

Food Prices in Ireland

Report for the Consumer Liaison Panel

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EXECUTIVE SUMMARY

- 1) The brief underlying this report is to:
 - identify and assess the extent to which available data sources provide comparable information on price trends and price formation at different stages of the food price chain within Ireland;
 - recommend a model for monitoring food prices on a periodic basis and the share of the price of the key foods absorbed at different stages of the food price chain.
- 2) The analysis in this report examines the data availability for each of the major foods groups and investigates the extent of the analysis that can be carried out to answer the issues of price absorption and formation throughout the food chain.
- 3) The analysis finds that there are substantial and in many cases insurmountable difficulties in establishing price transmission relationships across the marketing channel. The greatest difficulties emerge due to the lack of producer prices or indices at an appropriate level of (dis)aggregation. Producer prices are reported under nine very broad categories which cannot be meaningfully linked to product groups as reported by consumer prices.
- 4) Wide variations in consumer price inflation rates were identified within the major product categories. In these cases, the existence of one producer price series, (e.g. “meat and meat products”) constrains analysis back the chain. For instance, in the case of meat, linking changes in consumer prices for the individual species (lamb/beef/pork/poultry) to this aggregated price series at producer level is not a sound basis for analysis.
- 5) The current level (aggregation) of producer price reporting, and the lack of price transparency it creates, prevents the separation of processors’ pricing decisions from those of their retail customers.
- 6) Given the available data, it was possible to develop models to estimate the proportion of the retail price absorbed by farmers for liquid milk, cheddar cheese, butter, beef and lamb only. The meat model is extended to cover red meats.
- 7) The key findings emerging from the models are:
 - In the case of dairy products, the share of the retail price being appropriated by retailers has increased dramatically. While the milk price equivalents for butter and cheese have actually fallen for farmers and processors, the combined retail price for these products has increased substantially. The retail margin now accounts for almost 60 percent of the combined cheese and butter price.

- In the case of beef, the share of the retail price received by farmers has declined from just over 39 percent in the 12 months to December 1995 to just 32 percent in the 12 months ending December 2004.
 - In the case of lamb, the share of the retail price received by farmers has declined from just over 42 percent in the 12 months ending December 1995 to just 30 percent in the 12 months ending December 2004.
 - By incorporating a delivered butcher price, the analysis indicates that retail stores (including butchers) have absorbed the increase in the retail price since 2000.
- 8) When discussing the food prices paid by customers, this study refers to items purchased in shops, primarily supermarkets. It does not include food consumed away from the home (i.e. foodservice).
 - 9) Food prices at retail level have increased by 27 percent over the review period January 1995 to 2005. Over 80 percent of the total price change occurred between 1998 and 2002, with the largest price increases occurring in 2001, prior to the introduction of the Euro.
 - 10) There has been a sustained reduction in food prices relative to prices in general since the introduction of the Euro in early 2002.
 - 11) The consumer price index for food fell in 2004.
 - 12) Consumer food prices have fallen by over 20 percent relative to average industrial earnings over the 1997-2004 period.
 - 13) Trends in wage costs per unit of output indicate that significant productivity improvements were made in food manufacturing prior to mid 2002. Since then productivity gains have levelled out.
 - 14) Retail sales in grocery supermarkets increased by almost 80 percent over the decade. This was fuelled by substantial reductions in unemployment rates and increases in average industrial earnings.
 - 15) The introduction of centralised distribution is likely to have generated productivity improvements in grocery retailing. However while productivity measures exist for the food manufacturing sector, no measure exists for grocery. It is recommended that a measure of retail productivity be developed and reported on a quarterly basis.
 - 16) Competition in retailing is largely a spatial phenomenon, driven by the number and variety of stores in a particular area. Inter-retail competition continues to intensify, driven by the rapid increase in the number of competing stores. This has occurred since the arrival of the discounters, Aldi and Lidl, and more recently with the rollout of new stores by Tesco Ireland and Dunnes Stores. Multiple store

numbers (including Supervalu) increased by over 40 percent during the 1997-2005 period. The increase in store numbers is set to continue.

- 17) There have been significant differences in the rates of inflation in consumer prices *across* the major food categories (*Table 1*). Meat and Dairy, which account for 45 percent of the shopper's food basket, and are the most important categories for Irish food processors and farmers, experienced the lowest rates of inflation at 20.8 and 19.5 percent respectively.
- 18) The analysis also reveals significant variations in consumer price inflation rates for sub-product categories *within* the major food categories. The absence of producer prices for comparable sub-product categories impeded analysis of these variations.
- 19) While food prices in general increased by 27 percent over the 1995-04 period, the retail price for meat increased by 21 percent.
- 20) Retail prices for meat display greater stability than producer (processor) prices for meat and meat products. The general trend however is for retail prices to increase relative to producer prices.
- 21) There are dramatic variations in CPI inflation rates across the meat species. The retail price of beef has fallen by 1 percent over the 1995-04 period while lamb prices increased by almost 70 percent. The retail price for lamb underwent a step increase at the time of the foot and mouth (FMD) crisis and has not returned to pre-FMD levels since.
- 22) Taking a rolling 12 month average price, the proportion of the estimated retail price received by the beef farmer declined for the greater part of the period under review. It fell from 40 percent 12 months ending December 1995 to 31 percent in to the 12 months ending February 2005. For the month of February 2005, farmers received almost 34 percent of the retail price.
- 23) Taking a rolling 12 month average price, the proportion of the estimated retail value of lamb received by the farmer displays considerable seasonal fluctuations and has fallen from almost 46 percent in the 12 months ending December '96 to a low of approximately 30 percent in the 12 months ending December '04.

Table 1 Annual % Change in Consumer Prices by Category and % of CSO Food Basket

Category (% of household expenditure)	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Meat (30%)	+1.9%	+1.5%	-0.9%	+0.5%	+4.4%	+9.7%	+3.0%	-0.3%	-0.2%	+20.8%
Bread & cereals (19%)	+2.5%	+2.6%	+3.8%	+3.1%	+4.1%	+4.5%	+4.2%	+1.8%	+0.9%	+30.8%
Dairy (15%)	+3.5%	0.0%	+0.9%	+1.7%	+1.5%	+4.2%	+3.3%	+2.5%	+0.6%	+19.5%
Vegetables (13%)	-4.9%	-2.0%	+19.6%	+8.9%	-3.2%	+11.3%	+2.7%	-0.1%	-4.8%	+27.7%
Sugar, jam, honey, chocolate & confectionery (10%)	+1.3%	+1.8%	+5.4%	+4.3%	+5.1%	+5.0%	+4.1%	+5.1%	+0.1%	+36.9%
Fruit (5%)	+2.5%	+5.9%	+5.2%	+1.3%	+2.9%	+1.7%	+4.2%	+0.9%	+0.3%	+27.7%
Fish (3%)	-0.1%	+1.9%	+6.4%	+6.7%	+7.4%	+5.8%	+4.2%	+2.1%	+0.9%	+41.0%
Other food products (3%)	+2.5%	+2.8%	+4.5%	+3.1%	+4.4%	+5.0%	+3.9%	+3.2%	+1.6%	+35.7%
Oils & Fats (1%)	+2.8%	+1.4%	+7.6%	+7.3%	+6.1%	+3.9%	+3.8%	+1.8%	-0.4%	+39.6%
Eggs (1%)	+1.8%	+3.8%	+0.2%	+3.1%	+5.0%	+3.9%	+3.1%	+1.3%	+2.4%	+27.5%
Overall food	+1.5%	+1.5%	+4.0%	+3.1%	+3.0%	+6.6%	+3.5%	+1.4%	-0.3%	+26.8%

24) Retail prices of total dairy products (liquid milk, cheese, butter, other dairy products e.g. cream, yogurt) have risen by about 20 percent over the last decade, compared with an increase of 27 percent for food prices in general.

- 25) Producer (processor) prices for total dairy products have increased slightly by about 5 percent over the last decade while agricultural prices for milk have declined by about 10 percent. Thus the retail-producer margin has widened by about 15 percent, with virtually all of this occurring since 2001. Likewise the retail-agricultural margin for dairy has increased by about 25 percent over the decade.
- 26) While retail prices for specific dairy products are available from the CSO for liquid milk, cheddar cheese and butter, and agricultural prices for both liquid and manufacturing milk are also available, producer (processor) price availability is more limited.
- 27) Retail prices for cheddar cheese have increased by 35 percent over the last decade, much more than for butter (+20 percent) and liquid milk (+10 percent), with the major comparative increase for cheddar occurring since 2001.
- 28) The margin between retail and agricultural prices for liquid milk has gradually widened, with the liquid milk farmers' share of the retail price falling from 42 percent to 35 percent over the decade.
- 29) The retail-agricultural margin for cheddar cheese has increased significantly since 2001, a year when both producer and agricultural prices declined from a temporary peak but retail prices continued to increase gradually.
- 30) In contrast with the other two dairy products, the retail-agricultural margin for butter has remained fairly static over the last decade.
- 31) The consumer prices for bread and cereal products (+31 percent) increased in line with general food prices (+27 percent) over much of the review period, Breakfast cereals (+45 percent) and biscuits (+41 percent) experienced the highest inflation rates compared to the overall category.
- 32) Consumer prices in the Sugar, Jam, Honey, Chocolate and Confectionery category increased by almost 37 percent over the period. The price of sweets and chocolates rose by almost 50 percent, with a sustained period of large price increases occurring over the 1998-2003 period. By comparison, sugar and sweeteners' prices increased by approximately 1 percent over 1995-2004 period.
- 33) Producer prices for the Sugar, Jam, Honey, Chocolate and Confectionery category are distributed across three different NACE categories: NACE 158 (manufacture of sugar (1583), cocoa, chocolate and sugar confectionery (1584); the processing and preserving of fruit and vegetables (NACE 153) and the manufacture of dairy products (NACE 155). Consequently, linking consumer and producer prices is not feasible.

- 34) Sugar beet prices increased by approximately 5 percent over the 1995-2005 period while the price of sugar and sweeteners increased by less than 2 percent.
- 35) While the increase in vegetable prices exceeded overall food for much 1995-2005 period, deflation since September 2003 has brought prices back in line.
- 36) The retail price of potatoes increased by almost 47percent over the 1995-2004 period compared with 15 percent for other fresh vegetables. The price of frozen vegetables actually declined (-1.0 percent) over the period while the price of tinned vegetables increased by almost 60 percent. Price deflation occurred in all vegetable categories during 2004.
- 37) An examination of National Average Prices indicate that purchasing potatoes in 10kg packs rather than 2.5 kg pack enabled shoppers to save up to 66 percent on the price per kg. This highlights the impact of pack size on the revenue per kg available to pay retailers, facilitators and vegetable producers.
- 38) It would be desirable that producer price series be established for each of the major animal species.
- 39) Regarding meat, would be desirable that cuts (or a subset of cuts) for which prices are collected for the calculation of the Consumer Price Index are also representative of each of the individual carcasses.
- 40) It would be desirable that the prices collected for the CPI be in an appropriate form for the derivation of prices per kg/mls and the publication of National Average Prices. This should apply across all product categories.
- 41) The CPI does not distinguish between Irish produced and imported products. An index for Irish and imported products would be of use in general but of particular use in the case of vegetables and fresh meat.

INTRODUCTION

The aim of this research is to identify and assess the extent to which available data sources provide comparable information on price trends and price formation at different stages in the food chain in Ireland. The study also seeks to recommend a model for monitoring the proportion of the food price absorbed at different stages of the food chain.

The structure of the report is as follows:

The first part of the report deals with movements in the prices of food and consumer goods in general. This is followed by an examination of the demand and supply conditions that underpin the grocery market. It should be noted that this research does not investigate the price of food consumed away from home. Consequently, when reference is made to retail or consumer prices for food, the report is dealing with food purchased in shops.

The next section highlights data availability issues that emerged during the research. This will focus for the greater part on the difficulties that arose when applying the data available from the Central Statistics Office to the issues at hand. The section will discuss the gaps in available data, the implications for this kind of analysis and the underlying assumptions that need to be made when using CSO data.

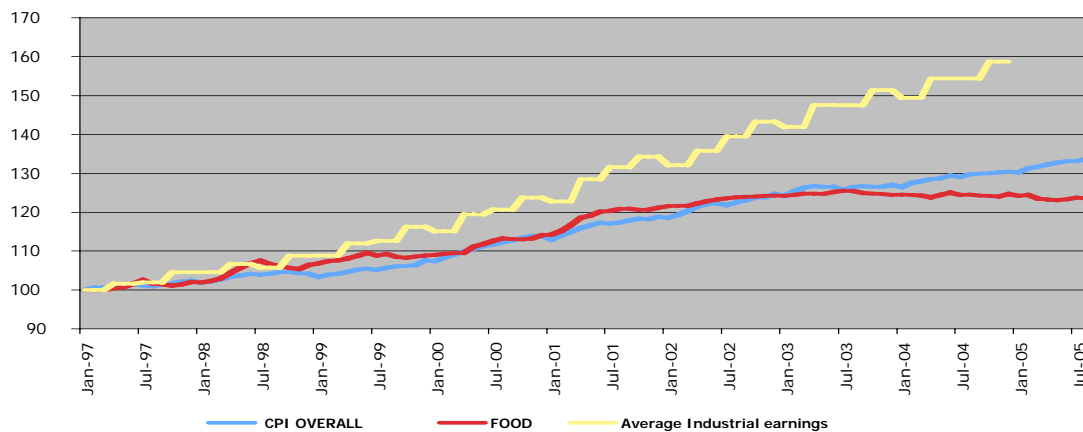
Having discussed the data issues, the following sections will commence our analysis of the individual product categories under review. These sections will highlight changing prices and seek to measure trends in the proportion of the food price absorbed in the different stages of the food chain. The findings will reinforce our earlier discussion by demonstrating the methods and assumptions required to deal with data deficiencies and the consequences for the analysis. Particular attention will be given to the dairy and meat categories due to their large share of the food basket and the important role they play in the food processing and agricultural sectors.

The final section will present our conclusions and recommendations, focusing in particular on the kinds of data required to present a more complete understanding of price transmission in the Irish market.

1. RECENT TRENDS IN GENERAL PRICE MOVEMENTS

Figure 1.1 presents the general retail price movement for all consumer goods and food price movements since January 1997. Over the period prices in general increased by 30 percent while food prices increased by almost 25 percent. For comparative purposes, average industrial earnings are also displayed. This measure increased by almost 60 percent over the period. An examination of the food and general consumer price indices points to a number of interesting time periods. Commencing in April 1998 the data show a sustained period, until February 2000, where the food price index exceeds the consumer price index. Another similar period can be identified between January 2001 and March 2002. Indeed the highest rate of price inflation occurred in 2001 with food prices increasing by 6.6 percent compared with overall inflation of 4.8 percent. In December 2002, the CPI overtook the food index. Since then a considerable gap has emerged between the two indices, with prices in general rising faster than food prices.

Figure 1.1 General Trends in Prices



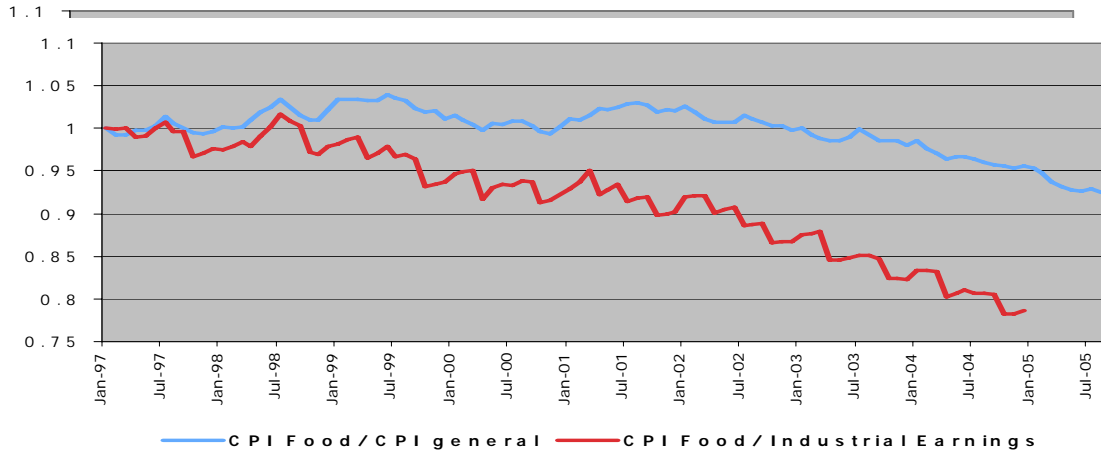
Source: CSO

Figure 1.2 demonstrates relative price movements. By dividing the consumer price index by the general consumer price index we can observe how the price of food has changed relative to all goods consumed. Increasing relative food prices may be observed where the series moves in an upward direction. Two features emerge when we look at the price of food relative to the price of consumer goods in general:

1. the first part of the time period under review is characterised by periods of both increasing and decreasing relative food prices;
2. there is a sustained decline in the price of food relative to prices in general since the introduction of the Euro in 2002.

Regarding relative movements in prices and earnings, the figure also reveals that food prices have been falling steadily relative to average industrial earnings.

Figure 1.2 Relative Price Movements



Source: CSO

2. DEMAND AND SUPPLY CONDITIONS IN THE GROCERY SECTOR

The prices paid for food products depend on a wide range of factors. Food prices will of course be influenced by demand conditions. Customers' income levels, their tastes and preferences will influence both their willingness to pay for products, the quantities they purchase, and the kinds of products that they choose to purchase. Rising incomes, declining unemployment rates, an increase in the participation of women in the workforce will influence demand. For instance, the increased need for convenience will influence where and when products are purchased (e.g. more convenience top-up shops), the format they are purchased in (e.g. prepared product versus ingredients) and price paid (value added).

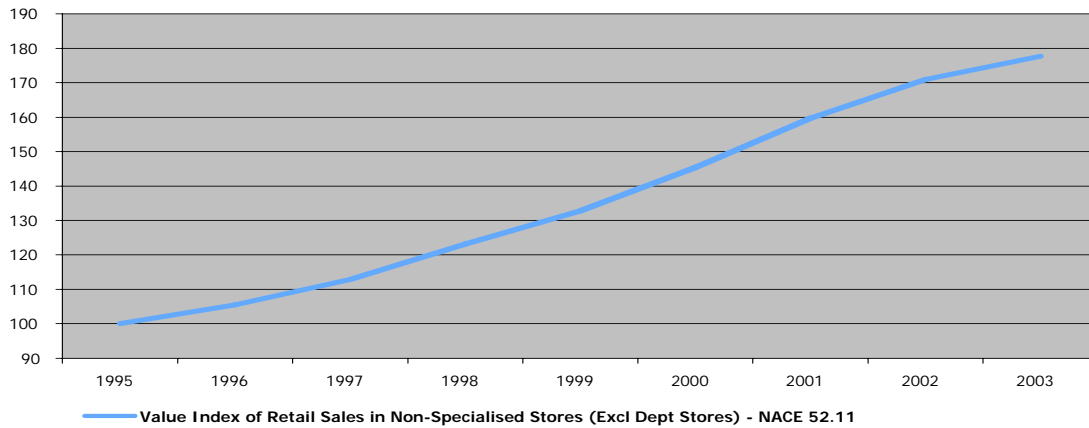
A brief view of the demand conditions may be found in examining *Table 2.1*, which demonstrates an increase of almost 80 percent in total personal expenditure on consumer goods and services (1997-2003). The most recent Household Budget Survey (1999/2000) reported that food consumed both at and away from home accounted for 20.3 percent of total household expenditure, a decline of almost 3 percent on the previous survey in 1994/1995. This downward trend in the proportion of household expenditure devoted to food is consistent with expenditure patterns in economies with rising income levels.

Table 2.1 Expenditure on Personal Consumption by Type of Consumption at Current Market Prices (€M)

	1997	1998	1999	2000	2001	2002	2003	97-03
Total Personal Expenditure on Consumers' Goods and Services	35,140	39,027	43,721	49,488	54,348	59,019	62,935	+79%
Source: CSO NIE Tables 13 and 14: Expenditure on Personal Consumption								

Growth in demand may also be seen in *Figure 2.1*, which shows the index of retail sales over the period 1995-2003 for non-specialised stores, (i.e. supermarkets). It shows that sales increased by almost 80 percent over the 1995-2003 period.

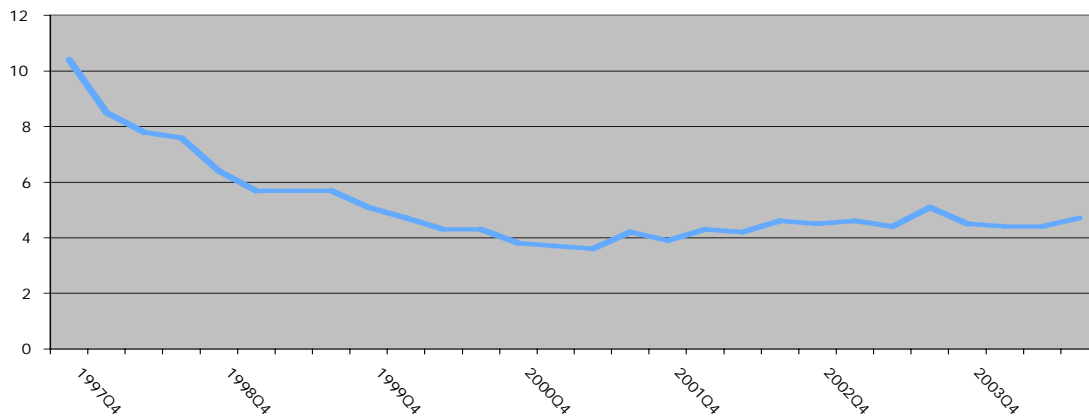
Figure 2.1 Retail Sales in Non Specialist Stores with Food Beverages or Tobacco Dominating (Supermarkets)



Source: CSO

The growth in demand may be linked to the strong demand for labour and the associated reduction in unemployment rates, which fell from over 10 percent in Q4 of 1997 to less than 5 percent in Q4 of 2003, (*Figure 2.2*).

Figure 2.2 ILO Unemployment Rate (%)

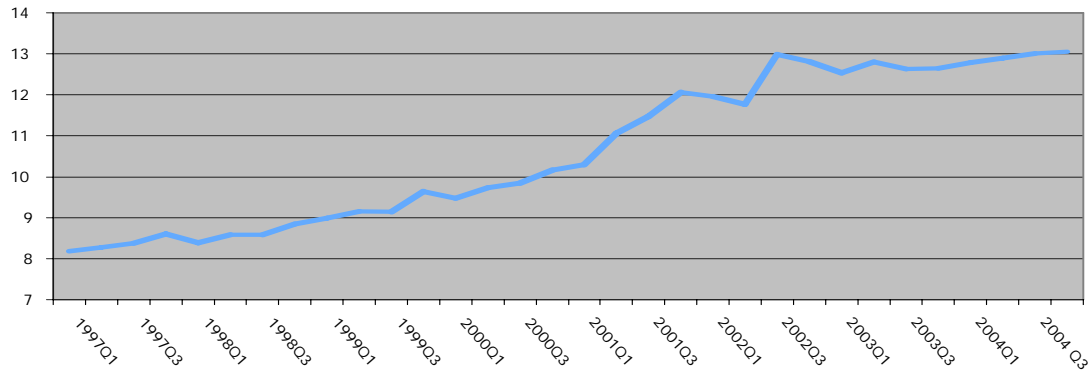


Source: CSO

In turn this demand for labour led to substantial increases in wages as demonstrated in *Figure 2.3*. Hourly earnings in the food-manufacturing sector¹ increased by almost 70 percent over the 1997-2004 period.

¹ The CSO does not collect a similar statistic for retail trades. The relationship between hourly wages in retailing and the minimum wage would have been of considerable interest.

Figure 2.3 Earnings Per Hour (€) – Food Manufacturing

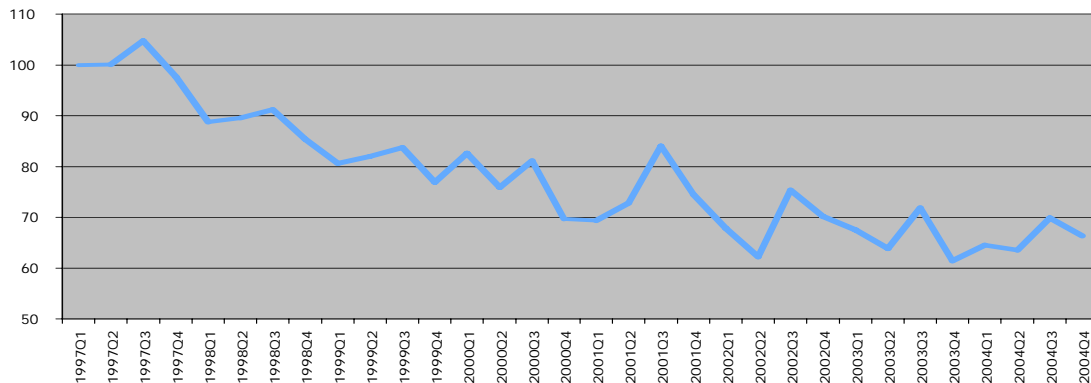


Source: CSO

The food supply side has also experienced significant change. Arguably some of the more notable changes in the food channel have occurred at the retail stage. Since 1997 the sector has experienced the purchase of Associated British Foods' grocery operation by Tesco, the entry of Aldi (1999) and Lidl (2000), the strategic alliance between Musgrave and Roches Stores, and the shift to centralised distribution on the part of Musgrave (1997), Tesco (1999) and Superquinn (2002).

