	Cattle Rearing	Cattle Other	Mainly Sheep	Mainly Tillage
Income with Direct payments at 2010 levels (A) (€)	47,171	34,404	7,013	9,781	11,586	33,381
Direct Payments 2010	20,043	24,300	13,625	14,665	15,200	24,668
Direct Payments - 20% fall	16,034	19,440	10,900	11,700	12,160	19,734
Income with Direct payments at 20% less than 2010 (B) (€)	43,162	29,544	4,288	6,816	8,546	28,447
% change in (B) over (A)	-9%	-14%	-39%	-30%	-26%	-15%

[44] €1.15bn = (€663m x 1.734), where 1.734 is the production or output generating multiplier.
[45] *National Farm Survey,* years 2007-2010*,* Teagasc 2008-2011
[46] Estimate *based on Teagasc National Farm Survey 2010 Preliminary Estimates* (Ibid)

The figures in Table 2.6 above involve simple arithmetic. **A reduction of 20% in Direct Payments over their 2010 levels would lead, all other things remaining the same, to a decrease in farm incomes ranging from 9% to 39% (Dairying and Cattle Rearing respectively).**

Decreases of the order of 20% or more on already relatively low incomes would leave cattle and sheep farmers with incomes in the region of €4,000 to €8,000 per year.

2.3.2 Overall Economic Effects of a fall in Agricultural Output

Reductions in the value of gross agricultural output arising from lower production lead to lower levels of economic activity in other sectors of the food industry.

Just as the direct and indirect output multiplier of 1.734 provides a powerful stimulus to economic activity when agricultural output is increased it is also the case that it works equally in the opposite direction when agricultural production is reduced. Such a development takes on added significance in an economy with almost 15% unemployment.

A reduction of €100m in agricultural output will reduce output levels of sectors associated with agriculture by a further €73.4m giving a total reduction in production of €173.4m.

At National Income Level, an agricultural output drop of €100m will result in a decline of approximately €100m in GNP.

Such a decline would have a seriously negative impact in rural areas and especially in poorer regions where, as previously shown, agriculture, Direct Payments and farmer spending play a disproportionately large role in the local economy.

2.3.3 Incomes, Direct Payments and Farm Output – Cattle and Sheep

Given the ongoing reliance of the cattle and sheep sectors on direct payments to support production, these sectors have been separately analysed to estimate a direct output effect resulting from a reduction in direct payments.

Cattle Sector

Exceptionally low cattle farm incomes in 2009 were followed by a relatively modest increase in 2010.

CSO data show a substantial decline in total cattle numbers in 2010 and especially in beef cow numbers with the most recent data for 2011 showing significant declines in cattle slaughterings and live exports.

Data relating to income and output are presented in Table 2.7.

Table 2.7 Incomes and Output, Cattle Sector (€m) 2005-2011

	2005	2006	2007	2008	2009	2010 (Prelim)	Year to w/e 14/5/11
'Cattle rearing' family farm income (€)[47]	12,729	8,291	7,770	7,700	6,563	7,013	
'Cattle Other' Family Farm Income[48]	18,283	11,292	10,700	11,200	9,302	9,781	
Cattle output ('000 head)[49]	1,845	1,823	1,877	1,843	1,790	1,790 [50](est.)	
Cattle slaughtering: Steers Total cattle							 -16.5%[51] -5.5%
Live cattle exports							-37.9% [52]

It seems likely that the reduction in numbers and output in the cattle/beef sector in 2010/2011 have been the result of the severe 2009 decline in the already relatively very low incomes of cattle farmers.

The economic size and impact of projected 2011 cattle output reductions are presented in Table 2.8.

Table 2.8 Economic implications of reduced cattle output

Income reduction 2009/2008	Projected reduction in 2011 cattle output numbers	Current farm-level value of reduction (€m)	Economy-wide output effect of reduction in cattle output (€m)
-15%	Finished Cattle going to factories: 100,000 [53]	122.1 (@ €3.70/kg)	212
	Live export of Calves: 47,000	33 (@ €150/head)	57
	Live export of Weanlings: 7,400	5 (@ €700/head)	9
	Live export of Stores: 7,800	7 (@ €900/head)	12
	Live export of Finished Cattle: 9,000	11 (@ €3.70/kg dw)	19
	Total	**178**	**309**

The outcome is a direct loss of €178m in output to Irish agriculture and an economy-wide loss of €309m when allowance is made for the Output Multiplier effect. These effects arose in the context of no significant reduction in Direct Payments.