We have seen that hourly labour costs increased over the 1997-2004 period. However these costs may be absorbed by businesses if they are offset by improved employee productivity. While the CSO does not currently provide labour productivity measures for the retail sector, data is available for the manufacturing sector. An index of unit wage costs² for all industry workers is given in *Figure 2.4*. The decline in the index demonstrates the fall in wage costs per unit of output, most notably over the 1997-2003 period after which productivity improvements appear to have levelled out.

Figure 2.4 Industrial Worker: Unit Wage Costs



Source: CSO

² The Unit Wage Cost Index is a series that indicates the trends in wage costs per unit of output. It is derived by dividing the index of average hourly earnings by the output per hour index.

Despite the lack of a suitable productivity measure for the retail sector, there is a strong argument that productivity improvements and wider chain efficiencies have occurred. First there is the widespread application of information technology at store level to improve both the accuracy and speed of ordering processes. Second the consolidation of product movement through centralised distribution would have led to significant efficiencies both in store and en route to the store. Some of the efficiencies are given in *Figure 2.5*. While centralised distribution offers the potential to reap significant cost savings, the required changes to business practices are of such a magnitude that there may be a substantial lag before all the efficiencies are extracted.

Figure 2.5 Characteristics and Efficiencies of Centralised Distribution

<u>Centralised Distribution</u>	
Characteristics of a Centralised System	Sources of Efficiencies
Move to continuous flows of product rather than batches	Reduced labour in store
Integrated information systems and communication with suppliers	Lower inventories/storage requirements
Stockholding held at depot rather than retail store	Improved terms from suppliers
More frequent, consolidated deliveries to store	Better vehicle utilisation
Faster product movement, yielding longer shelf-life	Improved warehouse utilisation
Better use of space in store - more variety	Reduced wastage
More efficient QA at depot guaranteeing product quality	Reduced administration costs
Retail brand management	Reduced claims
Distribution centres become sorting rather than inventory locations	Reduced returns and refusals
	Less out of stocks and lost sales
	More efficient use of manufacturing resources
	Reduction in finished goods stock

The introduction of centralised distribution increased the retailers and wholesalers' bargaining position relative to their suppliers. Better terms could be extracted as the retailer or wholesaler had now internalised the distribution function. Intensifying inter manufacturer rivalry was now possible as the distribution function no longer remained a source of a manufacturer's competitive advantage. By controlling distribution to stores, the retailer or wholesaler could now avail of new sources of supply, further intensifying pressures on existing suppliers. In the case of wholesalers, centralised distribution would have cemented the consolidation of the purchasing function. This helps buyers enforce in-store merchandising disciplines, enabling the wholesaler to extract better promotional offers and terms from suppliers.

There is an adage that the key to retail performance is "location, location, location". With this in mind it is worth noting the rapid increase in the number of supermarkets operated under or by the main groups. While the number of Supervalu stores increased steadily over the period, the arrival of the discounters in 1999/2000 led to a rapid growth in store numbers. Tesco and Dunnes, who began to increase their store portfolios in 2003, furthered the trend. *Table 2.2* indicates that store numbers have increased by over 40 percent over the 1997-2004 period. Industry sources indicate that Dunnes are expected to open 12 new stores during 2005 and a further 12 stores are anticipated for 2006. Tesco

Ireland have indicated that a further 6 stores are to open between now and Spring 2006. Given the spatial aspect to retail competition, this increase in capacity is likely to have had and will continue to have significant effects on the nature of inter retailer rivalry and food prices.

Table 2.2 Store Numbers for Major Grocery Chains

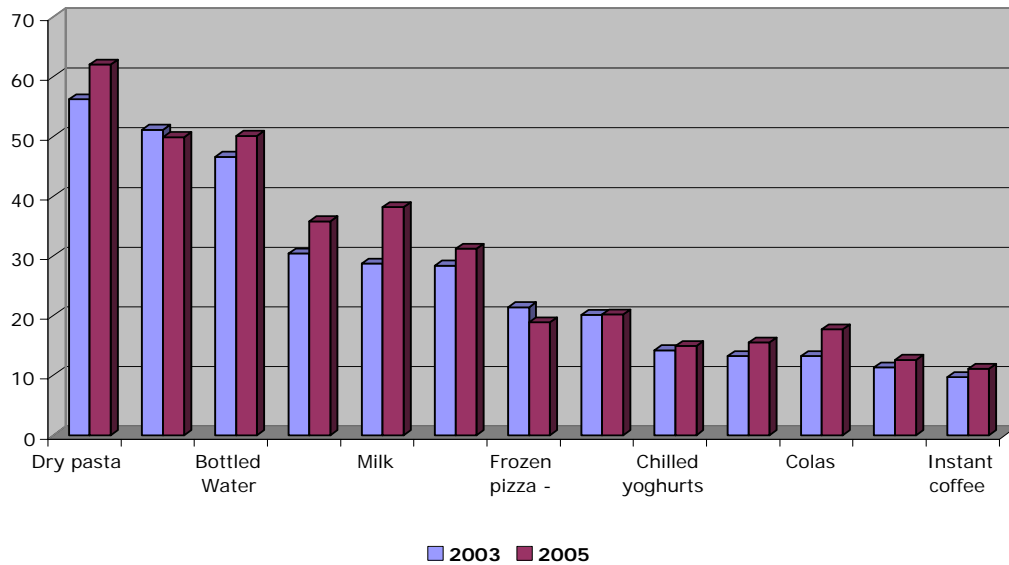
	1997	2000	2001	2002	2003	2004	2005 (to date)	% Change 97 –04 %
Tesco	78	76	75	75	77	82	89	+11.5
Dunnes	54	62	62	62	64	69	71	+31.5
Superquinn	16	17	18	18	18	19	20	+25.0
Supervalu	166	172	171	175	181	182	185	+11.4
Aldi	0	8	9	10	12	22	23	+N/A
Lidl	0	16	32	34	41	52	58	+N/A
Total	314	351	367	374	393	426	444	+41.1

Source: Checkout Annual Reports, Submissions to the Joint Committee on Enterprise and Small Business, Company reports.

Retailers influence the product mix and price points available to their customers partly through their brand portfolio decisions. While private brand products have had a long history in grocery retailing in Ireland, the arrival of Tesco stores in 1997 and, more recently the entry of Aldi and Lidl raised the profile of these brands even further. In particular, the greater segmentation of the private brand market with the emergence of premium and discount ranges, provide customers with greater choice in terms of both quality and price points.

Fresh products, such as meat, fruit and vegetables, are for the greatest part sold under retailers' brand names. *Figure 2.6* displays the proportion of volume sold under private brand products for the 52 weeks ending July 2003 and the 52 weeks ending April 24th 29th, 2005 for a selection of dry grocery products. The first feature to emerge is that there are wide variations in the proportion of volume sales accounted for by private brand products. This will reflect customers' product loyalty and the degree of differentiation within the category. In commodity and low perceived risk products, private brand shares tend to be higher. The second feature is that with the exception of frozen pizzas and frozen vegetables, the proportion of volume sales accounted for by private brand products has increased for all of the remaining categories.

**Figure 2.6 Private Brand Share of Volume
(52 w/e 20 July 2003 vs. 52 w/e 24 April 2005)**



Source: TNS Worldpanel

Over the period the dairy category, comprising of milk and pre-packed cheese, demonstrates the greatest increase in own brand penetration, increasing by 9.5 and 5.4 percentage points respectively. That milk shows the largest increase in penetration is unsurprising, given the price differential of up to 33 percent on 2 litre cartons in the larger supermarkets. Indeed it is likely that the volume of commodity dairy products sold under retailers' private brands will continue to increase. This will inevitably lead to reductions in the average price paid by customers per litre/kg of product, reducing channel revenues per unit of output.

Another factor, which is likely to influence food price levels in Ireland in the medium to longer term, is the continuing reform of the Common Agricultural Policy (CAP). Prices at agricultural level have been substantially influenced by the ongoing CAP reform process which commenced with the MacSharry reforms in 1992 and were further enhanced by Agenda 2000, as agreed at the EU Berlin Council in 1999, and the Luxembourg Agreement of 2003 which established CAP policy for the next decade. In essence this fundamental reform process since 1992 has involved gradual movement away from a policy of comprehensive minimum price support for agricultural and semi-processed food products to much more limited price support at considerably lower price levels, with compensation for the support price reductions through direct farmer income support. This has been accompanied by structural, environmental and rural development policies, with specific compliance requirements on farmers in order to obtain the direct income payments. These fundamental changes have arisen as the original policy was beset by a number of internal and external pressures. These included unsustainable EU food surplus production, major EU budgetary problems and the need to respond to the

requirements of world trade negotiations under WTO/GATT by substantially lessening support and protection for internal EU markets for food and agricultural products. In the most recent agreement (Luxembourg, June 2003) the decoupling of direct payments to farmers from current production at farm level represented another radical reform of the CAP.

From a price viewpoint, the static or declining prices at agricultural level for beef (heifer), lamb and milk over the last decade, as outlined in this report, reflect the CAP reform process at work. To date these price trends at agricultural level have not generally been reflected in price trends at consumer level for beef, lamb and dairy products. It will be interesting to observe if further expected declines in prices at agricultural level under ongoing CAP reform will be reflected in corresponding declines in prices at producer (processor) and consumer levels in the future.

To summarize the above, it is clear that the business environment during the period reviewed was characterised by a sustained period of strong consumer demand, where labour was becoming more difficult to obtain resulting in rising nominal earnings per hour. There is evidence to suggest that labour productivity was improving in food manufacturing and there is a strong argument to suggest that the grocery industry was also improving productivity levels.

Prices also increased considerably over the period. While the price of food may be seen to have increased relative to the price of goods in general during the earlier part of the period under review, recent trends, most notably since the introduction of the Euro, indicate a clear reversal in this situation. In that regard the competitive pressures that exist at the retail stage need to be considered. The arrival of the discounters and the rapid build-up of store numbers by all retailers will intensify competitive pressures on a local basis throughout the country and are likely to explain some of the downward pressure on food prices. Given the continued increase in store numbers it is anticipated that this trend will continue.

There is evidence of growing penetration of retailers' private brand products. This trend is also likely to continue to fuel price deflation in food. The available information indicates that the dairy category is being affected more than other categories. The implication is that average revenue per unit of dairy products is likely to decline, given the price differentials between these products and manufacturers' branded products.

3. DATA AVAILABILITY AND GAPS IN INFORMATION

One of the key components of the current research brief is to assess data availability regarding price trends and formation at different stages of the food chain within Ireland. However the extent of the domestic food chain will vary from product to product. The basket of goods consumed in Ireland differs considerably from the bundle of food products produced in Ireland. Consequently, caution is required in linking producer prices to consumer prices for certain categories.

In some product categories, a very high proportion of what is produced in Ireland is exported; therefore producer prices are largely determined by prices achieved on international markets. The influence of domestic demand and fluctuations in domestic prices therefore has little influence on producer prices in these categories. For Ireland, the influence of international markets on producer prices is particularly strong in the cases of meat and dairy products. Other consumer product categories are largely imported. Taking breakfast cereals, for example, where much of the product consumed is imported, linking retail prices to grain prices in Ireland is unrealistic and the domestic food chain consists of the retail and wholesale markets. Finally there are some product categories with little export activity and for which Ireland has a high level of self-sufficiency. In these situations producer prices are strongly influenced by domestic conditions.

When faced with the task of analysing national food prices across a three-stage food chain – retail, producer, and agriculture –reliable accessible sources of information are imperative. However, despite relevant price information existing in the public domain, the volume and the availability of data is greatly lacking. The following outlines some problems in sourcing important information encountered to date.

3.1 Consumer/Retail Prices

In general, retail prices are readily accessible through the Central Statistics Office (CSO). The CSO collect prices for 171 varieties of ‘food and non-alcoholic beverages’ (as organised under the EU COICOP classification system³) and publish 51 of these in the form of National Average Prices (NAPs). Price indices are available for the overall commodity and subcategory groupings, *e.g.* beef and lamb, within meat.

Under current CPI methodology, the products that constitute the CSO’s food basket are updated every five years (every seven years prior to December 2001) to ensure the relevancy of the basket as reflective of shoppers’ purchasing behaviour. Updates are based on the Household Budget Survey, which is carried out every four years. These updates however create discontinuities which can present difficulties. This occurred for

³ *Classification of Individual Consumption Expenditure by Purpose (COICOP)*. This European classification system breaks consumer expenditure into twelve different categories and is most advantageous when comparing the CPIs of the other EU member states.

example in the case of beef, where changes in the set of reported prices in 2001 led to a significant change in the model used to estimate the carcass value.

Estimating the marketing margin for beef, lamb or pork products requires an estimation of the total retail value of the species in question. This estimate is based on an aggregation of individual consumer prices for specific consumer cuts. The aggregation is governed by yields and the proportion of the animal accounted for by each particular cut. Certain consumer cuts create difficulties in this regard. Diced, sliced, and minced meat are the most problematic. These products come from different parts of the carcass (forequarter/hindquarter) and each of these parts have different values. Also, these products account for a substantial and increasing proportion of the total carcass. Mince itself can account for up to 34 percent of the carcass yield but currently a national average price is not reported. This represents a substantial gap which was circumvented using particular assumptions regarding similar products (e.g. a mince price is estimated using a fixed proportion of the diced/sliced product).

Despite the majority of product prices being collected for a given volume or weight, e.g. milk in litres, butter in pounds, round steak in kilograms, pack size etc., some products are not. A clear example of this is poultry, prices for which can be collected by each CSO pricer in various weights once the exact same weight is collected again the following month. This provides an adequate basis for calculating price changes but, as in the case of poultry, it can be insufficient to calculate a product price per kg.

When investigating price transmission and examining relationships between retail/consumer, processor and agricultural prices it must be noted that there are enormous differences between the basket of food items consumed by Irish consumers and the products produced by Irish farmers and manufacturers. In this context, linking domestic producer and agricultural prices to these retail prices is not comparing like with like. This is most notable in the case of vegetable products (or any other category) where large quantities are imported at various times during the year. A consumer/retail price series for products *produced in Ireland* would assist considerably in ensuring that the retail prices used to estimate marketing margins where in fact the prices paid for Irish products.

3.2 Producer Prices (Processor/Manufacturer)

The lack of *producer prices* is *the major difficulty* when tracing prices from farm to fork. The current NACE classification system utilised by the CSO to report producer prices only discloses prices in index form. Furthermore, indices for food products are reported under nine very broad categories demonstrated in the first column of *Table 3.1*. Producer prices or price indices are unavailable for further subcategories.

The availability of consumer prices is demonstrated in column 2, and the subcategories in column 3. However, there are complications in relating COICOP with Producer Price

Categories. There is no strict product hierarchy linking NACE⁴ and COICOP classification systems. This can be seen by comparing the NACE category (in brackets) associated with the producer prices and the NACE category at COICOP subcategory level. For instance, butter is reported under Oils and Fats in the COICOP classification but is reported under Dairy in the NACE nomenclature. Consequently to build an aggregated consumer price index for a category of products that resembles the dairy category at producer price level requires removal of eggs and the addition of butter into the new index.

The consequences of this level of price aggregation are enormous. For instance, in the case of meat, analysis of the relationship between retail and processor (producer) prices is limited to the category of meat and meat products. This is an aggregation of beef, lamb, pork, bacon, poultry and other meat products. Analysis at this level and any relationships identified may bear little resemblance to the actual relationships that exist at individual species or subcategory level. More importantly, species level is the appropriate unit of analysis because it links consumer to farm gate prices. We will see that the retail prices for beef, lamb, pork, and poultry products display considerable differences. The competitive forces, production systems and their costs, price and policy regimes that underlie each of these subcategories vary significantly. Consequently, the price trends and actual prices obtained by processors for their outputs would also be expected to bear little similarity across species or categories. Prices may actually fall for one species while actually rising in another but these differences are clouded by the level of aggregation involved in the calculation of the producer price. This lack of transparency prevents any insight into the distribution of the retail price between the retail and processing stages of the marketing channel.

⁴ *NACE (Rev. 1)* is the statistical classification of economic activity in the European Community. It replaced the previous NACE 70 categorisation; commodity groupings are now based on the EU Prodcom coding system.

Table 3.1 Linking Producer Prices (NACE) To COICOP Classifications

Producer (NACE) Price Categories	COICOP (Retail Level) Categories	COICOP (Retail Level) Sub Categories
Food Products		
Meat and Meat Products (151)	Meat	Beef (151) Lamb (151) Pork (151) Bacon (151) Poultry (151) Other Meat Products (151)
Fish and Fish Products (152)	Fish	Fresh Fish (152) Frozen/tinned/smoked (152)
Fruit and Vegetables (153)	Vegetables	Potatoes Other fresh Vegetables Tinned Vegetables (153) Frozen Vegetables (153) Other Vegetable Products (153)
	Fruit	Fresh Fruit Other Fruits
Dairy Products (155)	Milk Cheese and Eggs	Milk (155) Cheese (155) Eggs Other Milk Products (155)
	Oils and Fats	Butter (155) Margarine & Low fat Spreads (154) Other Oils and Fats (154)
Grain Milling, Starches and Animal Feeds (156)		
Other Food Products (158)		Condiments & Sauces Soup Miscellaneous Products
Bread and Flour Confectionery (1581)	Bread and Cereals	Bread (158.1) Biscuits (158.2) Cakes (158.1)/(158.2) Breakfast Cereals (156.1) Flour (156.1) Other Cereals
Sugar, Cocoa, Chocolate and Sugar Confectionery (1583/1584)		Sugar & Sweeteners (1583) Preserves (153.3) Sweets and Chocolate (158.4) Deserts and Ice cream (155.2)

3.3 Agricultural Prices

Similar to consumer prices, agricultural prices are more easily accessible than producer prices. The Agricultural Price Unit (APU) of the CSO publishes farm-gate prices for important national commodities, *e.g.* milk, cattle, etc. Commodity prices are published by the CSO in average price form (€) per relevant measurement *e.g.* litres, kilograms etc. Cattle prices are reported by cattle type both monthly and annually. Pig and sheep prices are published by weight both monthly and annually. Manufacturing milk prices (3.7 percent butterfat) are also available by month and by year.

However, there exist various gaps in the agricultural data. In the case of the two most important categories, dairy and meat, a range of difficulties was encountered with sourcing price information.

Regarding milk, liquid milk prices, which command a premium over manufacturing milk, are not reported by the CSO. The agricultural prices reported by the CSO relate to manufacturing milk. An adjustment to the manufacturing milk price was made so as to construct a realistic price series for milk utilised in the manufacturer of cheddar cheese and butter at an agricultural level.

For agricultural meat prices, a separate problem was encountered in the case of pigmeat. Pig prices are not published consistently from March 2001 due to the Foot and Mouth crisis and now the survey is no longer carried out.

4. THE CONSUMER PRICE INDEX, SHOPPER BEHAVIOUR AND IMPLICATIONS FOR CHANNEL REVENUE

This report draws mainly on data provided by the Central Statistics Office to form price trends representing the various parts of the Irish food chain over the different food categories. The analysis carried out, reflects similar analyses undertaken by earlier authors and commentators both nationally and internationally. Despite this, it is considered prudent at this point to remind the reader of precisely what the Consumer Price Index (CPI) data reflect.

4.1 Consumer Price Index Methodology

The CPI measures price change⁵ *only*. It is specifically designed *not* to take into account changes made by households to their pattern of expenditure. The CPI takes a fixed representative “basket” of consumer goods and services, so only price change is ultimately captured. Thus, the CPI is not a cost of living index. Pricing procedures are strictly based on the principle that *identical* brands are priced from the *same* outlets at a *fixed* time (first Tuesday of every month). Items included in the CPI pricing practice are of a general nature, and the price collector is initially free to choose any item from a range of products (any brand, quality, size etc.). Under these arrangements, product varieties collected will differ from one price collector to another. However, it must be noted that the price collector is required to price the same product (brand/size) on all subsequent visits. It is only in instances where the product is no longer available that a new product is introduced in its place. The methodology underlying the price collecting process has an inherent bias towards well known branded products which are “popular, suitable for pricing and likely to be available in the long term”, (CSO Statistical Bulletin 2002 pg. 43).

4.2 Shopping Behaviour and Implications for Channel Revenue

The methodology outlined above provides a clear basis for measuring price changes of a fixed basket. However, shoppers do not purchase fixed baskets. Shoppers regularly change the composition of their basket due to many factors including special offers, new product introductions, new store openings, changes in income levels and preferences amongst others. This can have a significant impact on the prices *actually* paid by shoppers per unit of product and consequently on the revenue per unit of product that pays the retailer, processor and farmer.

These changes in buyer behaviour may be broken down into three effects: the substitution effect, the income effect, and changes in preferences. The substitution effect is of most interest to us here. It emerges from a change in consumer behaviour as a result of a change in relative prices. Shoppers can make significant savings by switching products in

⁵ The CPI collects a very comprehensive amount of prices; the total number of different varieties of goods and services priced is in excess of 1,000.

response to special offers. For example, let us take two products within a product category (Cheddar Cheese) Brand X and Brand Y. Assume that brand X (price = €2.99) is one of the products on a price collector's booklet and an alternative product, brand Y (price = €2.99), which is similar in many respects, is on promotion with a 'buy one get one free' offer. It is plausible that a significant proportion of consumers who regularly buy brand X will now switch to avail of the special offer and purchase brand Y. It is also plausible that the regular consumers of brand Y increase their purchases of brand Y for future consumption. The impact for many shoppers' expenditure is that the *actual* price paid is fifty percent of the normal price. However, in this instance, the CSO price collector will not record any change in price.

The example above is also noteworthy from a marketing channel's perspective as it demonstrates that the change in consumer behaviour increased the volume of product sold at the lower price relative to the more expensively priced product. This reduces both the total revenue per kg of cheddar and consequently the total revenue that can be distributed among retailers, processors and milk producers. The existence of a substitution effect, and the fact that it is explicitly excluded from the Consumer Price Index, presents a problem when using CPI data to estimate the distribution of the marketing margin across the food chain. CPI based measures are likely to overestimate the marketing margin available for distribution across the food chain and underestimate the share of margin returning to farmers.

The extent of the substitution effect and the divergence between the price change measured by the CSO and the actual price changes experienced by shoppers will be determined by the extent to which shoppers change their purchasing behaviour. This in turn will partly depend on the opportunity to engage in substitution behaviour which is governed by three factors. First, the amount of special offer activity within a particular product category at a given retail outlet will affect a shopper's ability to obtain lower prices. Second, product range decisions by retailers also influence the opportunities to either trade-up or down with implications for the price paid per kg of product (for example, substituting Tesco standard tomatoes for Tesco value line tomatoes will lead to a price saving per kg). Third, the amount of special offer activity carried out by competing stores in a geographical area, coupled with the publicity of these offers and shoppers' access to these stores may influence the price paid per kg of product. Clearly these factors together will impact both on the actual price level paid by shoppers and the rate of price change experienced. When price competition is intensifying or when shopper behaviour is becoming more price-orientated, it is quite possible that the rate of falling prices would exceed that measured by the CPI.

Regarding special offer activity, secondary research, carried out by examining newspaper advertisements, suggests that there are an increasing number of opportunities to make significant price savings by engaging in substitution behaviour both within specific grocery chains and across chains. However to quantify the magnitude of the price reductions and the rate of change in prices actually paid by shoppers and average revenues received by retailers would require analysis of shopper behaviour data. Attempts were made during this research to obtain this type of data but analysis suggested that the information obtained was insufficiently precise to address the

particular question at hand.

4.3 Conclusion

There are enormous difficulties in building a suitable set of price series to investigate the transmission of food prices across the food marketing channel. Undoubtedly, the most serious is the lack of producer prices at a suitable level of aggregation to enable meaningful analysis to be carried out. Given the current level of reporting it is not possible to link producer prices to consumer prices in a manner suitable to investigate either price transmission effects or price absorption along the food chain. Current data availability prevents analysis at the appropriate sub-category level e.g. beef versus lamb. This is despite the substantial variations in retail price inflation observed within sub-product categories. Producer price reporting, and the lack of price transparency it creates, prevents the separation of processors' pricing decisions from those of their retail customers.

The second issue to emerge when considering the use of CPI data for the purpose of investigating the marketing margin is the potential impact of shopper behaviour and the substitution effect on the total revenue available for distribution among retailers, processors and farmers. The CPI is based on a fixed basket and explicitly excludes the substitution effect in its reporting. However, shoppers do not purchase a fixed basket and the increase in both price consciousness and retail competition is likely to have increased both the incentive and opportunity to obtain lower prices through the substitution effect. This will have an impact on channel revenue and ultimately on prices paid throughout the channel, but its estimation was beyond the data available.

5. PRODUCT CATEGORY ANALYSIS

Table 5.1 highlights the various product categories, their proportion of household food expenditure, and annual percentage change in inflation over the 1996-2004 period. It demonstrates that overall food prices increased by approximately 27 percent over the entire period. Almost 84 percent of the total price change occurred between 1998 and 2002, with the largest increase in prices in 2001, just before the introduction of the Euro.

Table 5.1 Annual % Change in Retail Prices by Category and % of CSO Food Basket

Category (% of household expenditure)	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Meat (30%)	+1.9%	+1.5%	-0.9%	+0.5%	+4.4%	+9.7%	+3.0%	-0.3%	-0.2%	+20.8%
Bread & cereals (19%)	+2.5%	+2.6%	+3.8%	+3.1%	+4.1%	+4.5%	+4.2%	+1.8%	+0.9%	+30.8%
Dairy (15%)	+3.5%	0.0%	+0.9%	+1.7%	+1.5%	+4.2%	+3.3%	+2.5%	+0.6%	+19.5%
Vegetables (13%)	-4.9%	-2.0%	+19.6%	+8.9%	-3.2%	+11.3%	+2.7%	-0.1%	-4.8%	+27.7%
Sugar, jam, honey, chocolate & confectionery (10%)	+1.3%	+1.8%	+5.4%	+4.3%	+5.1%	+5.0%	+4.1%	+5.1%	+0.1%	+36.9%
Fruit (5%)	+2.5%	+5.9%	+5.2%	+1.3%	+2.9%	+1.7%	+4.2%	+0.9%	+0.3%	+27.7%
Fish (3%)	-0.1%	+1.9%	+6.4%	+6.7%	+7.4%	+5.8%	+4.2%	+2.1%	+0.9%	+41.0%
Other food products (3%)	+2.5%	+2.8%	+4.5%	+3.1%	+4.4%	+5.0%	+3.9%	+3.2%	+1.6%	+35.7%
Oils & Fats (1%)	+2.8%	+1.4%	+7.6%	+7.3%	+6.1%	+3.9%	+3.8%	+1.8%	-0.4%	+39.6%
Eggs (1%)	+1.8%	+3.8%	+0.2%	+3.1%	+5.0%	+3.9%	+3.1%	+1.3%	+2.4%	+27.5%
Overall food	+1.5%	+1.5%	+4.0%	+3.1%	+3.0%	+6.6%	+3.5%	+1.4%	-0.3%	+26.8%

Table 5.1 also shows that from the shopper's perspective meat, bread and cereals, dairy, vegetables, and sugar products (including jam, chocolate and confectionery) are the more important expenditure categories. Among these groups there are considerable variations in the price increases observed. Dairy (+19.5 percent) and meat (+20.8 percent), the two most important product categories to Irish food processors and farmers, experienced considerably lower inflation than overall food, while sugar products (+36.9 percent), bread and cereals (+30.8 percent) and vegetables (+27.7 percent) report inflation rates in excess of overall food.

The following sections detail the research carried out for each of the food product and sub-product categories. Each section will highlight the particular data issues that impact upon the analysis. The sequencing of the categories will reflect the importance of the category to the consumer. The extent of the analysis for each category will reflect both the availability of relevant data and the length of the domestic marketing channel.

6. MEAT CATEGORY⁶

6.1 Introduction

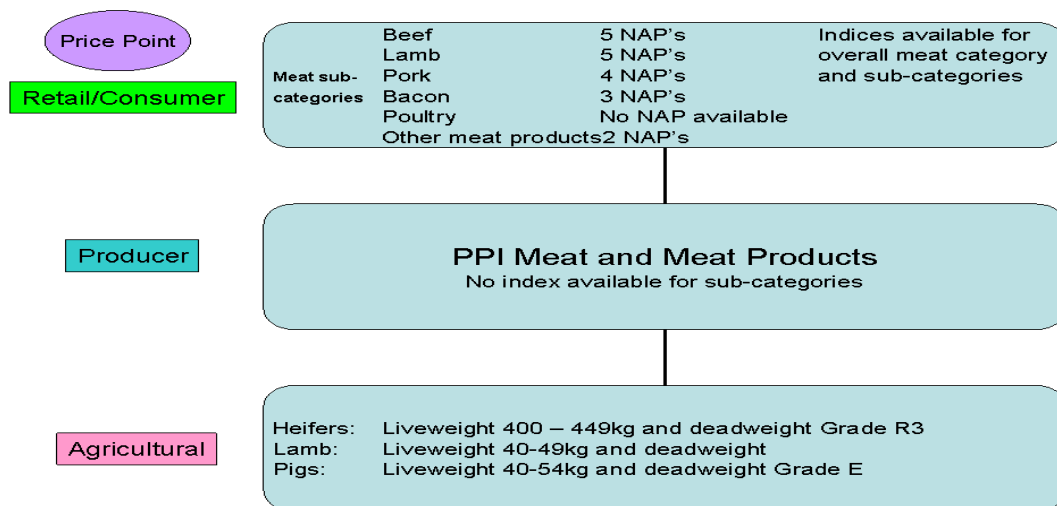
Meat products account for almost 30 percent of the CSO consumer food basket. The breakdown of meat weightings within the Consumer Price Index are given in *Table 6.1*.

Table 6.1 CSO Consumer Price Weightings for Meat Products

Meat Products	%
Beef	19.4
Lamb	8.4
Pork	6.1
Bacon	14.2
Poultry ⁷	19.8
Other meat products	32.0
Total	100

Source: CSO

6.2.1 Data Sourcing and Availability



⁶ The models developed to investigate prices in the meat category are provided in the sub-report in Appendix 1.

⁷ The measurement of these individual products does lead to a number of concerns when using them for comparative purposes. For example, while many of the red meat products are priced per kg, poultry products are not. These are measured by item and can include a variety such as whole chickens (of a variety of sizes) and breast fillets (of varying pack sizes).

The CSO provide certain prices at consumer level and price indices at both consumer level and producer levels. The Consumer Price Index is based on a COICOP classification system which includes retail products in the categories of beef, lamb, pork, bacon, poultry and other meat products. The CSO collect prices for 34 meat or meat-based products. Of these, they currently report a subset consisting of 19 varieties. No poultry prices are reported.

One of the difficulties encountered during this research was a discontinuity in the prices collected and published by the CSO. Regarding beef, there was a significant change in the products for which prices were collected from December 2001 as shown below (*Table 6.2*). This led to specific problems when attempting to create an estimate of marketing margins between farm gate and retail prices.

Table 6.2 Price Information Availability for Beef Over the Review Period

Pre-December 2001	December 2001 to present
Round steak	Round steak
Sirloin steak	Sirloin steak
Rib steak	Striploin steak
Leg beef (boneless)	Roast beef- topside/rib
Brisket pot roast	Sliced/diced beef

Source: CSO

Data on retail lamb prices are collected and published by the CSO. This was done on a quarterly basis up until 1997, but since then prices are collected monthly. There was only a minor change in the products for which prices were collected over the review period as shown in *Table 6.3*.

Table 6.3 Price Information Availability for Lamb Over the Review Period

Pre-December 2001	December 2001 to present
Whole leg	Whole leg
Loin chops	Loin chops
Gigot chops	Gigot chops
Neck	Lamb pieces including neck
Liver	Liver

Source: CSO

The producer price reflects the prices obtained by processors for their finished product and is based on a NACE classification system. The CSO do not publish any producer prices for the individual species under meat and meat products. An aggregated price index for meat and meat products is available but price series for individual species are not. The index covers the production and preserving of meat, poultry meat, and poultry meat products. The consequence of this is that no price series for an individual meat species is available between agriculture and retail prices. This represents a serious limitation on the kinds of analysis that can be carried out to investigate the relationship

between food prices across the meat marketing channel. Actual prices or indices are not obtainable because of confidentiality issues. To circumvent this difficulty we have used agricultural prices provided by the CSO and yield factors provided by a processor and confirmed by other industry studies to generate a derived marketing margin.

At agricultural level, the CSO provide a price series for liveweight livestock. In the case of pigs, absolute liveweight prices have not been collected by the CSO since May 2005, thus providing us with an incomplete agricultural price series. Deadweight price series for heifers, lamb and pigs was provided by Bord Bia.

The weightings underlining the consumer price index reflect the purchasing behaviour of Irish households, while the weightings underlying the producer price index reflect products processed by Irish manufacturers⁸. Consequently, because of the difference in weightings and the aggregation underlying the producer price index, comparisons between the indices are problematic.

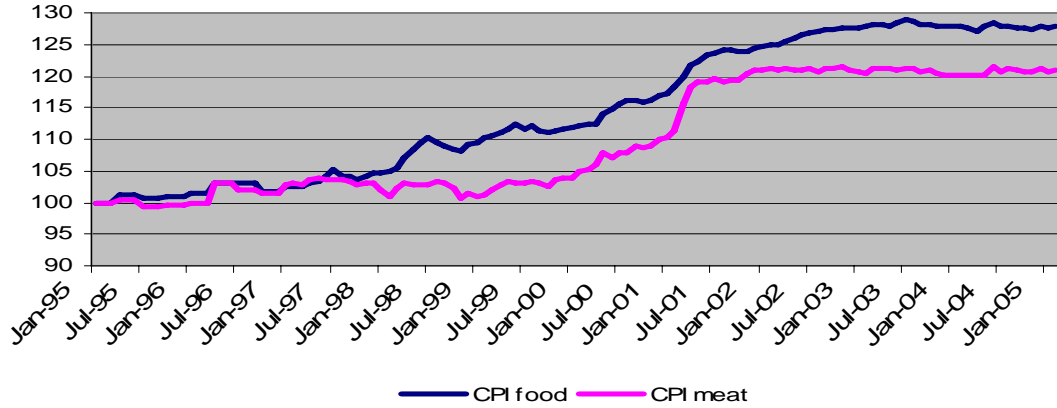
Changes in the meat supply chain are also likely to have important implications for the producer price index. For example, in today's supermarkets, a wide variety of meat products are sold in different formats. The customer may choose to purchase a pre packed product which was prepared by the processor. Alternatively, the customer may purchase a similar product which was prepared in-store by the butcher. Retail packs prepared by the processor will now account for a larger proportion of meat sales when compared with traditional carcass type product which would have been prepared in-store. In this way, many of the costs formerly incurred by the retailer are now being incurred by the processor, but this we expect would be reflected in higher producer prices *ceteris paribus*. However, given the limitations of the price data that the CSO can currently provide, the movement of these value added activities and the associated costs between the processor and retail stages cannot be observed or analysed.

6.3 General Price Trends

Figure 6.1 demonstrates the trend in food prices versus overall meat prices from January 1995 (=100) to present. Food prices increased by 28 percent over the decade, while meat prices increased by 21 percent. The figure clearly highlights a widening differential in the price series over the period April 1998 to the beginning of 2001. More recently, the gap between food and meat prices appears to have remained relatively stable.

⁸ Given the high propensity to export meat products, the producer price index will largely be determined by export prices.

**Figure 6.1 Retail Price Indices: Overall Meat vs. Overall Food
(Base January 1995 = 100)**



Source: CSO

The change in the price of meat relative to food prices in general is demonstrated in *Figure 6.2*. It highlights a rapid fall in the price of meat relative to food during the period July 1997 to July 1999, after which meat prices began to recover some ground. Greater stability in relative prices can be seen in recent periods. It should be noted that the meat industry suffered two distinct shocks, the first occurring in 1996 with the BSE crisis and the second coming in 2001 with Foot and Mouth Disease.

**Figure 6.2 Retail Price Relativities: Overall Meat vs. Overall Food
(Base January 1995 = 100)**



Source: CSO

Table 6.4 gives an account of the year-on-year percentage change for the meat sub-categories. It highlights the wide variation in inflation rates experienced across the different meat species. There was a very distinct retail price increase in the price of lamb at the time of the FMD outbreak in 2001. Significant inflation is also observed in the pork and bacon categories during 2001. Conversely, price deflation is evident in the beef category during the review period.

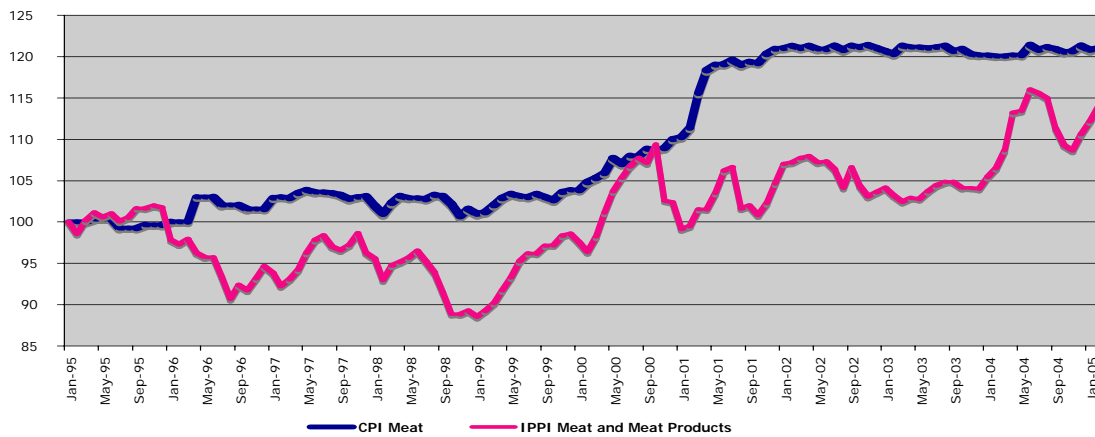
Table 6.4 Annual Percentage Change in Retail Prices for Meat Sub-Categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Beef	-6.3%	-4.3%	-1.8%	-0.1%	+4.9%	+4.0%	+2.4%	-0.2%	+1.2%	-1.0%
Lamb	+6.8%	+10.1%	-3.8%	+0.8%	+6.7%	+29.5%	+4.6%	+0.2%	+2.8%	+69.6%
Pork	+6.5%	+1.3%	-3.2%	-3.9%	+4.2%	+10.1%	+1.8%	+0.3%	+1.8%	+19.8%
Bacon	+8.0%	+6.4%	-2.6%	-1.7%	+7.0%	+13.2%	+2.6%	+0.2%	-2.1%	+32.7%
Poultry	+4.0%	+0.3%	-0.6%	+2.6%	+0.2%	+7.0%	+1.5%	-3.5%	-3.9%	+7.5%
Other meat products	+3.5%	+2.9%	+2.1%	+1.8%	+4.4%	+6.1%	+3.2%	+1.3%	+0.9%	+29.3%
Overall meat	+1.9%	+1.5%	-0.9%	+0.5%	+4.4%	+9.7%	+3.0%	-0.3%	-0.2%	+20.8%

Source: CSO

Consumer prices for meat increased by 21 percent over the period January 1995 to February 2005, while producer prices for meat and meat products increased by 14 percent (*Figure 6.3*). Despite one considerably sharp jump in consumer prices around 2001, consumer prices display greater stability than producer prices, where more frequent fluctuations are to be seen. However, identification of the sources of the fluctuations in producer prices is not possible due to the aggregated nature of the data.

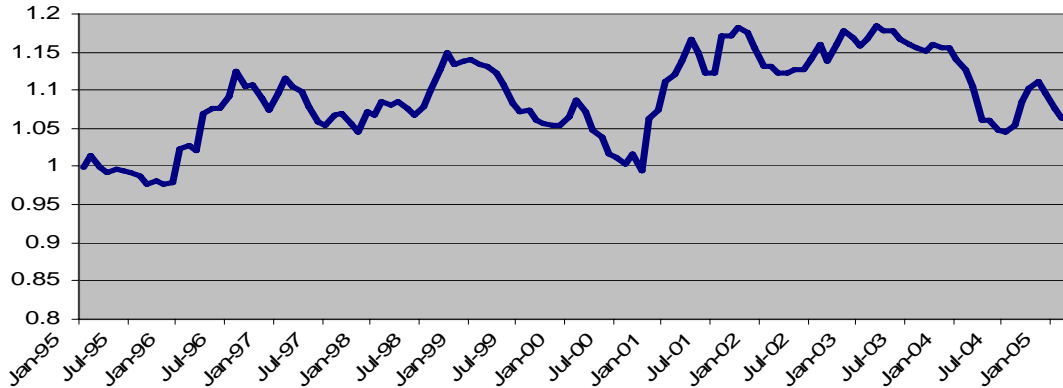
Figure 6.3 Comparison of the CPI Meat with the PPI for Meat and Meat Products (Base January 1995 = 100)



Source: CSO

Figure 6.4 shows consumer prices relative to producer prices. The most noticeable feature is that, despite considerable periodic fluctuations, the general trend appears to be for the consumer price for meat products to rise relative to producer prices.

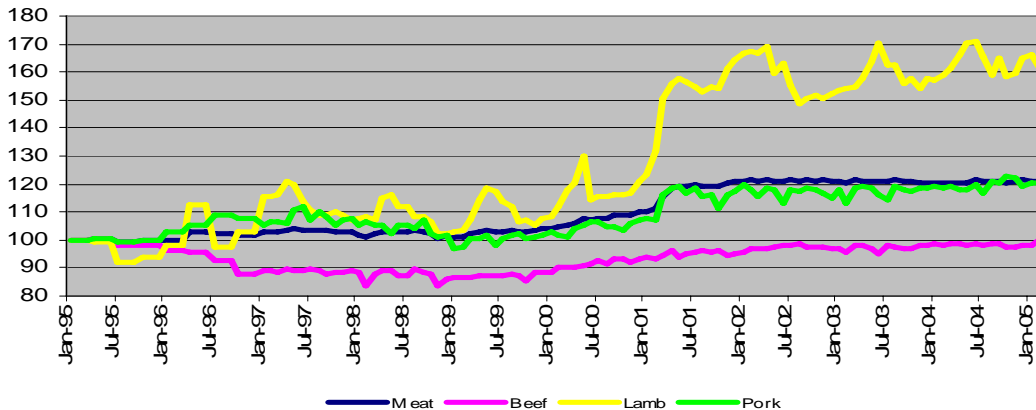
Figure 6.4 Relative Price Change for Overall Meat: Retail (CPI) versus Producer (PPI)



Source: CSO

Figure 6.5 highlights the trends in beef, pork and lamb and overall meat prices. The most dominant feature to emerge is the significant increase in the price of lamb which rose by 62 percent over the period (base January 1995 = 100). A key feature within lamb prices was the sharp increase of 27 percent that occurred during the early period of 2001 which coincided with Food and Mouth outbreak. Lamb prices have remained relatively stable at this high price level since then. In contrast, beef prices decreased over the period and had returned to their original level by February 2005. Pork prices increased by 20 percent over the review period.

Figure 6.5 Retail Price Indices: Overall Meat & Meat Sub-Categories (Base January 1995 = 100)



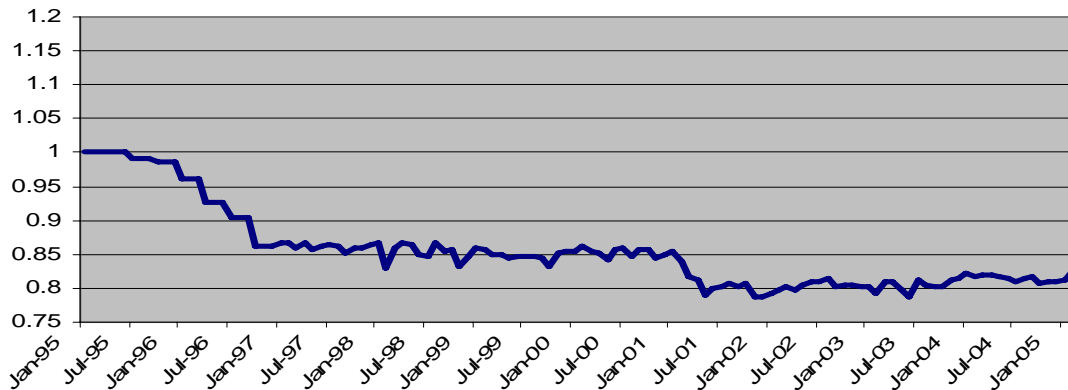
Source: CSO

6.4 Distribution of the Marketing Margin for Specific Meat Products

6.4.1 Beef – A Model of Price Absorption Across the Marketing Channel

Figure 6.6 demonstrates a sustained decline in the relative price of beef over the 1995 to July 2001 period, at which point relative beef prices appear to have stabilized.

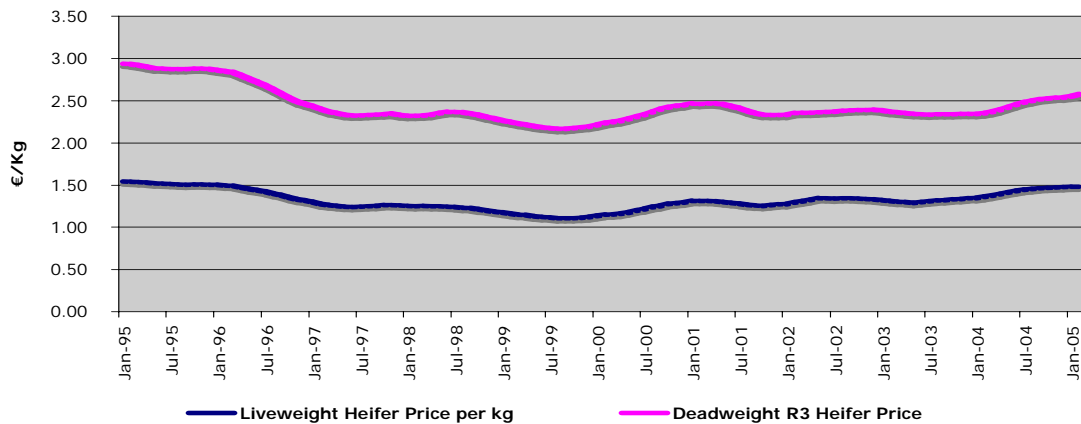
Figure 6.6 Relative Retail Price Change for Beef vs. Overall Meat



Source: CSO and Bord Bia

Initially, price trends in the beef category were investigated using a liveweight agricultural price series for beef. The agricultural prices provided by the CSO represent liveweight prices collected from a sample of marts. According to Fearne (1998), the dominant role of the supermarket with greater emphasis on carcass quality and traceability has driven the steady increase of deadweight marketing. Once the livestock have been slaughtered, the farmer is paid on the basis of a deadweight carcass grade. The higher price per kg for deadweight beef reflects the kill-out. (Figure 6.7).

Figure 6.7 Average Irish Heifer Prices



Source: CSO and Bord Bia

The analysis was initially conducted using the liveweight agricultural prices obtained from the CSO for 400 to 449kg heifers (collected from a sample of marts). However, it was felt that deadweight prices would provide a more accurate reflection of factory prices received by Irish farmers. The discussion that follows presents the analysis conducted using deadweight prices sourced from Bord Bia.

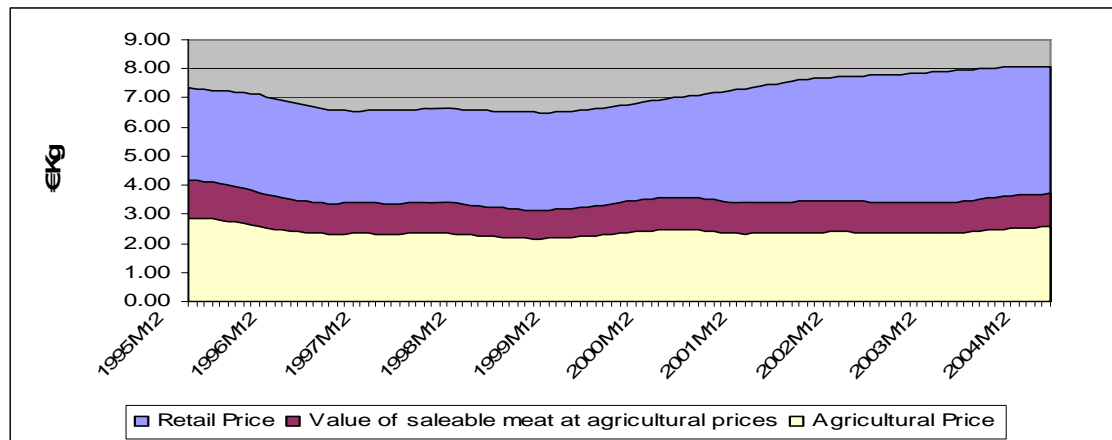
The CSO does not publish a price series for mince. Mince constitutes a high proportion of the meat yield from the carcass (~34 percent). It was felt by omitting mince, the value of the carcass would have been substantially over-estimated. The price series for mince was constructed by setting the mince price at 75 percent of the price of brisket pot roast (pre-December 2001) and at 75 percent of the price of sliced/diced beef (December 2001 to February 2005).