The majority of cattle farmers use a substantial proportion of their direct payments to purchase inputs. Given the already low levels of income, any further reduction in income is likely to lead to a reduction in inputs and output.

[47] *National Farm Survey,* years 2005-2010*,* Teagasc 2006-2011
[48] ibid
[49] *Output, Input and Income in Agriculture 2009 – Final Estimate,* CSO, June 2010
[50] Estimate, based on *Output, Input and Income in Agriculture 2010– Preliminary Estimate* CSO, March 2011
[51] www.bordbia.ie/industryservices/cattle/pages/supplies.aspx
[52] Year to w/e ending 7/5/11
[53] Bord Bia estimate: Performance and Prospects 2010-2011

In Section, 2.3, it was shown that a 20% reduction in Direct Payments would lead to an average reduction of 35% in incomes, in the Cattle Sector in 2010, all other things held constant. But in practice other things do not remain constant and as shown in Table 2.8 there is a link between income (and therefore Direct Payments) and subsequent output levels.

Based on the estimated output effect of a 15% reduction in income outlined in Table 2.8, it is estimated that a 35% reduction in income, consequent on a 20% reduction in Direct Payments would <u>in itself</u> lead to lead to a reduction in the value of farm-level cattle output of €415m and an economy-wide output effect of €720m.

If the income and output declines as illustrated in Tables 2.7 and 2.8 remain unchanged, further cuts in income brought about by reduction in Direct Payments will be additive to those shown in Table 2.8.

Sheep Sector

While the record of the sheep sector in terms of income per farm and national output levels has been variable, nevertheless, in more recent times, the year 2005 was a relatively good year in terms of family farm income with a figure of €15,935.

From 2006 through 2008, income declined very significantly such that the 2008 family farm income was only 60% of the 2005 level. Income stabilised in 2009 and is estimated to have increased in 2010.

Sheep output numbers have declined consistently since 2006 such that 2009 output numbers were 901,000 less than in 2005. Table 2.9 presents relevant data.

Table 2.9 Economic implications of reduced sheep output

	2005	2006	2007	2008	2009	2010 Prelim.	Year to w/e 14/5/11
Family farm income 'Mainly Sheep' (€)[54]	15,935	11,902 (-25%)	10,700 (-10%)	9,600 (-10%)	9,688 (-)	11,586 (+20%)	
Sheep output ('000 head)[55]	3,137	2,960 (-6%)	2,811 (-5%)	2,590 (-8%)	2,236 (-14%)	2,008 (-10.2%)[56]	
Value of sheep output (€m)	191.8	190.5	182.2	171.4	157.5	167.0	
Sheep throughput at meat export premises							-1.7%[57]
Live exports							-61.7%[58]

[54] *National Farm Survey,* years 2005-2010*,* Teagasc 2006-2011
[55] *Output, Input and Income in Agriculture 2009 – Final Estimate,* CSO, June 2010
[56] Estimate, based on *Output, Input and Income in Agriculture 2010– Preliminary Estimate* CSO, March 2011
[57] www.bordbia.ie/industryservices/sheep/pages/supply.aspx
[58] www.bordbia.ie/industryservices/sheep/pages/supply.livesheepexports.aspx

The income reduction effect was very severe in 2006 and continued at relatively high levels in 2007 and 2008. Income stabilised in 2009 and increased in 2010. The effect of this income rise can be seen in the stabilisation of sheep numbers in 2010.

It is not unreasonable to surmise that the income reductions of the years 2006-2008 had a major influence on the output levels in the years 2007-2009 at least.

Valuing the reduction in sheep output numbers of 901,000 which occurred over the period 2005 to 2009 (with no significant decline in Direct Payments) at the average value of a sheep over the same period of €65 gives an estimated direct revenue foregone of €59m which when the output multiplier is applied rises to €102m.