For the purpose of this study, it was necessary to combine the beef product prices into a single retail price for beef, but to do this requires weightings to be attached to each of the categories based on the proportion of the carcass that the product represents. These weightings were derived on the basis of a consultation with a meat processor and cross-referenced with a number of studies⁹. An aggregate price for beef was derived using the CSO retail prices for five cuts of beef and the weights supplied by the meat processor to give a derived retail price for beef. The resulting price series is shown in Figure 6.8. The retail price is based on a rolling 12 month average to account for seasonal variations in beef prices. Furthermore, there was a change in the product mix in December 2001, which led to considerable discontinuity in our estimation of the retail price for beef. This was smoothed using inter-month variations in price. Further smoothing was also undertaken to smooth the price of leg of beef and brisket pot roast during 2001. Between December 2000 and January 2001, the price of these products increased by 16 percent, which distorted the trend line when the prices of individual beef products were aggregated into a single price for beef. This was done using the CPI inter-month price variations.

The farm-gate prices of cattle for the domestic market were sourced from the CSO. For the purposes of this study, the prices of R3 heifers (deadweight) were chosen, which are the closest to the animal usually consumed in the domestic market. The agricultural price also represents a 12-month rolling average.

⁹ Sheehy, S. et al. (2000), "Report of the Independent Group into Anti-Competitive Practice in the Irish Beef Industry" and DEFRA (2004), "Agriculture in the United Kingdom 2003".

Figure 6.8 Retail – Agricultural Marketing Margin for Beef (Deadweight)



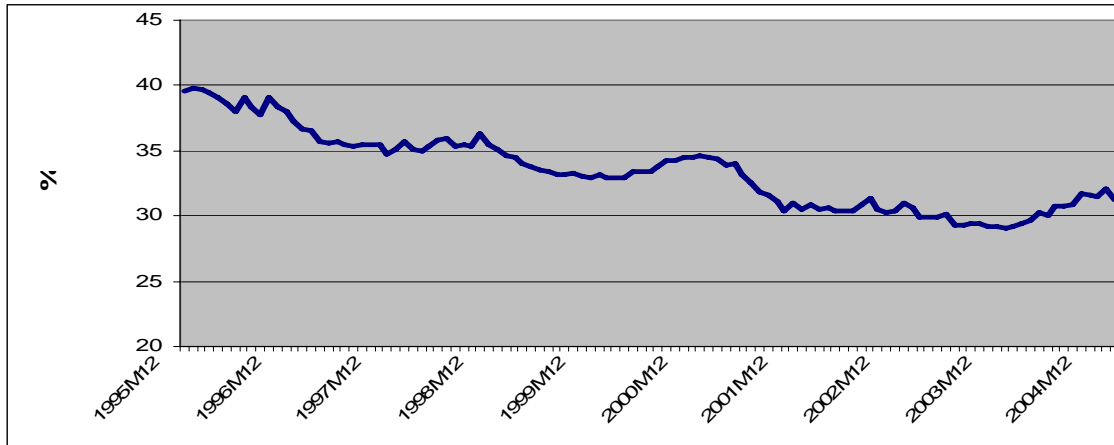
Source: Bord Bia; CSO; Calculations

Figure 6.8 estimates the marketing margins for beef. Taking the deadweight agricultural price for R3 heifers and applying a 69 percent retail yield factor enables us to derive the value of saleable meat at agricultural prices¹⁰. The difference between this price series and agricultural prices is explained by yield losses as a result of processing. Applying retail prices obtained from the CSO provides us with the retail value of the saleable meat. The difference between this retail price series and the saleable meat at agricultural prices represents the marketing margin that is distributed between retailers and processors. This marketing margin includes any costs incurred by both the retailer and processor. It is not a measure of profit.

The first feature to note is that the retail price of beef began to rise in 2000 and continued to rise until the early part of 2004. Also, the gap between the value of saleable meat at agricultural prices and retail prices has increased. This gap represents the average revenue per kg of beef that is available for distribution between retailers and producers (processors). This share of the retail price, appropriated by retailers and producers (processors), has grown considerably. The share appropriated by farmers has declined from 40 percent over the 12 months ending December 1995 to just over 31 percent in February 2005 (figure 6.9). However, some recovery was evident towards the end of the period reviewed.

¹⁰ Offal, skins and disposal costs were not included in the analysis.

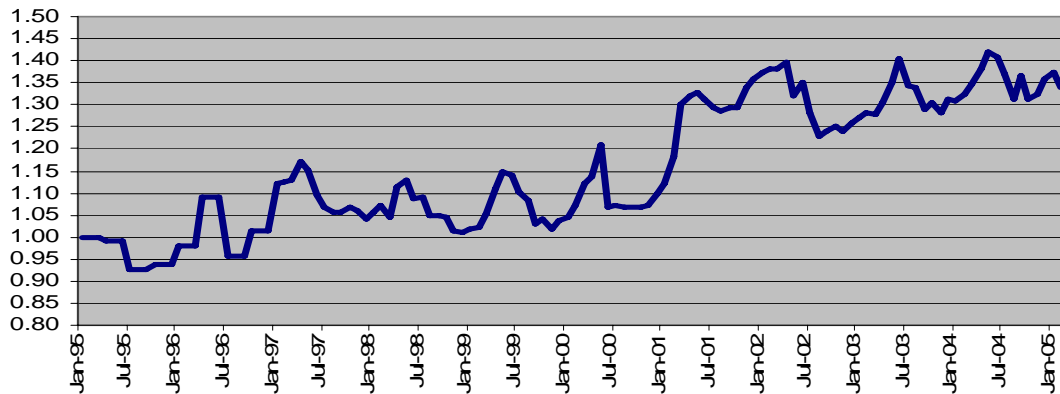
**Figure 6.9 Percentage of Retail Price Received by Beef Farmer
(Based on 12 Month Rolling Deadweight Price)**



6.4.2 Lamb – A Model of Price Absorption across the Marketing Channel

Figure 6.10 highlights the dramatic increase in the price of lamb relative to all other meat products. While relative prices demonstrate periodic peaks, it is clear that the most substantial increase was during the Foot and Mouth outbreak. Since then, high retail prices have been maintained.

Figure 6.10 Relative Retail Price Change for Lamb vs. Overall Meat



Source: CSO and Bord Bia

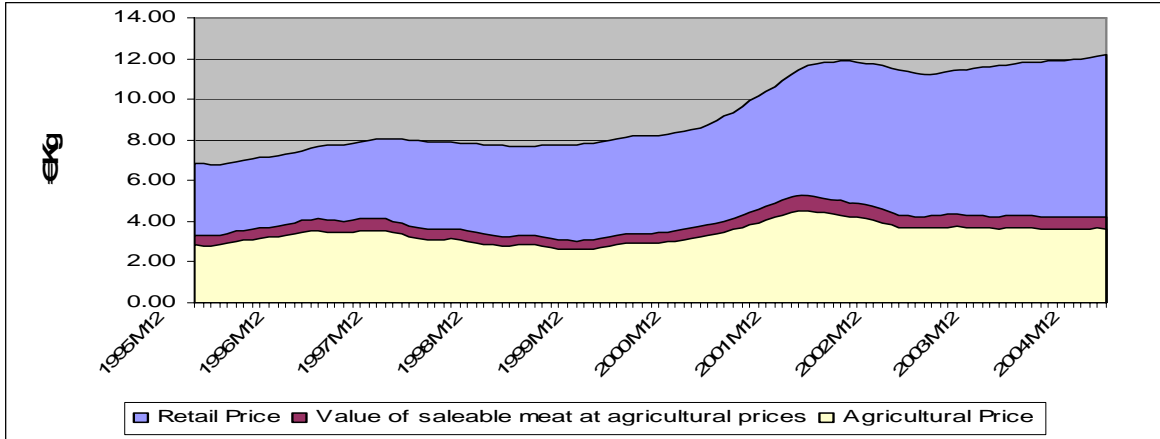
Initially, price trends in the lamb category were investigated using a liveweight agricultural price series. The agricultural prices provided by the CSO represent liveweight prices collected from a sample of marts. However, it was felt that deadweight prices would provide a more accurate reflection of factory prices received by Irish farmers. The discussion that follows presents the analysis conducted using deadweight prices.

Data on retail lamb prices are collected and published by the CSO. Weightings (obtained from a lamb processor and cross referenced with a study in the UK¹¹) were subsequently applied to the individual lamb product prices to derive an overall retail price for lamb per kg.

A derived marketing margin was subsequently calculated for lamb based on the derived retail price. By applying a trim factor of 86 percent to the deadweight agricultural prices, a value of saleable meat at agricultural prices is produced. The resulting price series are presented in Figure 6.11. The difference between this price series and the agricultural price series is accounted for by yield losses due to processing. The difference between the retail price and the saleable meat at agricultural prices corresponds to the marketing margin that is distributed among processors and retailers. An inspection of these two series indicates that the marketing margin has increased over time.

¹¹ DEFRA (2004), "Agriculture in the United Kingdom 2003"

Figure 6.11 Retail-Agricultural (Marketing) Margin for Lamb

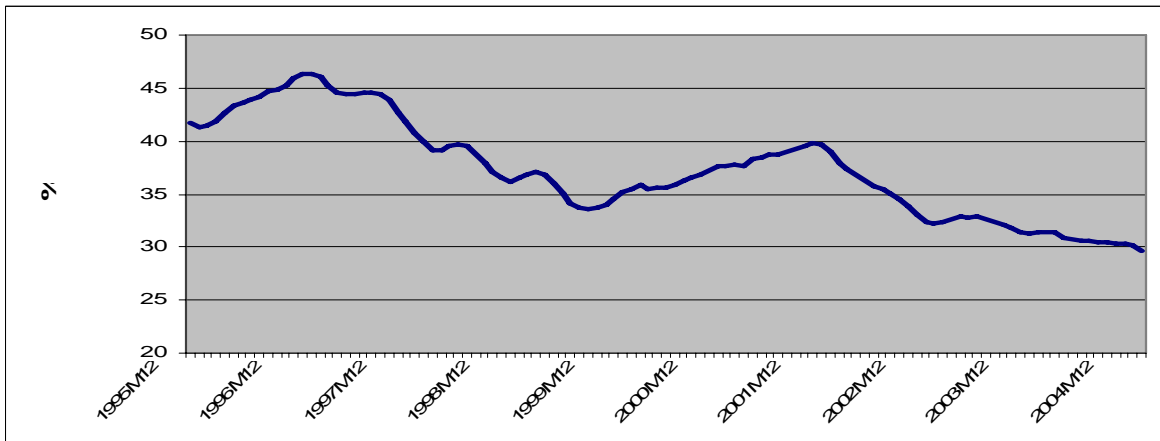


Source: Bord Bia

Source: Bord Bia

Figure 6.12 presents the percentage of the retail price received by the lamb farmer. This percentage had declined over the review period from a highpoint of over 45 percent to less than 30 percent in the 12 months ending February 2005.

Figure 6.12 Percentage of Retail Price Received by Lamb Farmer (Based on 12 month Rolling Deadweight Price)



Source: Bord Bia

6.4.3

Model to Estimate the Absorption of the Retail Value of Red Meats

(Beef and Lamb)

In addition to investigating individual species, the model may also be used to aggregate across species. It may be of interest to see the distribution of the “red meat” price across the marketing channel. This may be done by aggregating both species according to their consumption weighting in Irish households’ food basket. These weights are provided by the CSO. The relative weightings for beef and lamb are 69.75: 30.25.

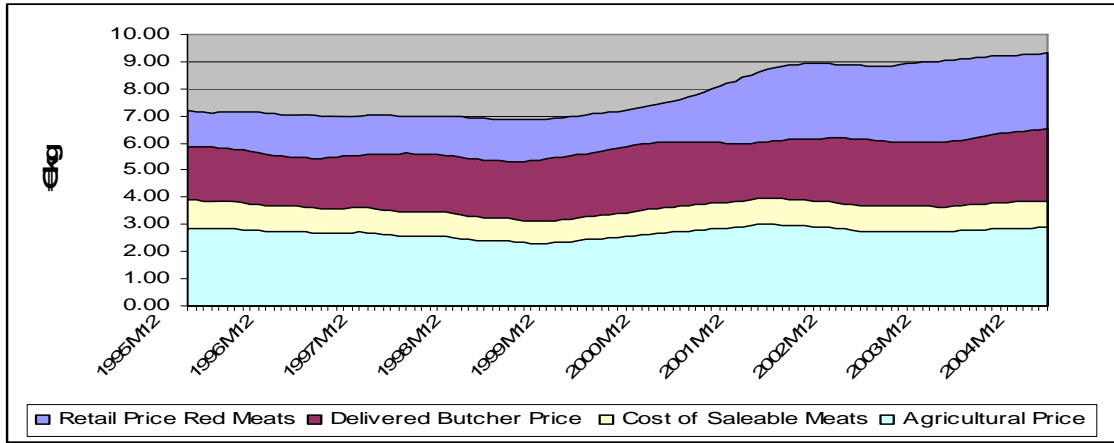
Applying these weights to the retail prices, agricultural prices and the cost of saleable meat for beef and lamb, gives us an aggregate price series for “red meats”. Earlier, the lack of a producer (processor) price for individual meat species was highlighted. However, an overall producer price index for “meat and meat products” is reported. It would be inappropriate to apply this overall producer price index to an individual species because of the wide variations in retail price inflation among species. However, by aggregating across species the individual variations are smoothed, yielding a stronger case for applying the producer price index.

A number of butchers and retailers were queried about their gross margins during February 2005. Estimates suggested that these margins were in the region of 30 percent and 28 percent respectively. Taking the retail price for each species, and deducting the estimated gross margin yielded a delivered to butcher price for beef and lamb in February 2005. Using the CSO beef: lamb ratio, we can derive a delivered butcher cost price for each species and the aggregated red meats product. This price represents the price paid by the butcher for beef and lamb when delivered to the shop. Aggregating these prices according to the CSO weights yields an aggregated delivered butcher price for red meats for February 2005. This delivered butcher price does not include the margin appropriated by multiple retailers’ head office or the gross margin absorbed by wholesalers.

The producer price index reported by the CSO for meat and meat products measures the change in prices received by food producers (processors) ex factory over time. Assuming a full pass through of producer price changes, the inter month variations in this producer price were applied to the delivered butcher price in February 2005, yielding a delivered butcher (shop) price back throughout the time period under review.

The results are presented in figure 6.13. It is clear that the gap between the retail price and the delivered butcher price has increased substantially. This indicates that the increase in the retail price of red meats post 2000 was largely absorbed at store level. In more recent periods, the gap between the delivered butcher price and the cost of saleable meat has also increased, indicating that the revenue distributed among retailers’ head office function, wholesalers and meat producers has also grown.

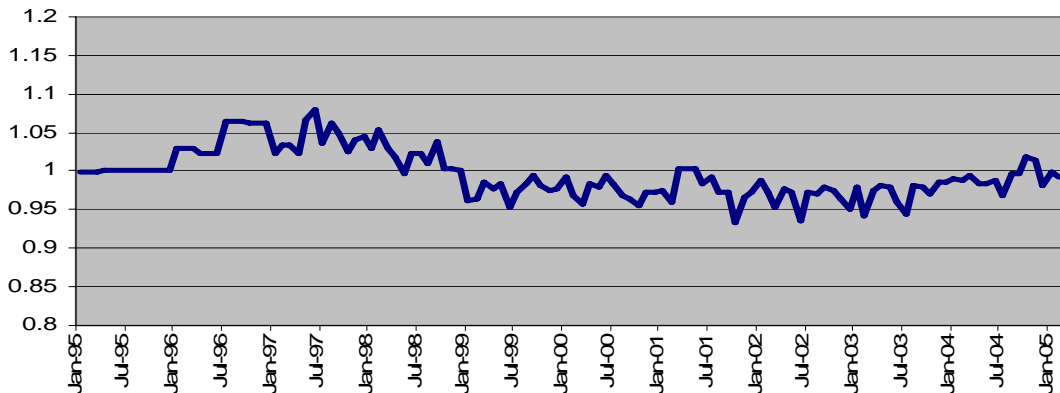
**Figure 6.13 : Distribution of the Red Meat Price
(based on a 30% beef and 28% lamb gross margin at store)**



6.4.4 Pork/Bacon Price Trends

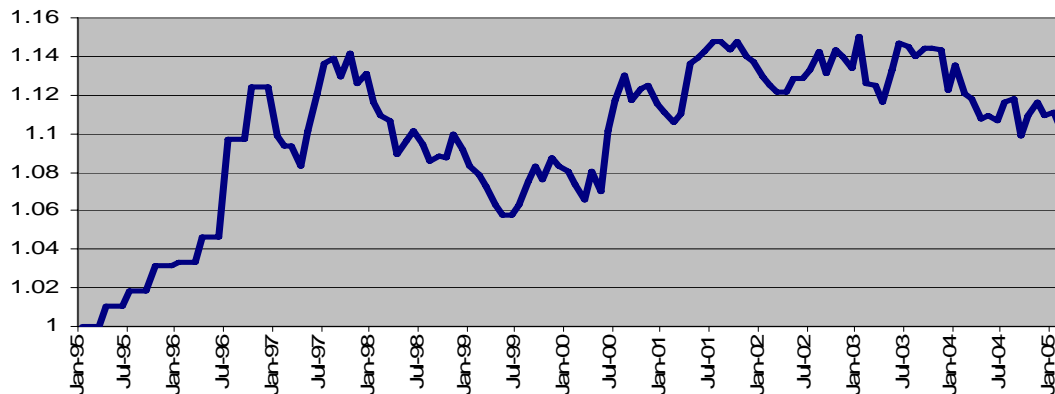
Figure 6.14 shows that over the period 1997 to 2001 there was a sustained decline in pork prices relative to overall meat. Since then, the change in relative prices has stabilised and a slight increase is observed in relative pork prices. In contrast, Figure 6.15 illustrates that bacon prices have increased relative to overall meat prices since January 1995, although the figure points to declining relative prices in recent times.

Figure 6.14 Relative Price Movements: CPI Pork vs. CPI Meat



Source: CSO

Figure 6.15 Relative Price Movements: CPI Bacon vs. CPI Meat



Source: CSO

Analysis on pork and bacon price trends in terms of marketing margins was constrained by the difficulty in getting information on yields within the category. A deadweight price series was obtained from Bord Bia. The CSO no longer publishes liveweight pig prices. Previously, pigs would have been sent to factories as pork or bacon pigs. According to a pig processor, “traditionally the bacon pig would have been smaller, this is less of an issue now”. Consequently, it is difficult to link a specific animal with either pork or bacon. The retail value of a pig carcass will be determined by the proportion sold as pork or bacon as the retail prices differ according to product (e.g. ham versus pork). This information is commercially sensitive and confidential, creating serious difficulties in deriving a plausible retail price for pork/bacon. That could be linked back the food chain. Consequently, further analysis was not feasible.

6.4.3 Poultry Price Trends

As highlighted earlier, the CSO do not price poultry items per kg. Rather each price checker records the price of the same product on a monthly basis. For example, some checkers may price large chickens while others may check four breast fillets. While this method is appropriate for recording price changes, it does not provide the basis for estimating a price per kg. Consequently, estimating the distribution of the retail price among retailers, processors and producers is not possible.

Despite this, *Table 6.4* demonstrated that poultry prices increased by only 7.5 percent over the 1995-2004 period. This was substantially less than overall meat inflation of 20.8 percent. Poultry prices increased most during 2001 when prices rose by 7 percent. Significant levels of price deflation were observed in 2003 (-3.5 percent) and 2004 (-3.9 percent).

6.5 Conclusion

Retail meat prices have increased by 21 percent over the past decade, which is less than the increase in overall food prices. The evidence highlights wide variations in the retail price of individual species with the price of beef falling by 1 percent while the retail price of lamb increased by almost 70 percent. The lack of producer price series for individual species prevents an analysis of the proportion of the retail price of individual species going to retailers and processors. The evidence demonstrates that the proportion of the retail price paid to farmers has fallen for both lamb and beef.

The analysis of beef prices was based on the assumption that the retail prices recorded were the prices actually obtained by Irish beef. There are growing quantities of overseas (e.g. Brazilian) beef currently entering the Irish market. The researchers have no evidence to suggest that this beef is being sold in the grocery/independent butcher market. Nevertheless, it may be at some future date. Consequently, it is recommended that consumer price collectors also record country of origin.

7. DAIRY CATEGORY¹²¹³

7.1 Introduction

Dairy products account for about 15 percent of the retail food basket. For the purpose of this report, the dairy category has been re-weighted. The EU COICOP classification system includes eggs with dairy products in the category ‘milk, cheese and eggs’. Thus, in order to construct a new dairy category it was necessary to remove eggs from the original category and incorporate butter, which is included under the oils and fats category. *Table 7.1* gives an account of the four dairy sub-categories and their weightings.

Table 7.1 Price Weightings for Dairy Products

Dairy Products	%
Milk	51.7
Cheese	17.6
Butter	12.3
Other Milk Products (cream, yoghurts, etc.)	19.4
Total	100

7.2 Data Sourcing and Availability

The CPI reports retail price indices for the overall dairy category and its sub-categories. National average prices (NAPs) are also reported for selected dairy products.¹⁴

A producer price index (i.e. the price paid to processors) is reported for the NACE category 15.5 (Manufacturing of dairy products). However, it was not possible to separate this index into the various dairy sub-categories. Furthermore, this category is composed of two sections: ‘15.51 Operation of dairy and cheese making’ and ‘15.52 Manufacture of ice-cream’. It should also be noted that the former section excludes the production of raw cow milk, as this is classified under NACE 01.2 Farming of animals (01.21 Farming of cattle, dairy farming). This highlights the complexity of the category at processor level. Thus, producer price information was sourced through Eurostat’s ‘Agricultural Market – Prices’ series of publications.¹⁵ Liquid milk prices are currently unavailable.

¹² The models developed to investigate prices in the meat category are provided in the sub-report in Appendix 1

¹³ The term producer refers to processor and should not be confused with farmers.

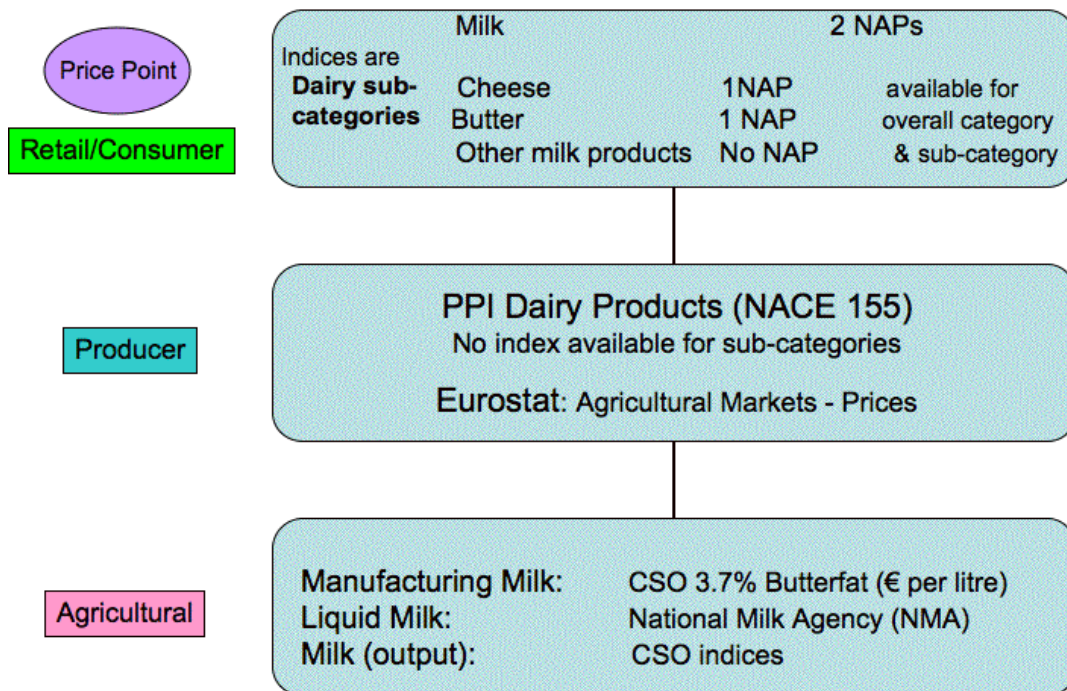
¹⁴ National average prices (NAPs) have been adjusted using monthly percentage changes at index level. NAPs are in indication of average prices at a certain point in time but are not compiled on a fully comparable basis. The calculations for the CPI strip out incomparable price quotations, thus leading to a more representative price movement.

¹⁵ Sourced through http://europa.eu.int/comm/agriculture/publi/prices/index_en.htm.

Agricultural prices have been collected through two sources. The CSO provide manufacturing¹⁶ milk prices (3.7 percent butterfat and actual butterfat). The 3.7 percent butterfat price series has been adjusted to provide an appropriate agricultural price series for cheddar cheese and butter manufacture. Liquid milk farm-gate prices were sourced from the annual reports and accounts of the National Milk Agency (NMA).¹⁷

Figure 7.1 outlines the data sources and availability for the dairy category.

Figure 7.1 Data Sources and Availability for the Dairy Category



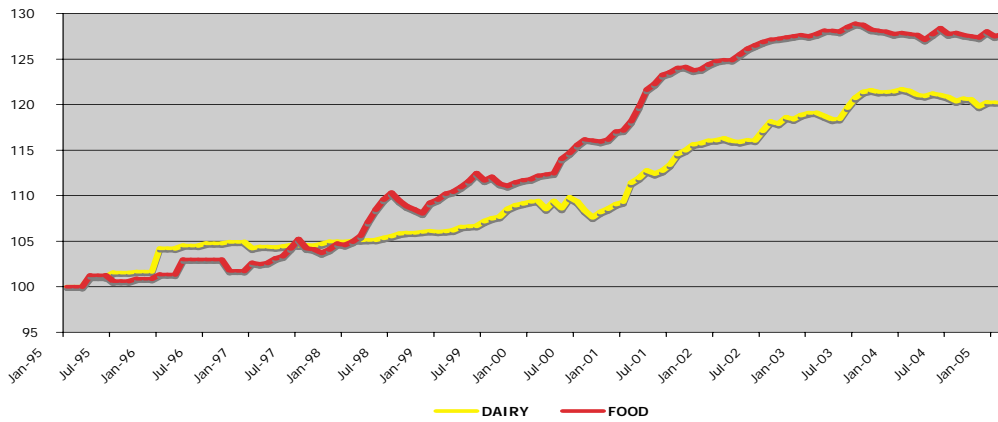
7.3 General Price Trends

Overall dairy retail prices have increased by about 20 percent over the last decade. Figure 7.2 displays the general price movement for dairy prices in relation to overall food prices. It is clear that dairy retail prices have been rising at a slower rate relative to overall food prices since 1998. Inflation for the category was highest between September 2000 and September 2003, retail prices having increased by 14 percent alone over the three-year period. In recent years, the movement in dairy prices has begun to slow down and evidence of this deflation can be seen in particular since October 2003.

¹⁶ Milk used in the manufacture of dairy products excluding liquid milk for direct consumption.

¹⁷ Sourced through <http://www.nationalmilkagency.ie/nma>

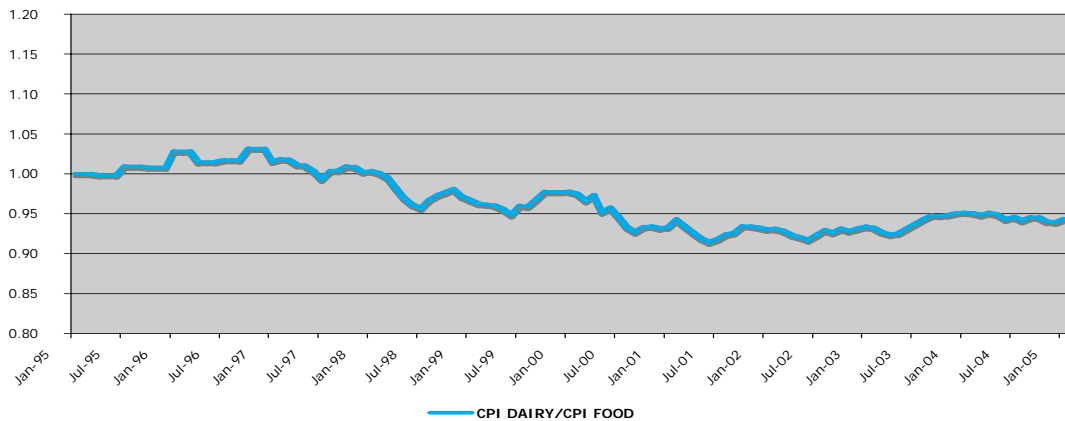
Figure 7.2 Retail Price Indices: Overall Dairy vs. Overall Food (Base January 1995 = 100)



Source: CSO

Figure 7.3 demonstrates that dairy product prices become relatively cheaper than food in general on a consistent basis throughout the period under review, with the exception of recent years which show a small increase in relative prices.

Figure 7.3 Retail Price Relativities: Overall Dairy vs. Overall Food



Source: CSO

Table 7.2 shows the year-on-year percentage change in retail prices for dairy products. The table highlights the relatively static milk prices from 1997 to 2000, and the period of inflation experienced from 2001 to 2003. Cheese retail prices consistently rose from

1999, with a marked inflationary boom in 2001. Despite a high inflation rate for butter in 1996, the remainder of the review period showed a slower rate of increase leading to a period of deflation in 2004.

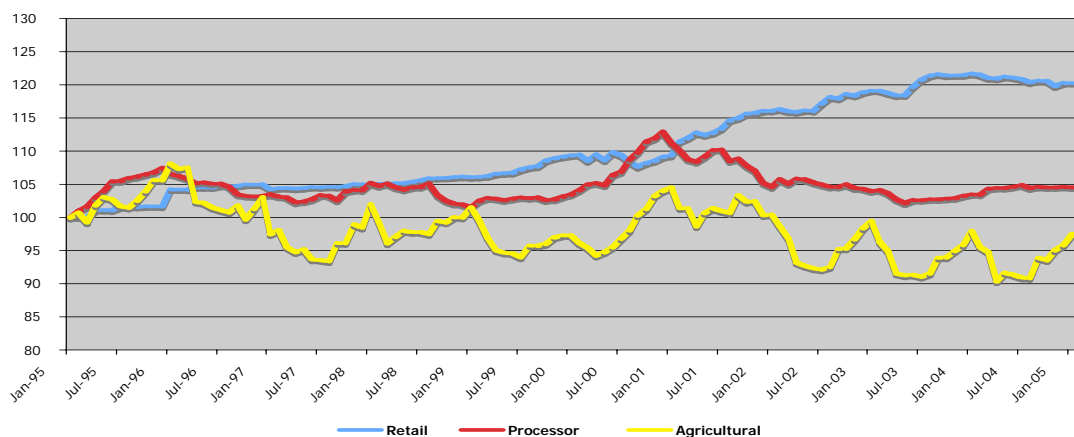
Table 7.2 Annual Percentage Change in Retail Prices for Dairy Sub-Categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % Change
Milk	+3.7%	-0.9%	0.0%	+0.6%	+0.8%	+2.0%	+2.7%	+1.5%	+0.4%	+11.2%
Cheese	+1.1%	+0.5%	+1.4%	+3.0%	+3.5%	+9.0%	+5.8%	+3.5%	+1.1%	+32.5%
Butter	+7.2%	+0.5%	+0.4%	+1.2%	+1.7%	+2.7%	+2.5%	+2.3%	-2.1%	+17.3%
Overall Dairy	+3.5%	0.0%	+0.9%	+1.7%	+1.5%	+4.2%	+3.3%	+2.5%	+0.6%	19.5%

Source: CSO

Comparing overall dairy product prices at retail, producer (processor) and agricultural levels, it is seen that while prices at retail level have increased by about 20 percent over the past decade, prices at producer level have remained fairly static in general, with just a small increase of about 5 percent, whereas milk prices at agricultural level have declined by about 10 percent, (*Figure 7.4*).

Figure 7.4 Price Indices for Overall Dairy: Retail vs. Producer vs. Agricultural (Base January 1995 = 100)

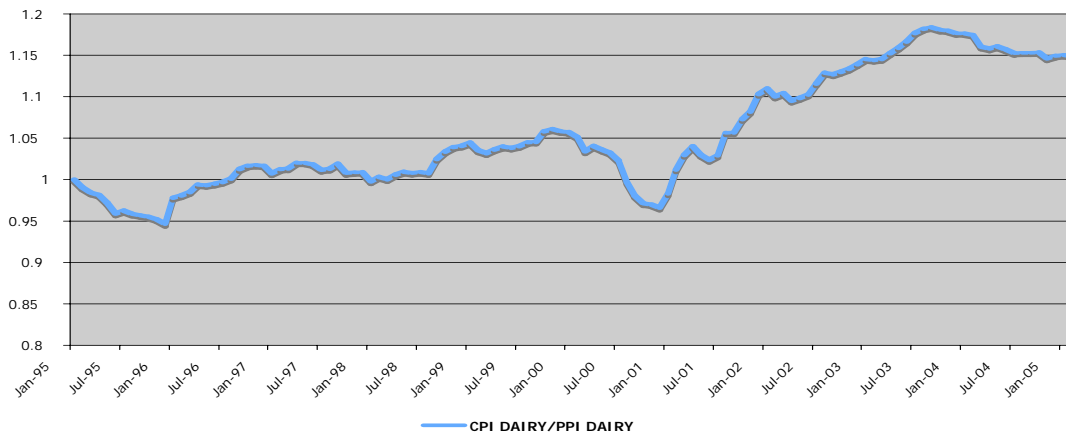


Source: CSO

Figure 7.5 shows retail prices relative to producer prices for dairy products. The general trend is for retail prices to rise relative to producer prices. Thus in relative terms, the

retail-producer margin has widened by about 15 percent over the decade. This is directly reflected by rising retail prices and comparatively static producer prices as seen in *Figure 7.4*. These respective price movements became most apparent from 2001. The increase in producer prices relative to retail prices from 2000 to 2001 reflects the boom in dairy commodity prices experienced worldwide at that time.

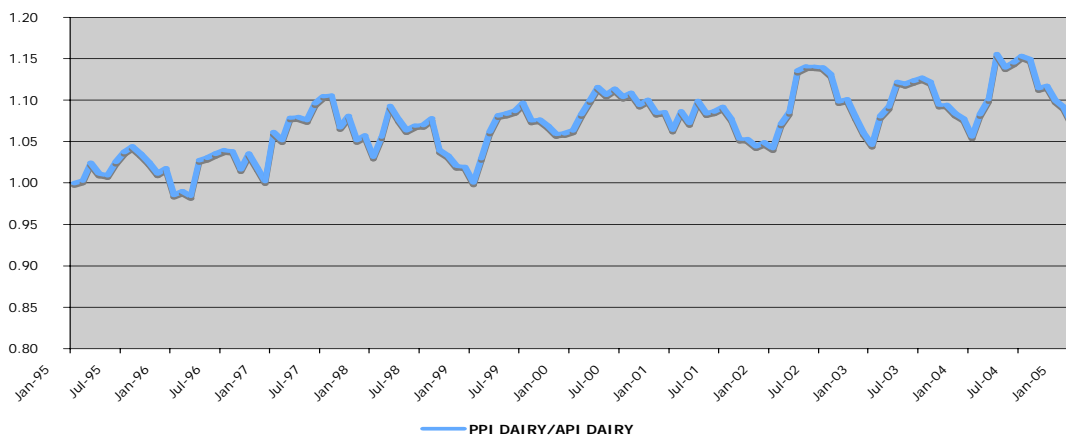
Figure 7.5 Relative Price Change for Overall Dairy: Retail (CPI) vs. Producer (PPI)



Source: CSO

Likewise the producer-agricultural margin has widened by about 10 percent, (*Figure 7.6*). The relative price movement is highly variable over the last decade demonstrating considerable periodic fluctuations. However, the general trend is for producer prices to increase relative to prices paid to farmers.

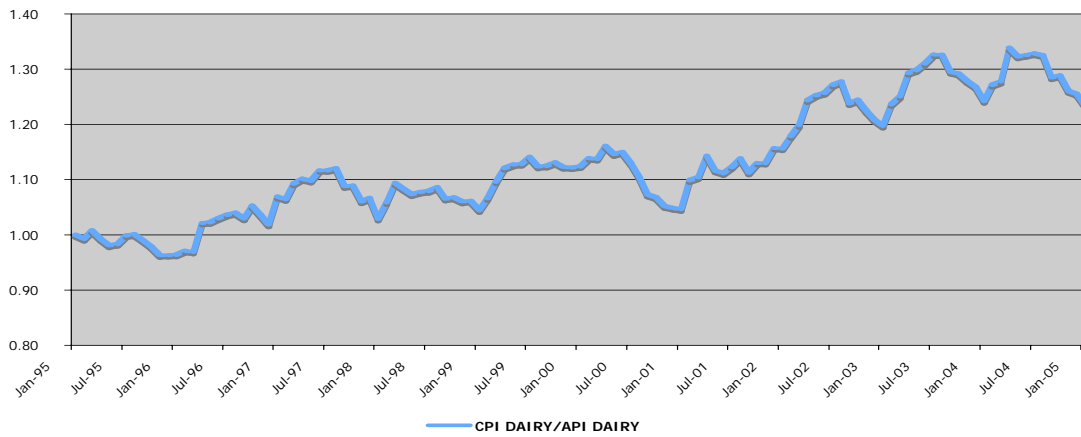
Figure 7.6 Relative Price Change for Overall Dairy: Processor (PPI) vs. Agricultural (API)



Source: CSO

Figure 7.7 shows retail prices relative to agricultural prices for dairy products. Retail prices remained fairly constant relative to agricultural prices until 2001, when a sharp increase in retail prices occurred. Retail prices then rose at a faster rate relative to agricultural prices, resulting in peak prices in April 2004. Since then, retail prices have fallen slightly relative to farm-gate prices.

**Figure 7.7 Relative Price Change for Overall Dairy:
Retail (CPI) vs. Agricultural (API)**

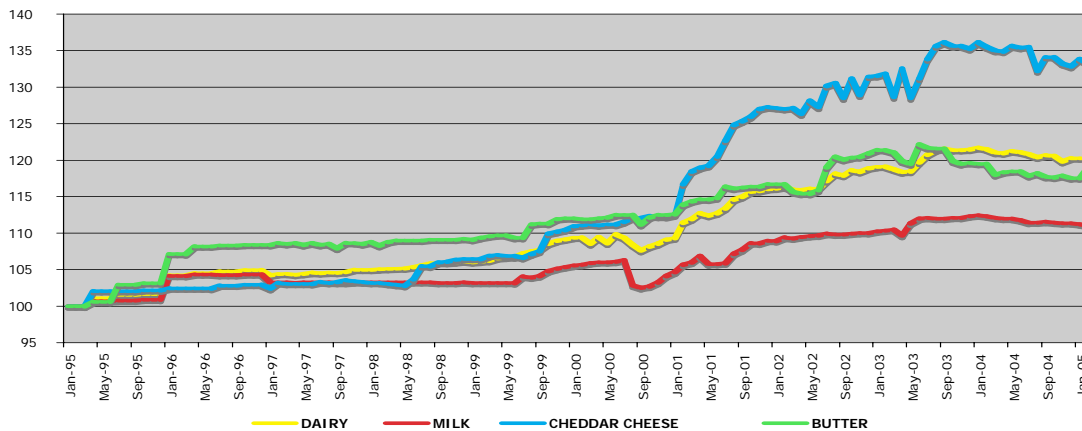


Source: CSO

7.4 Price Trends –Dairy Sub-Categories

While the retail prices of dairy products in general increased by about 20 percent over the past decade, there has been wide variation in price change among the different dairy products. For example, cheddar cheese prices have increased by about 35 percent, butter prices have increased by about 20 percent, whereas liquid milk prices have increased by just about 10 percent, (*Figure 7.8*).

Figure 7.8 Retail Price Indices: Overall Dairy & Dairy Sub-Categories (Base January 1995 = 100)



Source: CSO

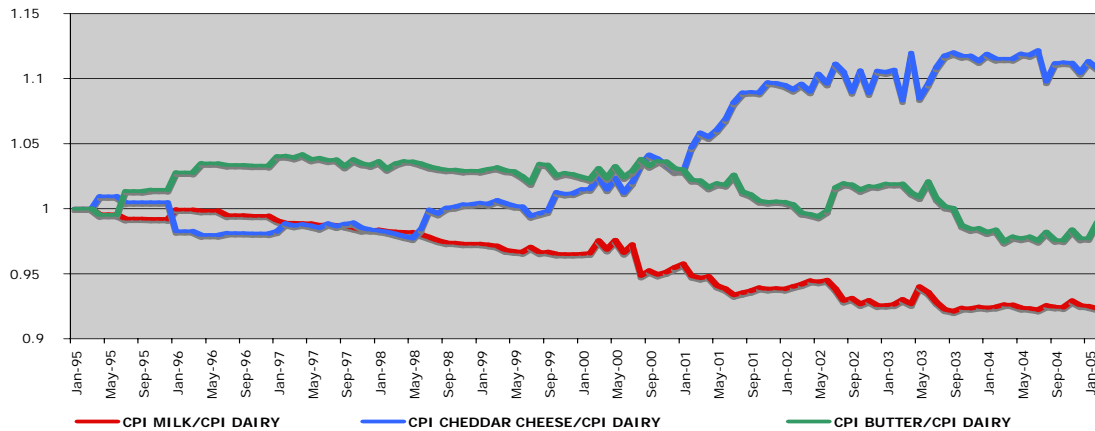
Liquid milk retail prices remained relatively static from 1995 to 2000. However, for a short period between August 2000 and April 2001 milk prices saw a sharp decrease followed by a more continuous upward price movement until recent times.

The index for butter displays a step increase in price in early 1996, which was maintained and added to in late 1999. Since then, the price of butter has increased gradually until mid 2003 where some deflation has been evident.

Cheddar cheese retail prices demonstrate the sharpest deviations from overall dairy prices. Cheddar cheese prices remain fairly static until June 1998, where an upward price movement commences. This upward trend develops sharply from February 2001 to October 2002, where variability in movement occurred over the following year. Prices took another sharp jump in the summer of 2003, after which prices stabilised and have marginally decreased since.

Expressing prices in relative terms, compared with retail price change for dairy products in general over the last decade, cheddar cheese prices have increased by about 10 percent, butter prices have just about matched price change in overall dairy products while liquid milk prices have fallen by close to 10 percent in relative terms (*Figure 7.9*).

Figure 7.9 Relative Retail Price Change for Dairy Sub-Categories



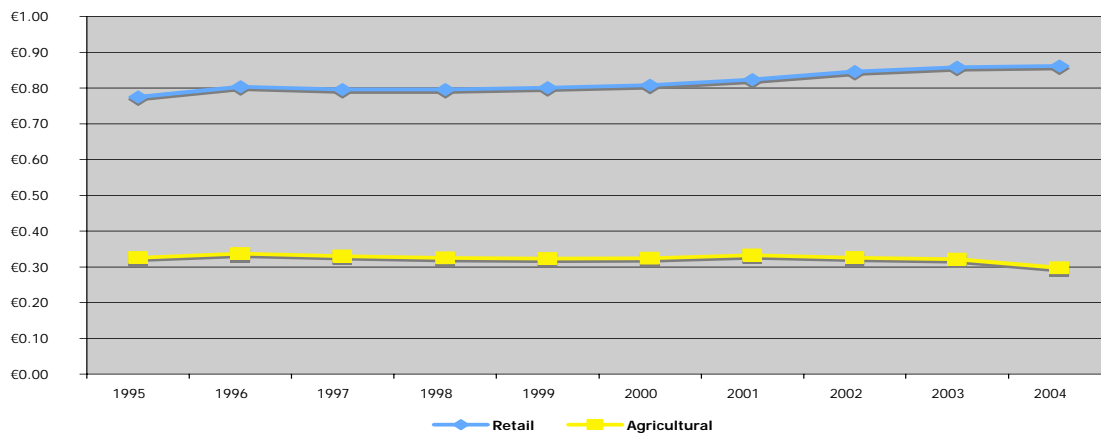
Source: CSO

7.5 Distribution of the Marketing Margin for Specific Dairy Products

7.5.1 Milk

While retail and agricultural price trends for liquid milk can be compared, there is no satisfactory price series available for producer prices to date. Based on the Consumer Price Index (CPI), retail prices for liquid milk have increased by about 9 cent/litre over the last decade, while agricultural prices for liquid milk – as received by liquid milk suppliers – remained largely static until very recently, when a decline has begun to emerge. *Figure 7.10* demonstrates the annual price movements at both retail and agricultural levels. From this it is shown that the retail-agricultural margin for liquid milk has widened gradually over the last decade from about 45 to 56 cent per litre.

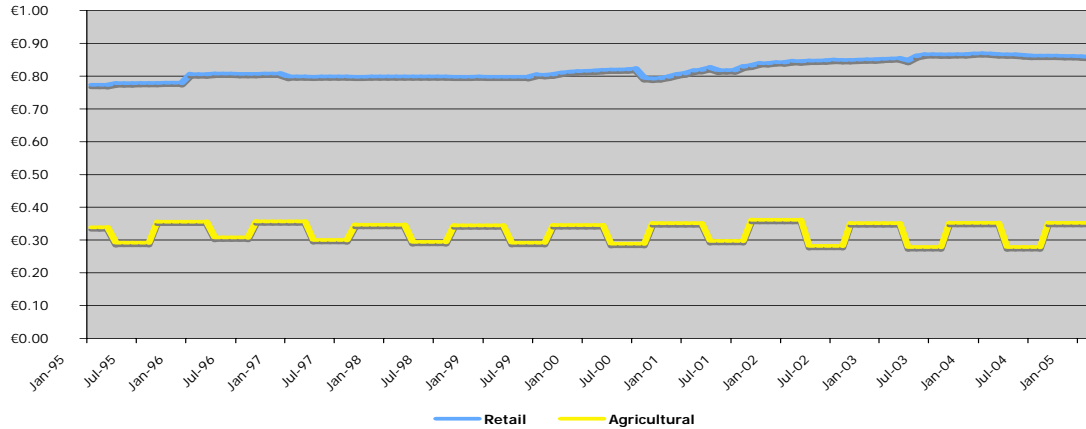
Figure 7.10 Annual Average Liquid Milk Prices (€/Litre)



Source: CSO

When shown in monthly terms, the characteristic pricing pattern for liquid dairy farmers – with higher prices in winter months than in summer months – is evident, (*Figure 7.11*).

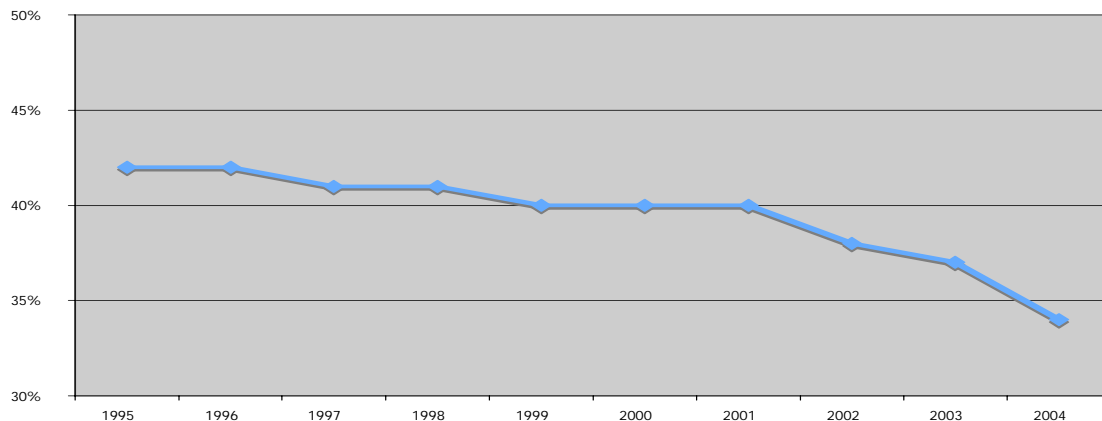
Figure 7.11 Monthly Average Liquid Milk Prices (€/Litre)



Source: CSO

Figure 7.12 shows that the proportion of the retail milk price obtained by the liquid milk farmer has fallen over the decade from about 42 percent to 34 percent. Static retail-agricultural margins occur from 1999 to 2001. The rate of decline in the share of liquid milk price paid to farmers has increased noticeably since 2002.