In Section 2.3 it was shown that a 20% reduction in direct payments in the sheep sector would have resulted in a 26% decline in sheep farmer income in 2010 all other things held constant.

Based on the production outcome derived from the data in Table 2.9 above, it is estimated that a 26% income decline consequent on a 20% cut in sheep Direct Payments would <u>in itself</u> result in a farm-level decline in output of €38m and €66m decline in economy-wide output.

Were the production declines of the period 2005-2009 to remain unchanged, then the combined outcome of the effects already estimated in Table 2.9 and further effects from a 20% cut in Direct Payments would amount to €97m at farm level and €168m at economy-wide level.

The calculations above show the importance of Direct Payments for Farm Income and Output in the Cattle and Sheep sector in particular, and the negative consequences for production in the event of a reduction in Direct Payments. Overall therefore, it can be concluded that the maintenance of Direct Payments is vital to underpin agricultural production and hence to support agriculture's overall contribution to the economy and the achievement of growth targets for the sector.

CHAPTER THREE

3 The Outlook for Agriculture

The food industry in Ireland, of which agriculture is the single biggest sector, is a relatively huge industry. It provides significant employment in itself and makes a major contribution to the maintenance of employment throughout the economy by virtue of the spending power it generates. It is uniquely dispersed throughout all the regions and makes an important contribution to regional and local economies. It also makes a major contribution to Ireland's international balance of trade.

World demographic developments are positive for a food producing country such as Ireland. Major investments have been made in Irish agriculture and in the food industry generally. Irish agriculture has cost and sustainability advantages. The Irish food-processing sector has achieved relatively high economic growth rates in recent decades. The following paragraphs examine the background demand situation and the likely ability of Ireland's agriculture and food industry to compete successfully as a food producing country.

3.1 Demand for food

3.1.1 Population Projections

In the medium term, world population is projected to increase, albeit at a slower rate (1.2% v. 1.7%) than formerly. According to the Food and Agriculture Organisation (FAO) and Eurostat[59], world population will reach 8.3bn in 2030 and more than 9bn by 2050. It is estimated that by 2030 alone, demand for food will grow by 50%[60].

Demand for food will continue to grow as a result both of population growth and rising incomes. Demand for cereals (for food and animal feed) is projected to reach some 3bn tonnes by 2030, requiring an increase of 43% on current production. Meat consumption is highly and positively correlated world-wide with income levels. Meat consumption in developing countries was 10kg/head per annum in the 1960s. This had risen to 26kg in the late 1990s and is projected to rise to 37 kg in 2030. Milk and dairy products have also seen rapid growth, from 28kg/person per year in the 1960s to 45 kg in the early 2000s, and an expected level of 66 kg in 2030.

According to the FAO (ibid.), production in developing countries will not keep pace with their demand and they will become increasingly dependent on imports of cereals, meat and milk products with this dependence exacerbated to a degree by climate change. Production will probably be boosted in developed countries.

In summary, the general outlook for food demand is positive. As an exporting food-producing country, this provides significant growth potential for the Irish economy.

[59] *The EU in the World; a Statistical Portrait*, Eurostat Statistical Books
[60] *High-Level Conference on World Food Security*, FAO, June 2008

3.1.2 Sustainable Production

In addition to the general increase in demand for food, there is increasing consumer demand for sustainably-produced food.

In a recent study published by the Joint Research Centre of the EU Commission, the sustainability of Irish food products was rated amongst the best in the EU. The study entitled *"Evaluation of the livestock sector contribution to the EU Greenhouse Gas (GHG) emissions"*[61] showed Ireland in a favourable position in relation to the production of milk, beef, pork and poultry.