Figure 7.12 Estimated Farm Share of the Retail Price for Liquid Milk (%)

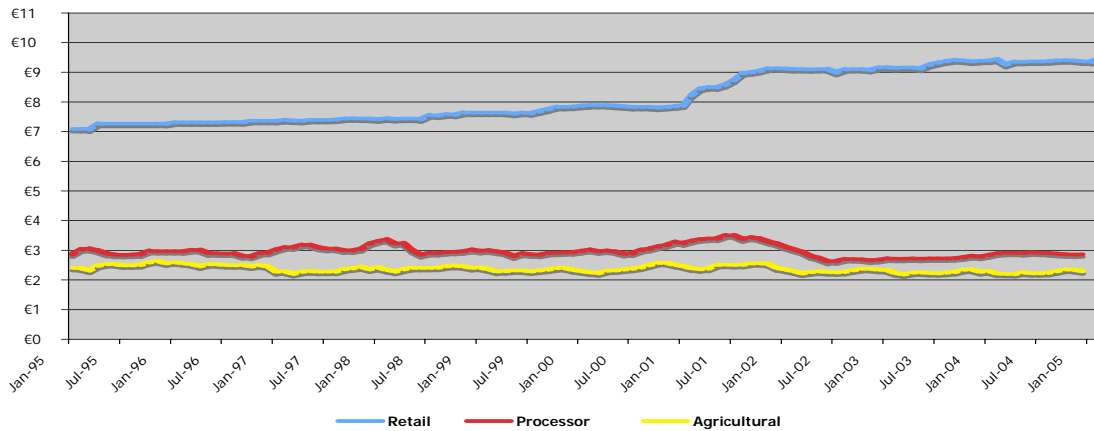


Source: CSO

7.5.2 Cheddar Cheese – A Model of Price Absorption Across the Marketing Channel

Retail prices for cheddar cheese have risen over the last decade from about €7/kg to over €9/kg, with the increase occurring mainly in 2001/2002. Prices thereafter have continued to increase but at a much slower pace. In contrast producer prices for cheddar cheese have remained largely static at about €3/kg, with a temporary increase in the year 2001 corresponding with the worldwide boom in dairy commodity prices at that time. Agricultural prices for milk going into cheddar cheese have also remained largely static over the decade (*Figure 7.13*).

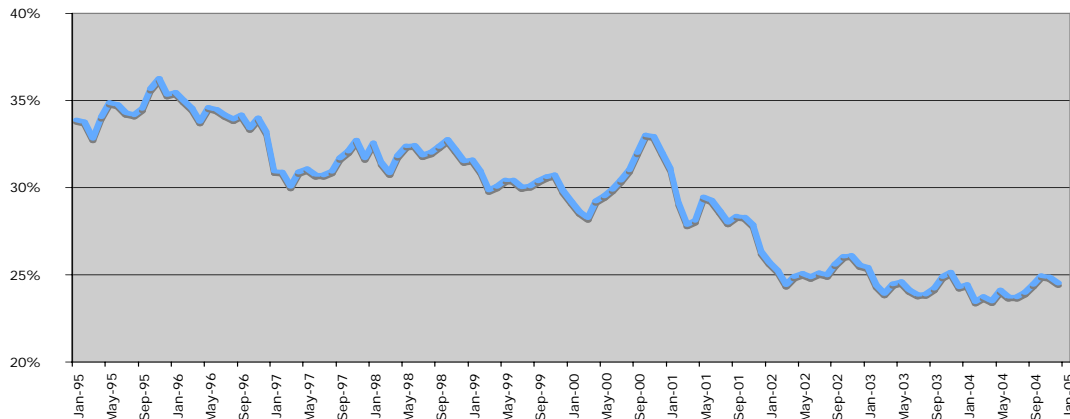
Figure 7.13 Monthly Cheddar Cheese Prices (€/Kg)



Source: CSO

Thus the retail-agricultural margin for cheddar cheese over the decade has widened from €5 to €7/kg, with all of the increase occurring from 2001. This means that the share of cheddar cheese retail prices received over the decade by the farm supplier of manufacturing milk has fallen from about 34 percent to about 24 percent (*Figure 7.14*). Again, the boom in commodity prices in 2001 is illustrated in the graph.

Figure 7.14 Estimated Farm Share of the Retail Price for Cheddar Cheese (%)

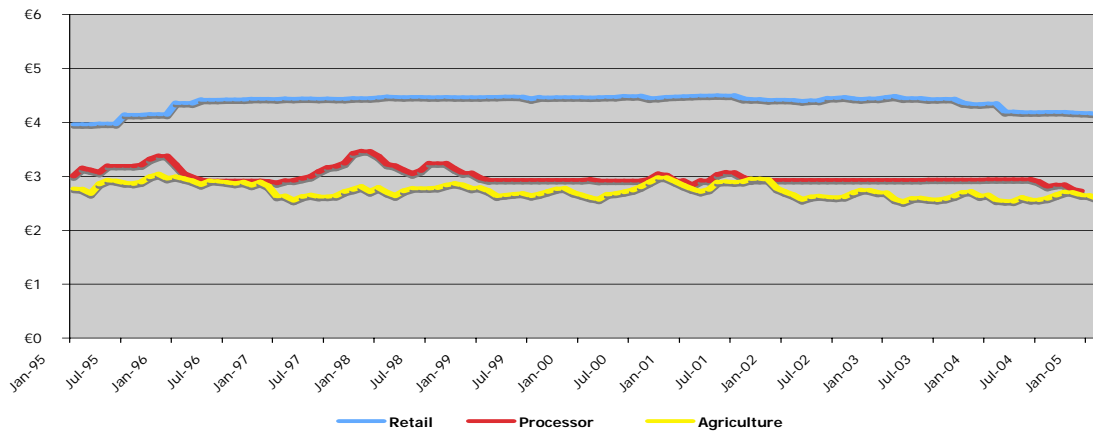


Source: CSO

7.5.3 Butter – A Model of Price Absorption Across the Marketing Channel

In contrast with the other dairy products, retail, producer and agricultural prices for butter (milk equivalent) have all changed comparatively little over the past decade (*Figure 7.15*). Retail prices initially increased from July 1995 to January 1996, but evened out to remain fairly static until August 2001. Retail prices commenced a slow decline since then. Producer prices experienced some minor variations over the four-year period from 1995 to 1999. However, price movements evened out from this point on, experiencing a slight decline in more recent years. Farm-gate prices displayed a fairly static trend over the decade, with only limited degrees of variation from the norm.

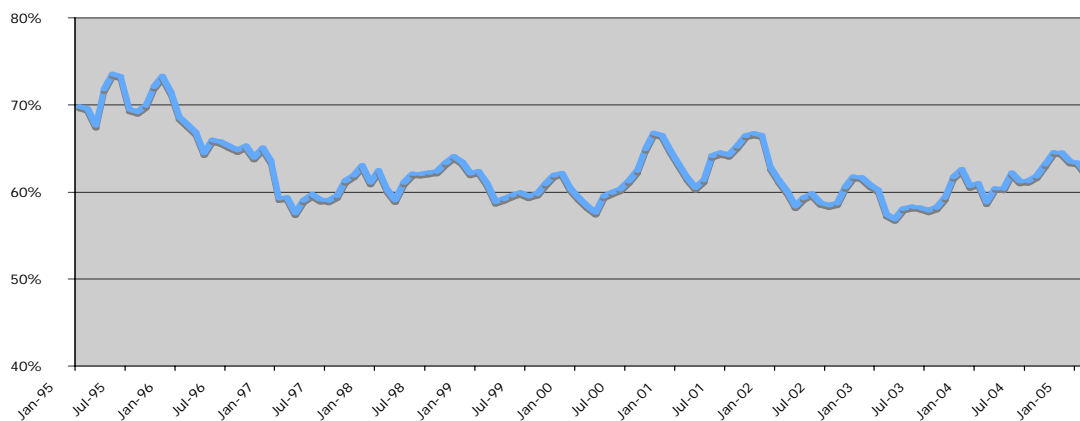
Figure 7.15 Monthly Butter Prices (€/Kg)



Source: CSO

The retail-agricultural price margin for butter has also remained fairly static at about €1.50/kg for most of the decade and the farm share of the retail price for butter has also remained static at between 60-70 percent (*Figure 7.16*). The years 1995 to 1996 experienced the highest margins – between 71 percent and 66 percent respectively – whereas in more recent times margins have averaged out to around 61-64 percent.

Figure 7.16 Estimated Farm Share of the Retail Price for Butter (%)



7.5.4 Butter and Cheese

With this information it is possible to calculate and monitor changes in margins over the period. Taking the retailers' and processors' margins as a percentage of the retail price yields the results in table 7.3. It demonstrates that retail margins have increased by 10 percentage points over the 1995 to 2004 period for both butter and cheddar cheese. The size of the retail margin in cheddar cheese has been noted as the highest of any EU market¹⁸.

Table 7.3 Distribution of the Retail Price for Cheese and Butter

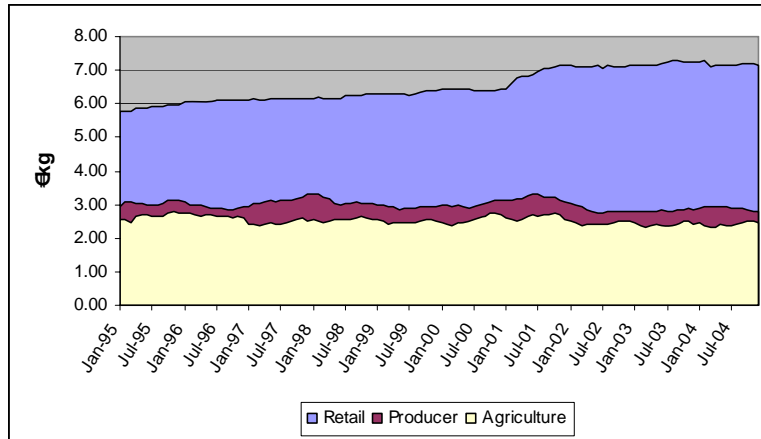
	Average Prices			Margins ^a		
	Year			Year		
Cheese	1995	2000	2004	1995	2000	2004
<i>Retail</i>	7.22	7.85	9.37	59.42	61.42	69.17
<i>Manufacturer</i>	2.93	3.03	2.89	6.03	8.07	6.70
<i>Agriculture</i>	2.50	2.40	2.26	34.55 ^b	30.51	24.13
Butter	1995	2000	2004	1995	2000	2004
<i>Retail</i>	4.06	4.47	4.21	21.14	34.14	31.72
<i>Manufacturer</i>	3.20	2.95	2.88	7.92	4.02	6.37
<i>Agriculture</i>	2.88	2.77	2.61	70.94	61.84	61.91
Cheese and Butter						
<i>Retail</i>	5.88	6.42	7.18	48.19	53.34	59.82
<i>Manufacturer</i>	3.05	2.99	2.88	6.58	6.87	6.62
<i>Agriculture</i>	2.66	2.55	2.41	45.23	39.79	33.56

^aAll margins are expressed as a percentage of the retail price.
^bThe agriculture margin expresses the milk price equivalent as a proportion of the retail price.

Similar to red meats, by using the consumer weights for cheese and butter as provided by the CSO we can calculate an aggregated cheese and butter category. The distribution of the retail price for this aggregated category demonstrates that the entire increase in the retail price of these products was appropriated by the retail and wholesale functions. In fact the actual prices received by both farmers and processors declined over the period (figure 8).

¹⁸ Dairy Supply Chain Margins 2004-2005. Who made what in the dairy industry and how it has changed. Milk Development Council UK 2005.

Figure 7.17: Distribution of the Cheese and Butter Price



7.6 Conclusion

In general, dairy prices at retail level have risen over the last ten years by about 20 percent. This rise has been less, however, than overall food price increases. Of the three dairy products examined in detail, all have increased in retail price over the last decade but by widely varying amounts.

While upward retail price movements have remained fairly limited for liquid milk and butter, cheddar cheese has demonstrated the sharpest price movement. It is very apparent from the data that the retail price for cheddar cheese has continued to increase from 2002, in contrast with static or declining producer and agricultural prices. Retail margins on butter and cheese have increased by 10 percentage points over the period reviewed and now account for almost 60 percent of the combined retail price.

8. BREAD AND CEREALS CATEGORY

8.1 Introduction

Bread and cereal products account for 19 percent of the CSO consumer food basket. The breakdown of bread and cereal weightings within the consumer price index is given in *Table 8.1*.

Table 8.1 CSO Consumer Price Weightings for Bread and Cereal Products

<i>Bread and Cereals</i>	<i>%</i>
Bread	32.6
Flour	1.4
Biscuits	18.0
Cakes	18.0
Breakfast cereals	14.8
Other cereals	8.0
Other bread and cereals	9.2
Total	100

Source: CSO

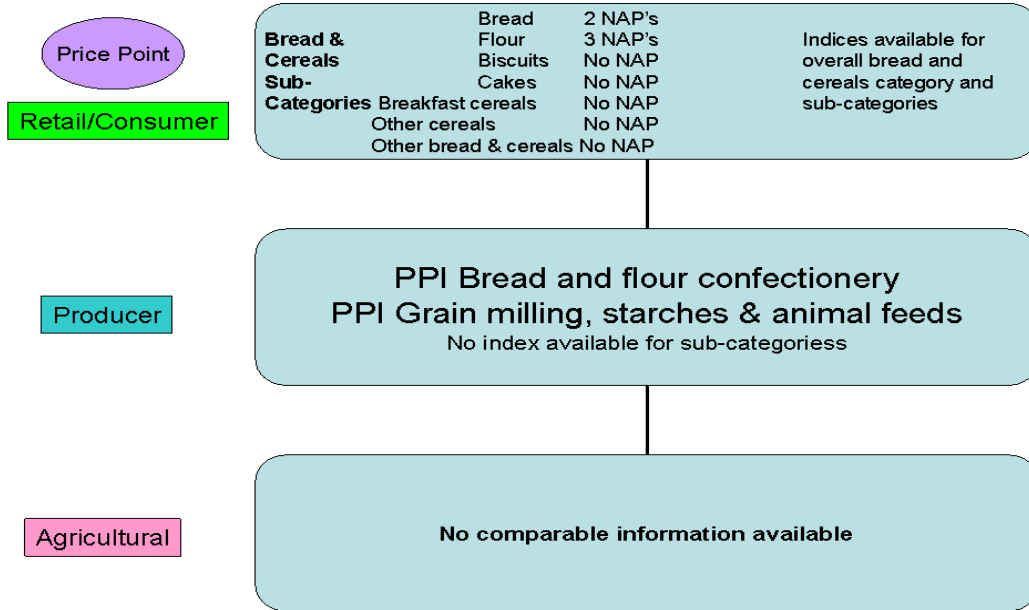
8.2 Data Sourcing and Availability

The CSO collects retail prices for 28 bread and cereal products (See *Figure 8.1*). Of these, they currently report a subset of five national average prices (two in the bread sub-category and 3 in the flour sub-category).

At a producer level, bread is covered under the manufacture of other food products and is reported under NACE 158 (manufacture of other food products). A producer price index for bread, flour and confectionery (NACE 1581 and 1582) is available. Cereals are reported under NACE 156 (manufacture of grain milling, starches and animal feeds). The proportion of this category's output utilised in the production of consumer food products is small. As a disaggregated index for cereals is not available, the kinds of analysis that can be completed is greatly constrained.

Linking retail or producer prices back to agricultural prices would not yield any meaningful prices as grain crops grown in Ireland are not generally utilised in the manufacture of consumer food products.

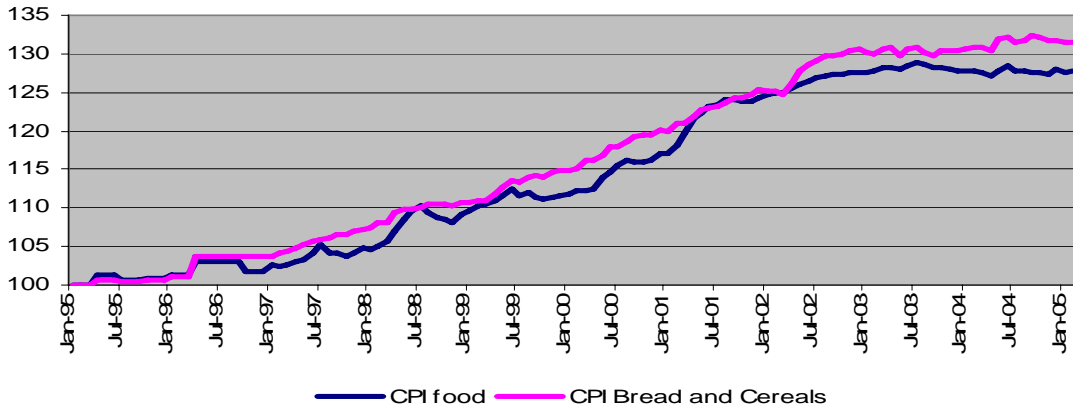
Figure 8.1 Data Sources and Availability for the Breads and Cereals Category



8.3 General Price Trends

Figure 8.2 demonstrates the trend in retail food prices versus bread and cereal prices from 1995 to 2005. Bread and cereal prices (+32 percent) appear to have increased in line with general food prices (+28 percent) over much of the review period with January 1995 as the base month. There is evidence of much greater price stability since September 2002.

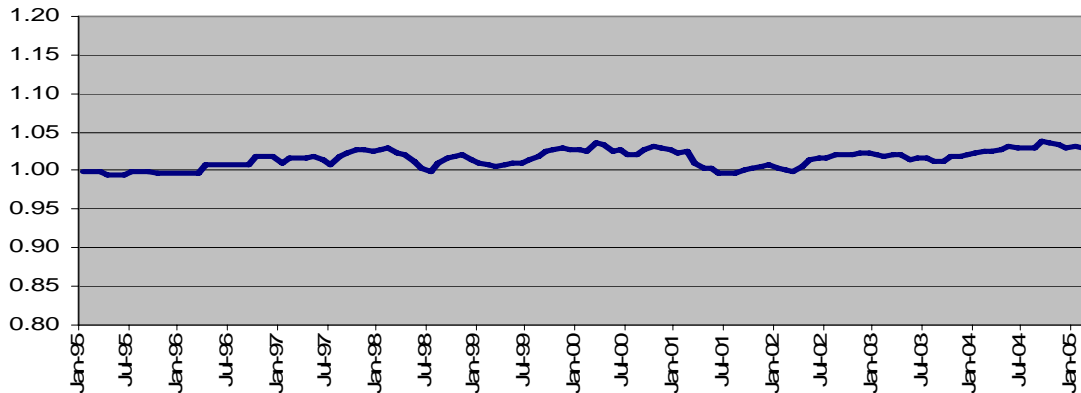
Figure 8.2 Retail Price Indices: Overall Bread and Cereals vs. Overall Food



Source: CSO

Figure 8.3 shows the price of bread and cereals relative to overall food. Despite cyclical trends, the variation in relative prices is modest, never exceeding 4 percent.

Figure 8.3 Retail Price Relativities: Overall Bread and Cereals vs. Overall Food



Source: CSO

Table 8.2 highlights the various product categories and their annual percentage change over the 1995 to 2004 period. It illustrates that overall bread and cereals prices increased by 31 percent over the review period, with the largest increases coming in breakfast cereals (45 percent) and biscuits (42 percent).

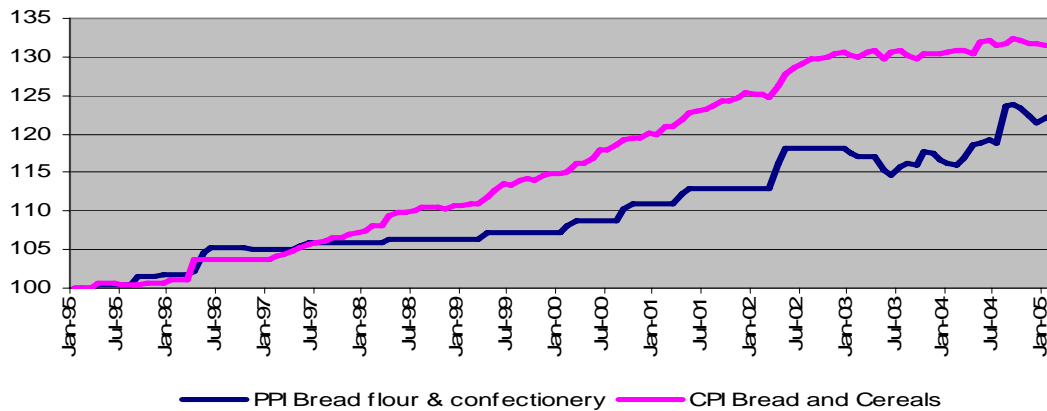
Table 8.2 Annual Percentage Change in Retail Prices for Bread & Cereals Sub-Categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Bread	+4.0%	+1.1%	+0.2%	+2.7%	+1.3%	+3.1%	+5.4%	+1.0%	+3.2%	+24.1%
Flour	+0.1%	-	+0.1%	+0.2%	+2.0%	+2.1%	+3.3%	+0.8%	+6.6%	+16.1%
Biscuits	+2.3%	+2.1%	+5.7%	+4.1%	+5.7%	+9.3%	+4.9%	+3.5%	-1.9%	+41.6%
Cakes	+2.2%	+2.5%	+3.8%	+2.9%	+4.8%	+5.1%	+6.2%	+3.4%	+0.2%	+35.5%
Breakfast Cereals	+1.0%	+8.2%	+12.3%	+4.9%	+9.9%	+2.2%	+1.1%	-0.1%	-0.5%	+45.2%
Other cereals	-0.4%	-0.1%	+2.2%	+2.4%	+3.1%	+2.7%	+2.0%	+2.1%	+1.2%	+16.2%
Other bread and cereals	+0.7%	+1.6%	+3.0%	+1.1%	+2.1%	+4.6%	+3.2%	+0.7%	+0.7%	+19.0%
Overall bread & cereals	+2.5%	+2.6%	+3.8%	+3.1%	+4.1%	+4.5%	+4.2%	+1.8%	+0.9%	+30.8%

Source: CSO

Figure 8.4 demonstrates the retail price indices for bread and cereals¹⁹ (CPI) and the producer price for bread, flour and confectionery (PPI). The retail price of bread and cereals has risen by approximately 31 percent, while the producer price for bread, flour and confectionery has increased by 23 percent. The producer price index for NACE 156 (manufacture of grain milling, starches and animal feeds) was not used in this analysis as the proportion of its constituent products that go into the manufacture of consumer cereal products is very low.

Figure 8.4 Comparison of CPI Bread and Cereals and PPI Bread, Flour and Confectionery (Jan. 1995 =100)

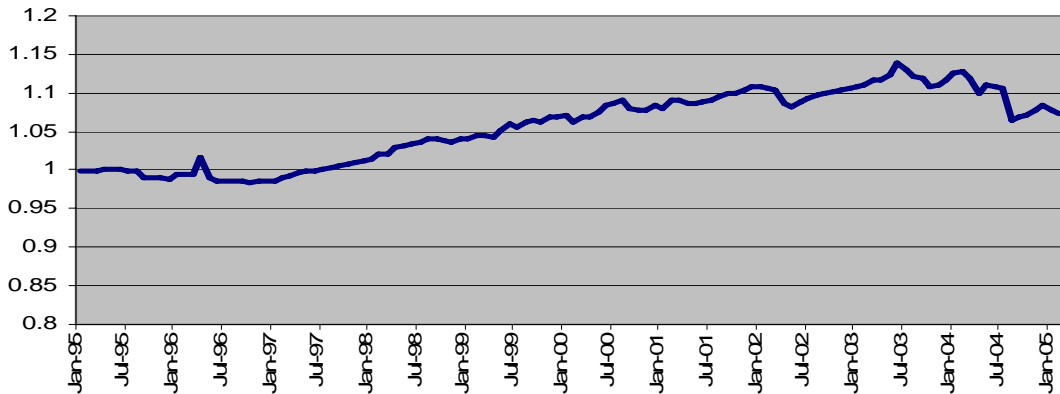


Source: CSO

This is further illustrated in Figure 8.5, which shows consumer prices relative to producer prices. The overall trend is that consumer prices for bread and cereals have increased relative to producer prices for bread, flour and confectionery. More recently, however, there appears to be a decline in consumer prices relative to producer prices.