According to Dr. Frank O'Mara, Teagasc Director of Research: *"If we need extra food, Ireland is a great place to produce it because of the low carbon footprint, and we are also in good shape with water availability, biodiversity and animal welfare standards. A key factor in this positive result for the Irish food industry is the grass-based production system and the associated sequestration of carbon in grassland. Ireland has one of the highest proportions in the EU of grassland in its agricultural land".*[62]

3.2 Competitiveness and Growth Possibilities of the Irish Food Industry

Food Harvest 2020, the strategy for growth for the Irish food industry over the next decade has set out targets for growth in primary production, the food processing sector and exports. These are:

- €1.5bn growth in output at farm-level;
- €3bn growth in value-added food products;
- Export growth to €12bn by 2020

Issues relating to competitiveness of the Irish food sector have been thoroughly addressed in recent reports *(Food Harvest 2020, Department of Agriculture, Fisheries and Food, 2010 and Future Skills Needed in the Irish Food and Beverage Sector, Forfas, 2009)* and will not be pursued at length again here.

3.2.1 Prospects and Growth Potential in Irish Agriculture

Ireland's agriculture is predominantly based on animals and animal products with a relatively small but efficient cereals component. Within Ireland's agriculture, dairying is a major, profitable and reasonably well-structured production and processing industry. When demand conditions allowed, this industry demonstrated that it had the capacity to grow rapidly and to be innovative.

Food Harvest 2020 states: *"Prospects for the dairy sector in the medium to long term are positive. Given projections for significantly increased demand, the abolition of EU milk quotas in 2015 represents a real opportunity for the Irish dairy sector, with a significant potential for increased milk production. The sector also possesses a significant cost advantage in the form of an environmentally sustainable rain fed grass-based production system, which allows milk to be produced efficiently for much of the year"*

[61] http://ec.europa.eu/agriculture/analysis/external/livestock-gas/index_en.htm
[62] http:www.teagasc.ie/news/2011/201102-15.asp

This scenario of a projected increase of 50% in milk production is exciting given the importance of dairying in agricultural output and the fact that it also feeds raw material into the beef industry.

For the beef sector, the Food Harvest Report identifies the need for the maintenance of a viable suckler cow beef herd*, "The profitability of the existing suckler cow herd could be increased by €200m by 2020. This would be achieved through a combination of better quality cows and breeding, achieving slaughter carcass weights at a younger age and better carcass quality. In addition, genetic advances offer the potential to deliver greater profitability at farm level through enhanced productivity and disease resistance".*

3.2.2 Potential in Irish Food Processing

The Irish food-processing sector has also demonstrated high growth performance. In a paper covering most of the decade of the 1990s O'Connell et al. provided estimates of growth rates, reproduced in Table 3.1 below.

Table 3.1 Average annual growth in volume of production in Irish Food Processing 1991-1999[63]

NACE code	Sector	% annual change
411-423	Food processing	+5.6
412	Slaughtering and preserving of meat	+1.3
413	Manufacture of dairy products	+1.7
416,422	Grain milling and manufacture of animal and poultry feed	+2.9
419	Bread, biscuit and flour confectionery	+5.7
420-421	Manufacture of sugar and cocoa, chocolate and sugar confectionery	-0.3
411,414,415,417-418, 423	Other foods[64]	+9.5
	Manufacturing industry	+12.1
	All industries	+11.4

The authors state: "The overall growth rate of 5.6% represents a very acceptable performance from what is a mature industry, although it is less than half the rate of growth achieved by Irish manufacturing generally in this period of unprecedented growth of the Irish economy. The performance of the food sector, which is largely an indigenous sector, may be more fairly compared with performance of the total indigenous manufacturing sector. Following relatively poor performance in most of the 1980s O'Malley (1998) showed that the volume of production of the Irish indigenous manufacturing industry grew by what he regarded as quite a good rate of 4% per year in the period 1987-95…..