¹⁹ The bread and cereals category includes bread, flour, biscuits, cakes, breakfast cereals, other cereals and other bread and cereals

Figure 8.5 Relative Price Change: CPI Bread & Cereals vs. PPI Bread, Flour and Confectionery (Base January 1995 = 100)

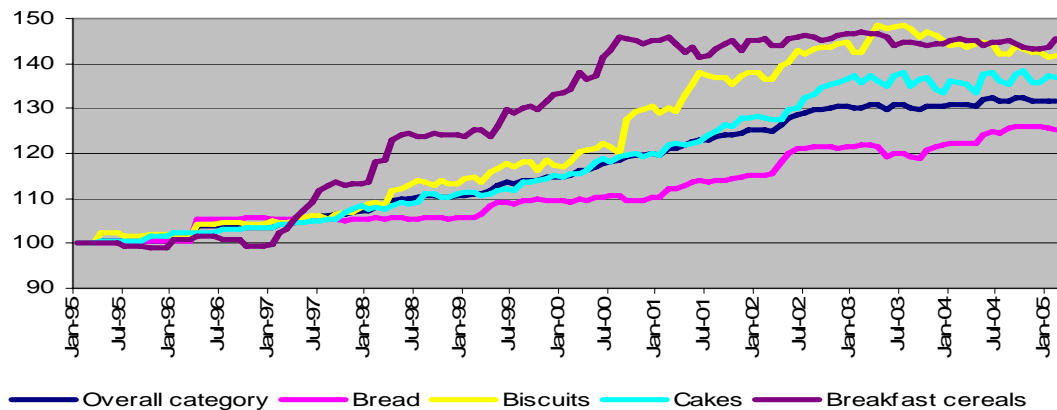


Source: CSO

8.4 Price Trends – Bread and Cereals Sub-Categories

An examination of monthly price movements shows that the price of the overall bread and cereals category, increased by 32 percent (*Figure 8.6*). Within the category, sub-category prices increased by varying amounts. Bread, the largest sub-category, experienced the lowest rate of inflation (+25 percent). Breakfast cereals (+45 percent) and biscuits (+42 percent) experienced the highest rate of inflation over the period.

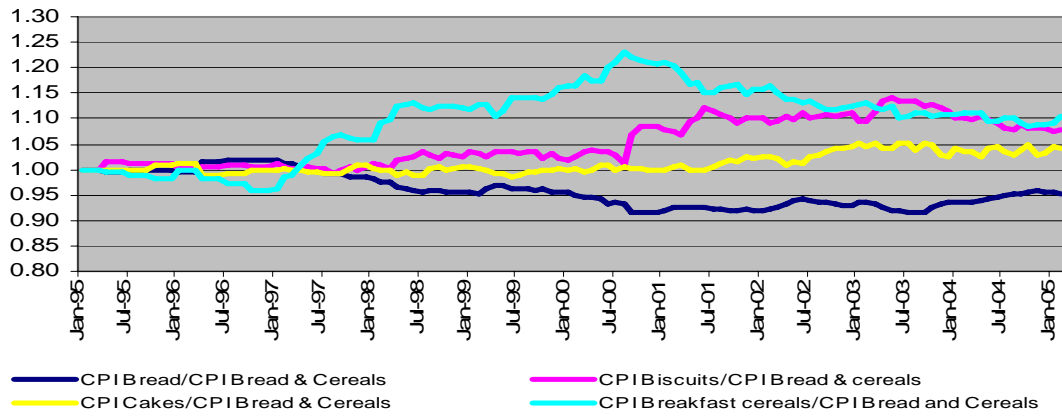
Figure 8.6 Retail Price Indices: Overall Bread and Cereals and Sub-Categories (Jan 95=100)



Source: CSO

These figures are reflected in *Figure 8.7* where the price of bread has fallen relative to the category average while breakfast cereals and biscuits have increased.

Figure 8.7 Retail Price Relativities: Sub-Categories vs. Overall Bread and Cereals



Source: CSO

8.5 Conclusion

Bread and cereal retail prices have increased by 31 percent over the last decade, which is just greater than the increase in overall food prices. Biscuits and breakfast cereals increased by more than the overall bread and cereals category, while the remaining four increased by less than the overall category.

9. VEGETABLES CATEGORY

9.1 Introduction

Vegetables account for almost 13 percent of the typical Irish food basket, which makes this the fourth largest food category. The COICOP classification utilized by the CPI, divides the overall vegetables category into five sub-categories: potatoes, other fresh vegetables, tinned vegetables, frozen vegetables and other vegetable products. The breakdown of the vegetable product categories can be seen in *Table 9.1*.

Table 9.1 CSO Consumer Price Weightings for Vegetable Products

Vegetable Products	%
Potatoes (10 kg & 2.5 kg)	22.0
Other Fresh Vegetables (<i>e.g.</i> tomatoes, onions, mushrooms, etc.)	37.9
Tinned Vegetables (<i>e.g.</i> peas, baked beans, sweetcorn, etc.)	7.9
Frozen Vegetables (<i>e.g.</i> mixed veg., chips/French fries, etc.)	10.5
Other Vegetable Products (<i>e.g.</i> potato crisps, coleslaw, etc.)	21.7
Total	100

Source: CSO

9.2 Data Availability and Sourcing

Horticultural products purchased by Irish consumers are not necessarily produced in this country. In fact, in 2003 Ireland imported €344m of fresh fruit and vegetables²⁰. Thus, vegetable prices quoted at retail level are not necessarily those of domestically produced products. Thus, linking retail prices to agricultural prices is problematic.

The CPI reports retail prices for a fixed basket of vegetable products over time. NAPs are reported as well as the actual consumer price index itself.

A producer price index is reported for the NACE category 153 (Processing and preserving of fruit and vegetables). The relevance of this category in the case of fresh vegetables comes into question given that a large quantity of vegetables bypasses processors and goes directly or via facilitators to retail stores. NACE 153 is more related to the tinned, frozen and 'other vegetable' sub-categories. However, further restrictions are placed on the kinds of analyses that can be carried out because separate indices are not provided for vegetables or fruit subcategories.

This section of the report focuses on consumer prices as provided by the CPI. Due to the seasonal nature of vegetables with fluctuating sales over particular periods, a simple

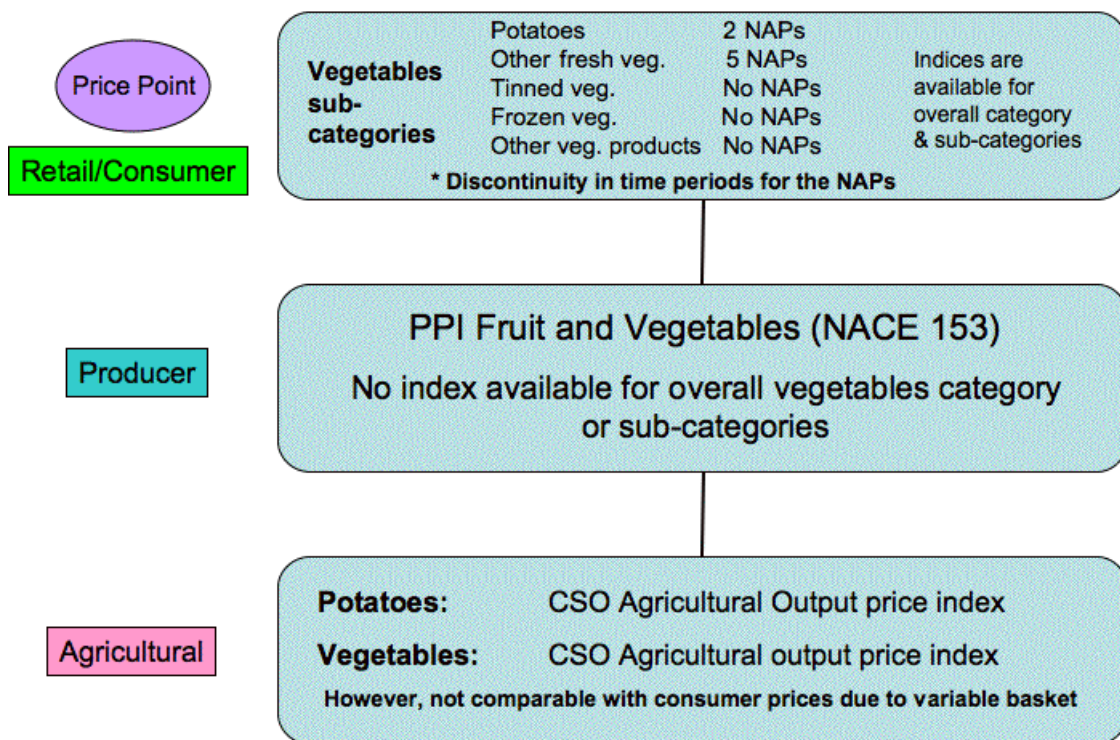
²⁰ Forfás: *Fruit and Vegetables Pricing Study*, (November 2004).

twelve-month rolling average was applied to retail prices in order to present a more general/smoothed trend.

At agricultural level, farm gate prices are collected by the CSO for the Agricultural Output Price Indices, which measure trends in the price of agricultural produce sold by farmers. Due to the highly seasonal nature of vegetables, variable monthly baskets are used. These baskets include a differing range of vegetables dependent on seasonality. Consequently comparing the overall Vegetables Output Index to a consumer basket at retail level is problematic. As we shall see, pack size also introduces complexities into the analysis.

Figure 9.1 outlines the data sources and availability of the vegetable category.

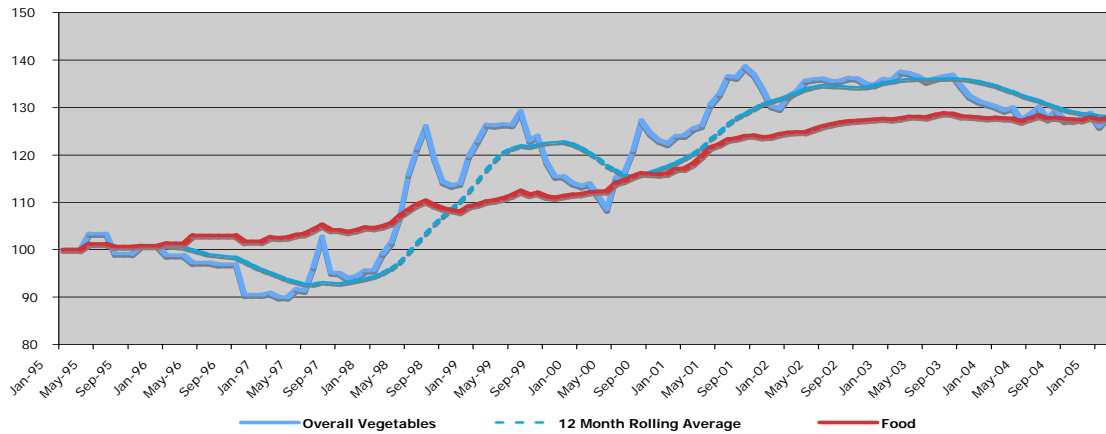
Figure 9.1 Data Sources and Availability for Vegetables



9.3 General Price Trends

Figure 9.2 shows that, similar to overall food, the price of vegetables increased by about 28 percent over the last ten years. However, for the majority of the period vegetable prices exceeded food prices but a sustained period of deflation since September 2003 have brought vegetable prices back into line.

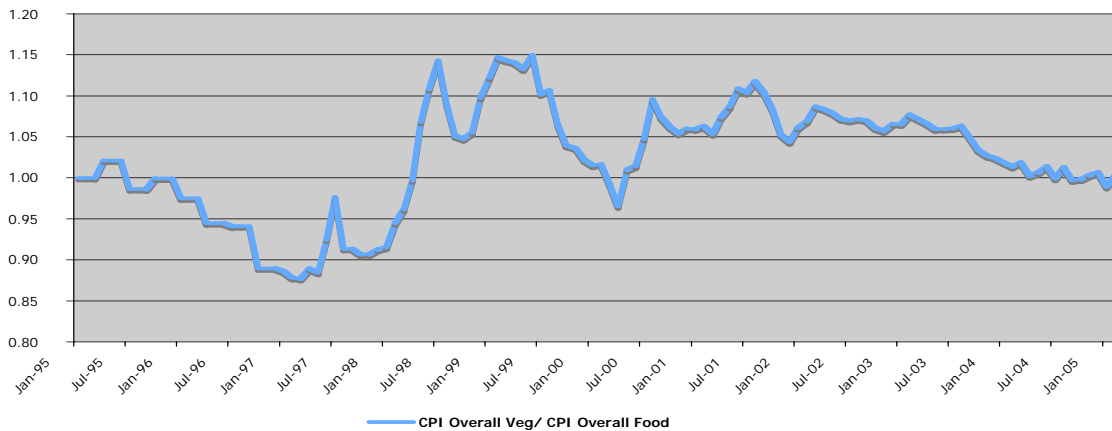
Figure 9.2 Retail Price Indices: Overall Vegetables vs. Food (Jan 1995 =100)



Source: CSO

Figure 9.3 demonstrates that the price of vegetables increased substantially relative to overall food prices during the period March 1997 to June 1999. Since then, the relative price of vegetables continued to decline albeit with one inflationary period from April 2000 to August 2001.

Figure 9.3 Retail Price Relativities: Overall Vegetables vs. Food



Source: CSO

Table 9.2 gives an account of the year-on-year percentage change over the vegetable sub-categories. Potatoes have experienced significant price increases during 1998, 1999 and 2001, while deflation is evident in 2003 and 2004. The increase in the price of other fresh vegetables has been considerably lower than potatoes. Similar to potatoes however, deflation has occurred in the category since 2003.

The high inflation experienced annually in the tinned vegetables category is clearly highlighted, most noticeably in 1998, 1999 and 2000. Whilst frozen vegetable prices

underwent many deflationary periods, a marked increase in prices occurred in 1999. Other vegetable products have consistently increased year-on-year, with the exception of 2004 where all three categories underwent varying degrees of deflation.

Table 9.2 Annual Percentage Change in Retail Prices for Vegetable Sub-Categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % Change
Potatoes	-8.3%	+4.5%	+41.2%	+15.7%	-11.8%	+15.8%	+1.9%	-0.3%	-10.0%	+46.5%
Other fresh vegetables	-6.6%	-13.1%	+13.0%	+0.6%	+1.9%	+12.1%	+6.7%	-1.0%	-5.9%	+15.4%
Tinned Vegetables	+4.8%	+3.8%	+8.2%	+7.0%	+7.7%	+5.2%	+3.7%	+4.5%	-0.8%	+59.2%
Frozen Vegetables	-8.4%	-7.5%	+3.5%	+11.0%	-2.3%	+2.3%	+4.5%	-1.0%	-1.6%	-1.0%
Other Veg. Products	+5.8%	+2.9%	+1.3%	+6.9%	+7.4%	+6.9%	+3.1%	+0.6%	-0.3%	+44.3%
Overall Vegetables	-4.9%	-2.0%	+19.6%	+8.9%	-3.2%	+11.3%	+2.7%	-0.1%	-4.8%	27.7%

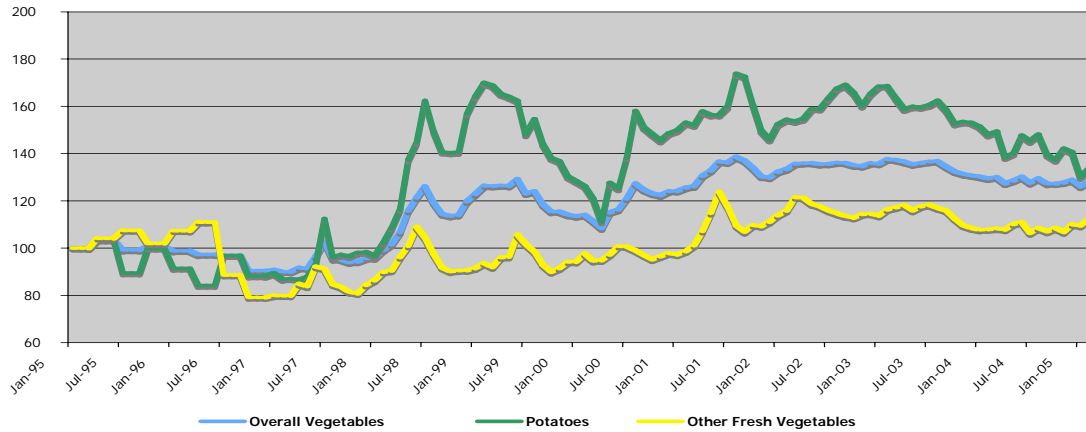
Source: CSO

9.4 Price Trends – Fresh Vegetable Sub-Categories

Figure 9.4 traces price movements by month and compares the sub-categories for potatoes and other fresh vegetables with the overall category²¹. While retail prices for vegetable products in general have risen by 28 percent over the review period, there has been a substantial difference in inflation rates between the two fresh vegetables sub-categories.

Figure 9.4 Retail Price Indices: Overall Vegetables vs. Fresh Vegetables Sub-Categories (January 1995 = 100)

²¹ The base period is January 1995=100. Year on year percentage changes are presented in table 9.2.



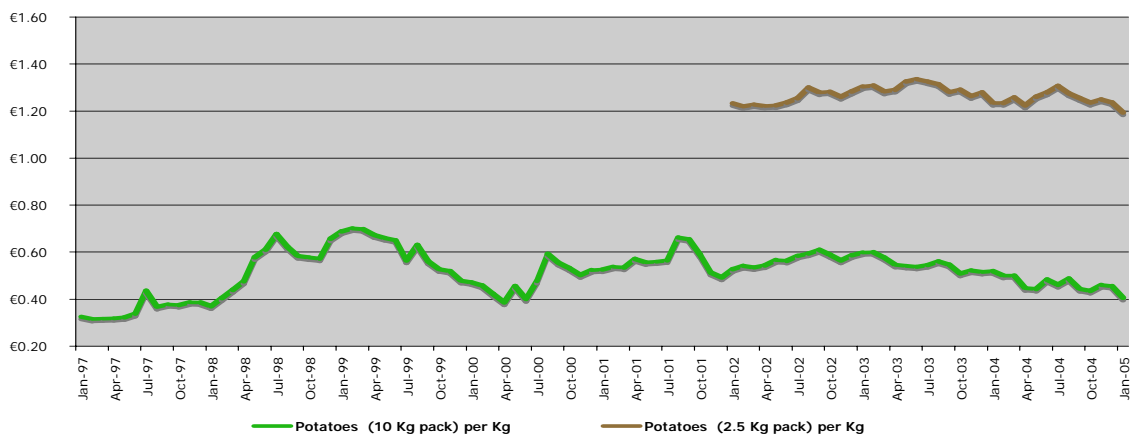
Source: CSO

9.4.1 Potatoes

The CSO collect retail prices for both 10 and 2.5 kg pack sizes of potatoes. Taking these national average prices and analysing the variations in price per kg highlights the price savings associated with larger pack sizes.

Figure 9.5 demonstrates that the 10 kg pack of potatoes have ranged in price from 40 cent to 70 cent per kg over the 1997-2004 period. This compares with a price range from €1.30 to €1.34 per kg for the smaller 2.5 kg pack size. In addition to differences in the price per kg, there is also clear evidence of differences in inflation rates. While the prices of the 2.5 kg pack size have remained stable since price checks began in December 2001, the price of the 10 kg pack size has fallen by 23 percent.

Figure 9.5 Potatoes Retail Prices (€ per Kg)



Source: CSO

9.4.2 Other Fresh Vegetables

Figure 9.6 shows the different price trends at retail level for other fresh vegetable products²². The figure highlights the periodic fluctuations due to seasonality over the vegetable products, most noticeably for tomatoes and broccoli.

Carrot prices increased by approximately 34 percent over the period. However, more noticeable are the seasonal fluctuations with spike price rises of up to 80 percent during the summer months.

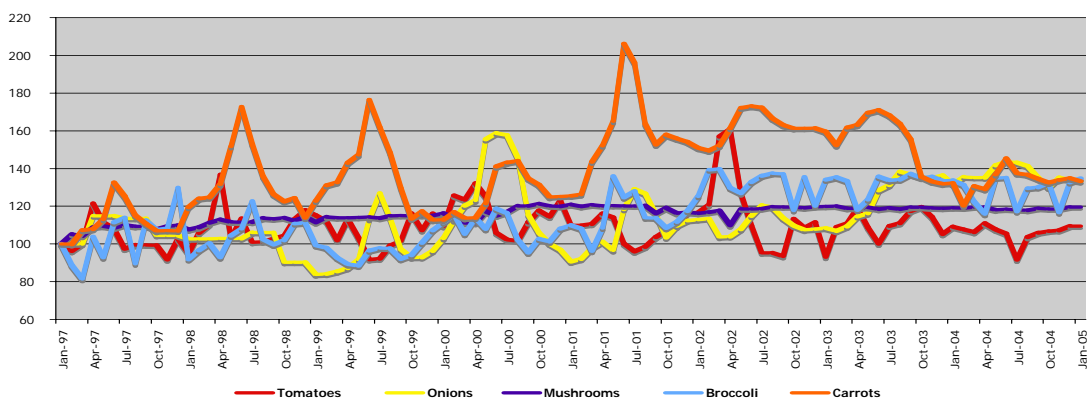
Onion prices have risen by over 30 percent over the period. One of the more noticeable features about this product is that prices experienced a sustained period of inflation between February 2003 and August 2004. Since then there is evidence of some price deflation.

Mushroom prices have increased by about 20 percent over the period. By contrast to the other fresh vegetable products, the most notable feature about mushroom prices is the lack of seasonal variations, most likely due to the controlled production systems.

Broccoli, the most expensive vegetable per kg, displays substantial price variations. Prices fell below January 1997 levels on a regular basis until April 2001, after which it appears that a higher average price level has been achieved. Prices at January 2005 were 35 percent higher than January 1997 levels.

Tomato prices also display seasonal variations, with higher prices achieved during the months of March/April. Despite these variations, prices below the January 1997 levels are not uncommon throughout the period under review (July-Sept 2002, Jan 2003, and July 2004). Tomato retail prices show little evidence of inflation over the review period with a total increase of just 9 percent.

Figure 9.6 Other Fresh Vegetable Prices (January 1997 = 100)



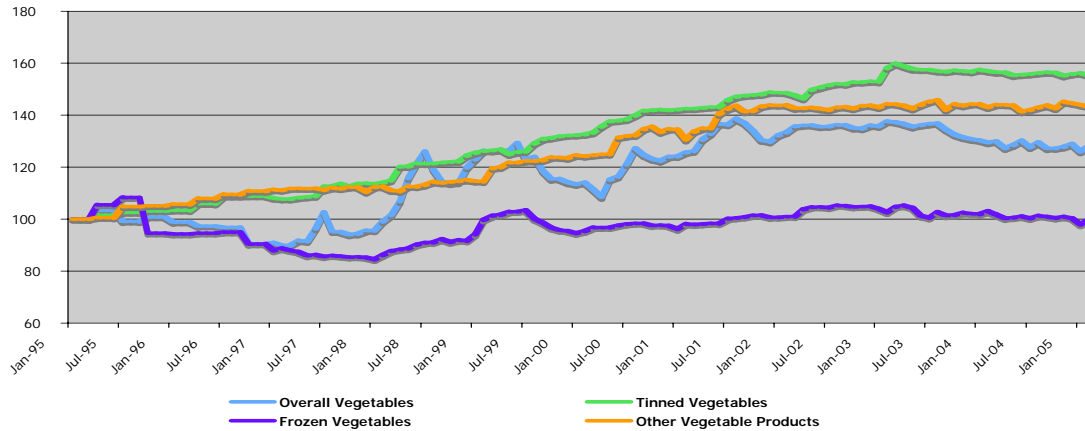
Source: CSO

9.5 Price Trends – Processed Vegetable Sub-Categories

²² Figures here refer to January 1995 to January 2005, and not total annual percentage change for the review period.

Figure 9.5 shows the changing price trends for the for processed vegetables sub-categories. The feature to note is the substantial increase in the price of tinned vegetables over the period. The majority of the price increase, almost 60 percent, had occurred by March 2003. Other vegetable products also display substantial inflation over the period increasing by 43 percent in total. In contrast to these products, frozen vegetables display no inflation over the same period.

Figure 9.7 Retail Price Indices: Overall Vegetables vs. Processed Vegetables Sub-Categories (January 1995 = 100)



Source: CSO

9.6 Conclusion

Vegetable prices at consumer level have risen by 28 percent in total over the period under review, which is in line with price changes in the overall food category. Rising prices may be attributed to a keener interest on the part of the consumer in the appearance, quality and traceability of vegetables instore, which has led to escalating costs (hygiene, traceability, wastage etc.) on the part of the retailer²³. For the purpose of this report, the vegetable category is divided into two loose sections: fresh vegetables and processed vegetables.

Based on year-on-year percentage change, overall potatoes have increased by about 47 percent. The two potato products included in the report were potatoes 10 kg and potatoes 2.5 kg. In order to examine the influence of pack size over pricing, both products were analysed in terms of price per kg. This highlighted the great difference in retail price between the two potato products, the smaller pack size commanding more than double the price of the larger pack size. Other fresh vegetable products have also increased, but by a lesser 15 percent. Some fresh vegetables reveal high levels of inflation: broccoli at 35 percent, carrots at 34 percent and onions at over 30 percent; other fresh vegetables show relatively low levels of increase: mushrooms at 20 percent and tomatoes at 9 percent.