[63] *Quantification of Output Growth and Value-Added Captured by the Irish Food Processing Sector*, O'Connell J., Harte, L., and D. Ruane, The Irish Journal of Management, Volume 25, No. 1, 2004

[64] 'Other foods' comprise manufacture of vegetable and animal oils and fats; processing of fruit and vegetables; processing of fish; miscellaneous foodstuffs (i.e. NACE 417-418, 423)

In addition, as illustrated by Harte (1998/99), a focus only on domestic growth of the Irish food industry ignores the very impressive international growth of Irish-owned food companies over this period." (p.73)

In another exercise in which the authors compared Net Output with GNP using a different classification system the same general conclusion was reached. What might be termed 'Other Foods' comprising of 'Vegetable and animal oils and fats; grain mill products, starches and starch products; homogenised food preparations and dietetic food; and other foods n.e.c.' was the star performer in terms of growth relative to GNP and relative to total food processing output. The gross output of this category comprised 16% of total food industry output in 1991 but had grown to 27% by 1998. Correspondingly its net output grew from 41% of food processing net output in 1991 to 58% in 1998. The authors go on to say that this illustrates:

- The combined scale of the industries represented by these classifications
- Their extraordinary growth-rate performance relative to food processing in general and relative to GNP
- The disproportionately high net output (value-added) per unit of sales.

The latter years of the period 2000 to 2010 proved difficult for the Irish economy in general and for the food-processing sector also. Table 3.2 provides updated production data for Irish food processing along with some comparative data for the period 2000 to 2010.

Table 3.2 Average Annual Growth Rates for Irish food processing and other sectors, 2000-2010 (Base 2005=100) [65]

Sector	Volume of production (%)
Food products and beverages (10,11)	+2.17
Other foods (102 to 104, 108)	+4.87
Manufacturing industries (10 to 33)	+4.41
Traditional sector (05 to 17, 181,19, 22 to 25, 28 to 31, 321 to 324, 329, 33, 35)	-0.58
Modern sector (182, 20, 21, 26, 27, 325)	+6.47
GNP (Ireland)	+1.96

On average the volume of production of the food processing sector grew over the period 2000 – 2010 by an average of 2.17% per year. This is significantly ahead of the traditional sector as a whole, which achieved negative annual growth.

Once again however the 'Other Foods' category was the best performer within food processing with an average annual growth rate of 4.87%. This category includes vegetable and animal oils and fats; grain mill products, starches and starch products; homogenised food preparations and dietetic food; and other foods n.e.c. Its growth rate was better than that of all manufacturing industry and achieved ¾ of the growth rate of the modern sector.

[65] Derived from *Industrial Production and Turnover Indices by Industry Sector NACE Rev 2, Year and Statistic*, http://www.cso.ie/px/pxeirestat/database/eirestat/eirestat.asp

4 Appendix 1 – Explanation for the Output Multiplier

The Leontief inverse of domestic flows with multipliers for other inputs (*CSO Input-Output Tables for 2005)*

If there is an increase in final demand for a particular product, we can assume that there will be an increase in the output of that product but also an increase in demand for other products (i.e. the intermediate consumption needed for the production of that product) and so on down the supply chain. Table 5 attempts to measure the complete direct and indirect impacts on the economy resulting from the increase in demand for domestic output of a given product. The Leontief inverse is derived from the input-output table. The upper portion of Table 5 can be interpreted as follows, using products of agriculture, forestry and fishing as an example.

Each €1 of final demand for domestic output of products of agriculture, forestry and fishing requires:

- €1.277 output of domestically produced agriculture, forestry and fishing;
- €0.001 output of domestically produced coal, peat and petroleum;
- €0.006 output of domestically produced mining and quarrying products;
- €0.100 output of domestically produced food and beverage products; etc.

The column sums shown in the row after product 95 are called output multipliers. These show how much direct and indirect output is required, across all domestic products per €1 final demand for the products named at the top of the column. But considerable duplication of output is included in this approach. For example, if an increase in the final demand of product A by €1, requires an increase of 90% of this amount of output of product B, then output of both products has been increased by €1.9. Gross outputs rather than net value added of products are combined in this table to give the column aggregates thereby giving rise to duplication of output. The duplication arises because product B is an ingredient in product A and its cost is absorbed in the final value of A, rather than added to the final value of A.

The lower portion of Table 5 shows the direct plus indirect effect on other inputs per €1 final demand. In each column the sum of the coefficients of imports, taxes less subsidies, compensation of employees, consumption of fixed capital and net operating surplus add to 1. They show, after all the cycles of production are completed, how the additional unit of final demand was spread over these categories. There is no duplication in these coefficients.

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