²³ Forfás: *Fruit and Vegetables Pricing Study*, (November 2004).

10. FRUIT CATEGORY

10.1 Introduction

Fruit accounts for 5.32 percent of the Irish consumer's overall grocery expenditure. The COICOP classification system segregates the fruit category into two sub-categories: 'fresh fruit' and 'other fruits'. The fresh fruit sub-category contains all non-processed fresh fruit, *e.g.* apples, oranges, etc. whereas other fruit includes a mix of processed fruit products, *e.g.* tinned peaches, etc. The breakdown of fruit product weightings within the Consumer Price Index are given in *Table 10.1*.

Table 10.1 CSO Consumer Price Weightings for Fruit Products

Fruit Products	%
Fresh fruit	87
Other fruits	13
Total	100

Source: CSO

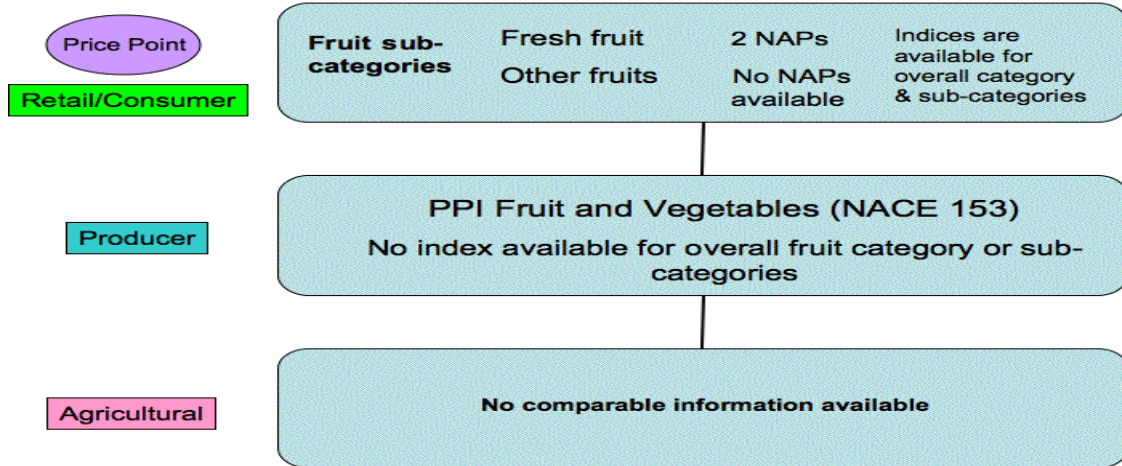
10.2 Data Sourcing and Availability

Irish produced fruit does not constitute a significant part of Irish consumers' fruit basket. This is reflected by the fact that the two NAPs reported consist of bananas and grapes. Consequently linking consumer/retail prices to agricultural prices for fresh fruit products is not particularly useful. There also exists a gap in information for the sub-category 'other fruits' as neither price index series nor national average prices are available for individual products.

Strawberries and apples are the dominant fruits produced in Ireland. However, the former fruit is not reported in the CPI listings and despite the inclusion of both eating and cooking apples in the category, no information at consumer/retail level is provided.

At producer level information related to the preserving and processing of fruit products comes under the NACE category 15.3 "Processing and preserving of fruit and vegetables". Due to confidentiality concerns, the CSO does not release either producer prices in actual or index form for fruit or vegetable subcategories. Consequently, there exists a substantial gap in information at both of these levels. *Figure 10.1* outlines the data sources and availability of the fruit category.

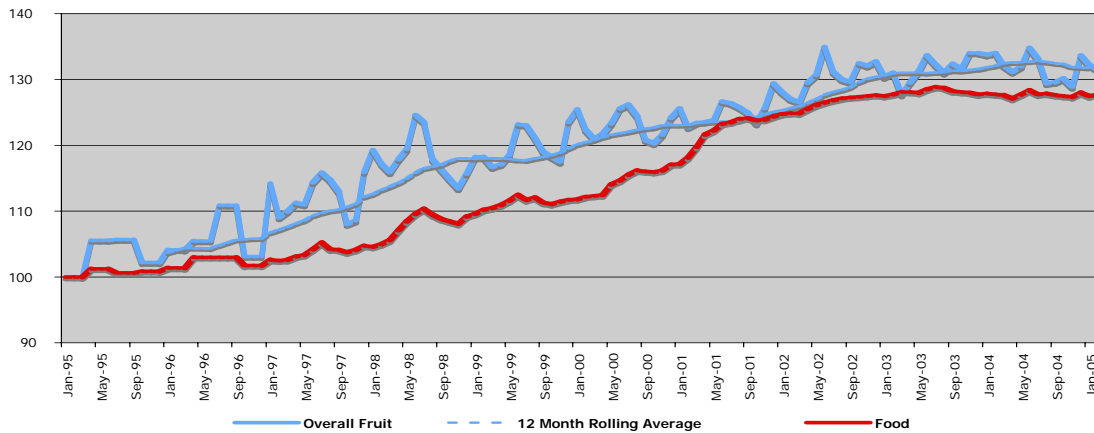
Figure 10.1 Data Sources and Availability for Fruit



10.3 General Price Trends

Figure 10.2 demonstrates that fruit prices increased by approximately 33 percent compared to a 28 percent increase in the price of overall food during the review period based on January 1995 as the base month²⁴. Fruit prices rose most rapidly from 1996 through to 1998, at which stage the rate of increase began to decline. Fruit prices began to increase once more in August 2001 until prices began to stabilise in January 2003.

Figure 10.2 Retail Price Indices: Overall Fruit vs. Food (January 1995 = 100)

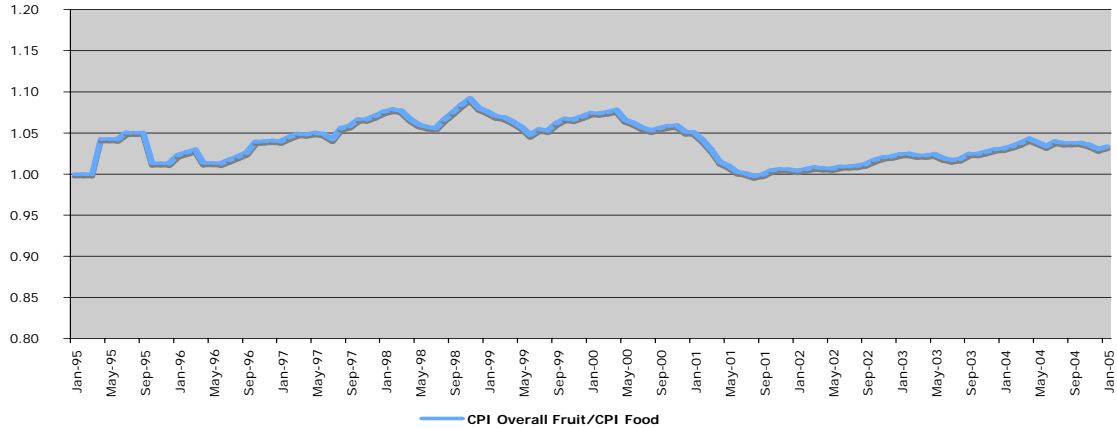


Source: CSO

²⁴ Analysis by base month (January 1995= 100) can overestimate the overall inflation rate, as seasonality is apparent in the fruit category. The year-on-year gives a more representative account of inflation of the category and can be seen in *Table 10.1*.

Figure 10.3 demonstrates the price of fruit relative to food in general over the review period. The most noticeable feature is that the relative price of fruit increased during the mid to late nineties. By 2000, this trend was reversed but since mid-2001 the relative price of fruit had begun to increase, albeit at a lower pace.

Figure 10.3 Retail Price Relativities: Overall Fruit vs. Food



Source: CSO

Table 10.1 illustrates the year-on-year percentage change over the two fruit sub-categories fresh fruit and other fruit products. In relation to fresh fruit products, the sharpest retail price increases occurred in 1997, 1999 and 2002, accounting for an overall increase of 16.5 percent. Later years show that price movement began to slow down, leading to a price decrease in 2004.

The annual percentage change of other fruit product prices displays a consistent rise over the last decade. The sharpest annual price increase occurred in 2004, but annual prices began to escalate prior to this, leading to a total increase of about 18 percent over the three-year period 2002 to 2004.

Table 10.1 Annual Percentage Change in Retail Prices for Fresh Fruit and Other Fruit Products

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % Change
Fresh Fruit	+2.3%	+6.9%	+5.4%	+1.2%	+2.8%	+1.4%	+4.1%	+0.3%	-1.0%	+25.7%
Other fruit products	+4.0%	+0.4%	+3.8%	+1.9%	+3.6%	+3.68	+4.8%	+4.7%	+7.9%	+40.3%
Total Fruit	+2.5%	+5.9%	+5.2%	+1.3%	+2.9%	+1.7%	+4.2%	+0.9%	+0.3%	+27.7%

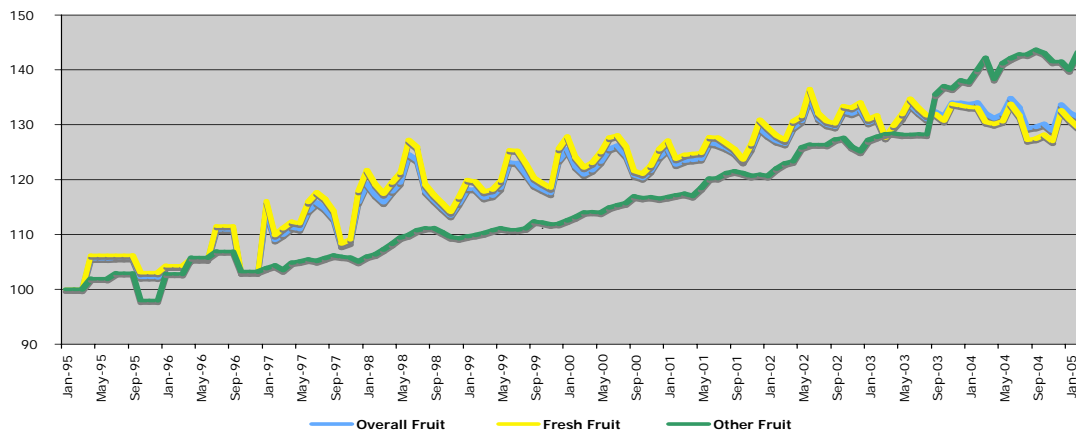
Source: CSO

10.4 Price Trends – Fruit Sub-Categories

Figure 10.4 plots the monthly price movements²⁵ of fresh fruit, other fruit, and overall fruit prices over the review period. The similarity between fresh fruit and overall fruit trends arises as fresh fruit accounts for 87 percent of the product category. As fresh fruit is a seasonal product, price fluctuations are very apparent. Despite these seasonal fluctuations, the general trend was for rising consumer prices over much of the period under review, although recent trends indicate deflationary pressures.

It is noticeable that while the price of other fruit products rose consistently throughout the period, prices increased dramatically towards the end of August 2003 and have maintained this higher price level since.

Figure 10.4 Retail Price Indices: Overall Fruit & Sub-Categories (Jan. 1995=100)



Source: CSO

10.5 Conclusion

Overall fruit product prices have increased by about 28 percent over the last decade. This is in line with overall food prices. High retail prices for fruit have been attributed to high expectations of the consumer for quality, food safety, hygiene and traceability and escalating wastage costs²⁶. Of the two fruit sub-categories, both have increased in retail price over the last ten years but to varying degrees.

Fresh fruit prices have increased by about 26 percent but trends show that prices have been stabilizing over the past two years. Other fruit product prices have also increased over the decade but to a greater extent. Increasing by 40 percent, other fruit products mark the growing demand for healthy convenient food options for the modern Irish consumer.

²⁵ Prices are based on monthly movements from January 1995 to January 2005.

²⁶ Forfás: *Fruit and Vegetables Pricing Study*, (November 2004).

11. SUGAR, JAM, HONEY, CHOCOLATE AND CONFECTIONERY CATEGORY

11.1 Introduction

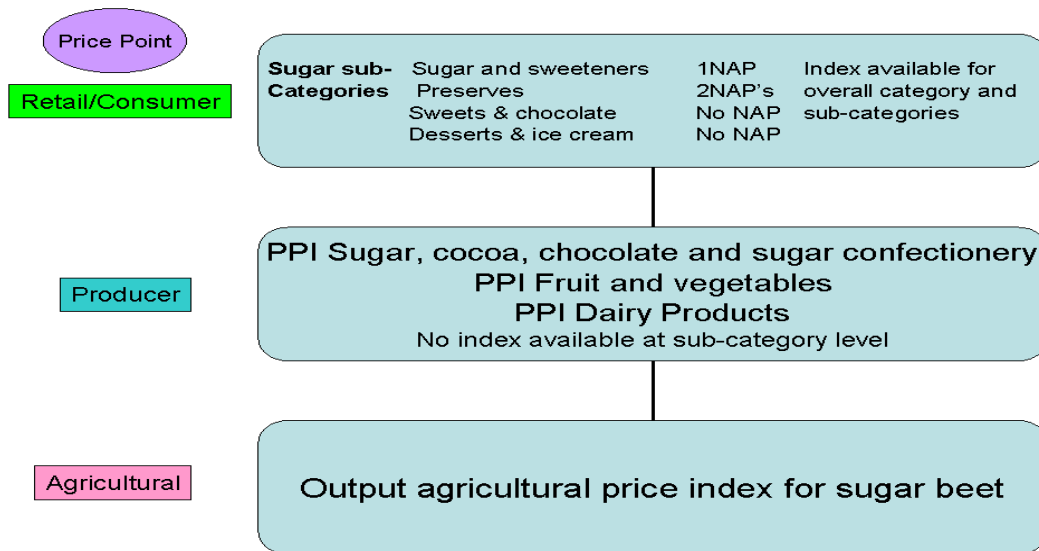
Sugar, jam, honey, chocolate and confectionery products account for 10 percent of the CSO consumer food basket. The breakdown of sugar, jam, honey, chocolate and confectionery weightings within the consumer price index is given in *Table 11.1*.

Table 11.1 CSO Consumer Price Weightings for Sugar, Jam, Honey, Chocolate and Confectionery Products

<i>Sugar, jam, honey, chocolate and confectionery</i>	<i>%</i>
Sugar and sweeteners	6.8
Preserves	7.0
Sweets and chocolates	67.6
Desserts and ice cream	18.7
Total	100

11.2 Data Sourcing and Availability

Figure 11.1 Data Sources and Availability for the Sugar, Jam, Honey, Chocolate and Confectionery Category



The CSO collects prices for 13 products in the sugar, jam, honey, chocolate and confectionery category (Figure 11.1). Of these, they currently report three national average prices (one in the sugar and sweeteners sub-category and 2 in the preserves sub-category).

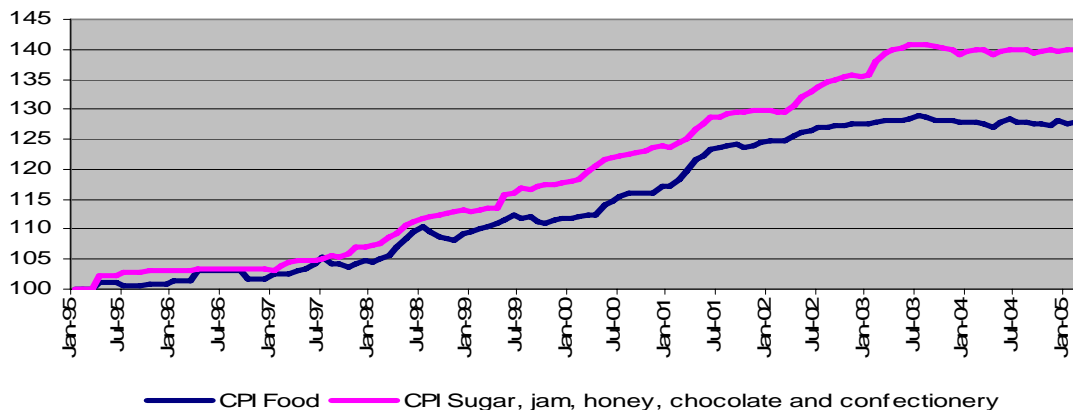
At producer level, the sugar, jam, honey, chocolate and confectionery category is covered under three different NACE categories (Figure 11.1): While the majority of products are reported under NACE 158 (manufacture of sugar (1583), cocoa, chocolate and sugar confectionery (1584)), preserves are included under the processing and preserving of fruit and vegetables (NACE 153) while ice cream is incorporated in the manufacture of dairy products (NACE 155). Thus, direct linking consumer and producer prices is problematic due to both aggregation and disaggregation issues. Also, imported product would account for a substantial share of the sweets and chocolate sub-category.

At an agricultural level, output price indices for sugar beet are available from the CSO.

11.3 General Price Trends

Figure 11.2 demonstrates the monthly trend in retail food prices versus sugar, jam, honey, chocolate and confectionery prices. Food prices increased by 28 percent, while sugar, jam, honey, chocolate and confectionery prices increased by 40 percent²⁷. Sugar, jam, honey, chocolate and confectionery prices appear to have increased in line with food prices over much of the review period. While food prices in general began to stabilise in early 2002, it is noticeable that the price of sugar products began to rise at a significantly faster rate. This is clearly demonstrated in Figure 11.3 where the relative price of sugar products increased substantially from March 2002 to April 2003.

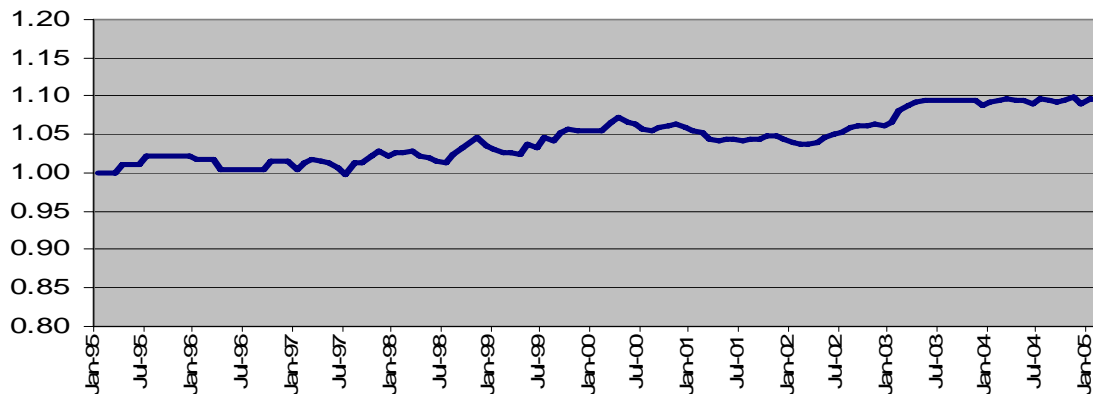
Figure 11.2 Retail Price Indices: Overall Sugar, Jam, Honey, Chocolate and Confectionery vs. Overall Food (January 1995 = 100)



Source: CSO

²⁷ Based on January 1995=100. Table 11.2 shows the annual percentage change to be approximately 37%.

Figure 11.3 Retail Price Relativities: CPI Sugar, Jam, Honey, Chocolate and Confectionery vs. CPI food



Source: CSO

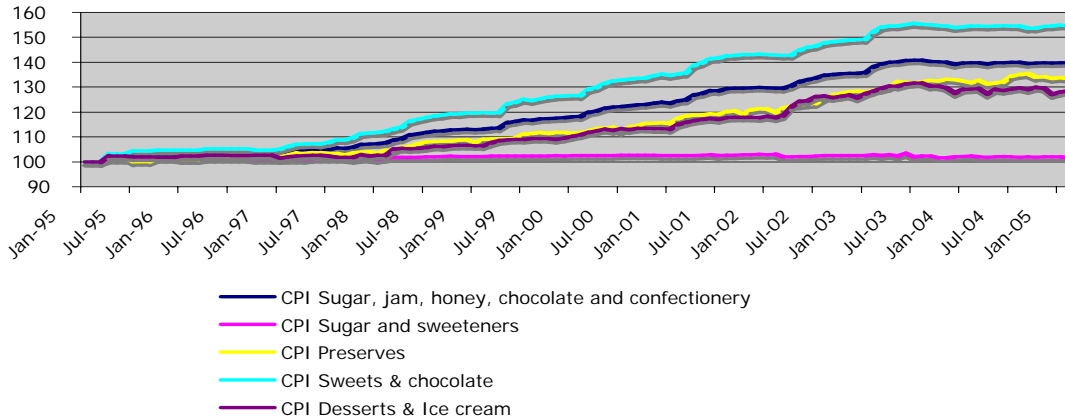
Table 11.2 presents the various sugar sub-categories and the annual percentage change in inflation over the review period. The sweets and chocolates sub-category is the major driver in this category (+50 percent), while sugar and sweeteners experienced considerably lower inflation than the overall sugar category (+1.1 percent).

Table 11.2 Annual Percentage Change in Retail Prices for Sugar, Jam, Honey, Chocolate and Confectionery Sub-categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Sugar and sweeteners	+0.3%	0.0%	+0.7%	+0.4%	+0.3%	+0.1%	-0.2%	-0.1%	-0.4%	+1.1%
Preserves	+1.2%	+1.3%	+3.2%	+3.2%	+2.9%	+4.6%	+4.2%	+5.4%	+1.4%	+32.0%
Sweets and chocolates	+1.6%	+3.0%	+7.1%	+5.6%	+6.2%	+6.1%	+4.0%	+5.2%	+0.2%	+49.6%
Desserts & ice cream	+0.9%	-0.3%	+3.0%	+3.0%	+3.4%	+3.6%	+5.5%	+4.9%	-0.7%	+27.0%
Overall sugar	+1.3%	+1.8%	+5.4%	+4.3%	+5.1%	+5.0%	+4.1%	+5.1%	+0.1%	+36.9%

While the overall price level for the category increased by 37 percent over the period, there were significant differences in the inflation rates at sub-category level. This is demonstrated in Figure 11.4 which shows that the price of sweets and chocolate, which account for almost 68 percent of the category, increased by almost 55 percent. By way of contrast, the price of sugar and sweeteners increased marginally over the entire review period.

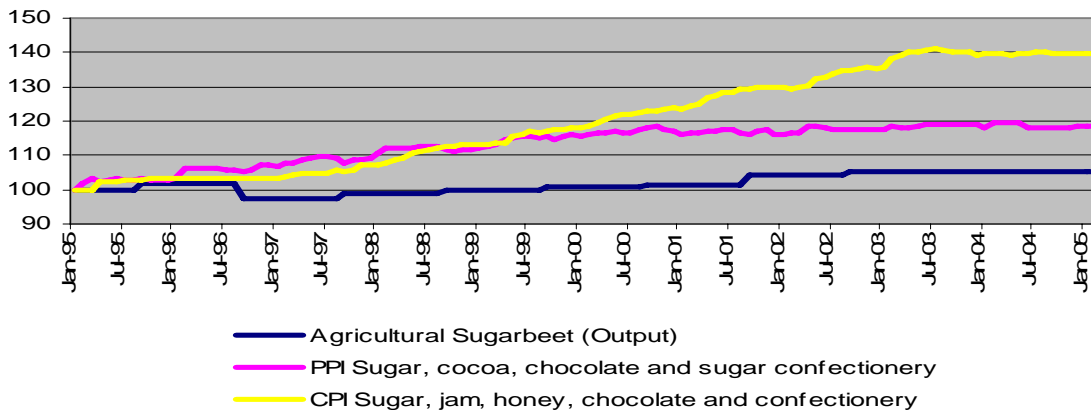
Figure 11.4 Retail Price Indices: Overall Sugar, Jam, Honey, Chocolate and Confectionery vs. Sub-Categories



Source: CSO

Figure 11.5 demonstrates price trends at retail, producer and agricultural levels. Once again, however, the reader must be reminded that linking the price series is problematic due to varying composition of the products priced at each stage. Figure 5 illustrates that prices at retail level have risen by 40 percent; prices at producer level have increased by 19 percent, while agricultural sugarbeet output prices have remained fairly static in general, with only a small increase of 5 percent over the decade. However, as we have already seen, the retail price of sugar, which would provide the most direct comparison with sugar beet, increased by only 1 percent over the period.

Figure 11.5 Comparison of Price Indices for Sugar: Agricultural vs. Producer vs. Retail



Source: CSO

11.4 Conclusion

Based on year-on-year percentage change, sugar, jam, honey, chocolate and confectionery retail prices have increased by 37 percent over the last decade, which is just greater than the increase in overall food prices. Of the four sugar sub-categories examined, the price of sweets and chocolate increased by more than the overall sugar category, while the remaining three increased by less than the overall category. Prices within the four sub-categories have remained almost constant since 2003.

12. FISH CATEGORY

12.1 Introduction

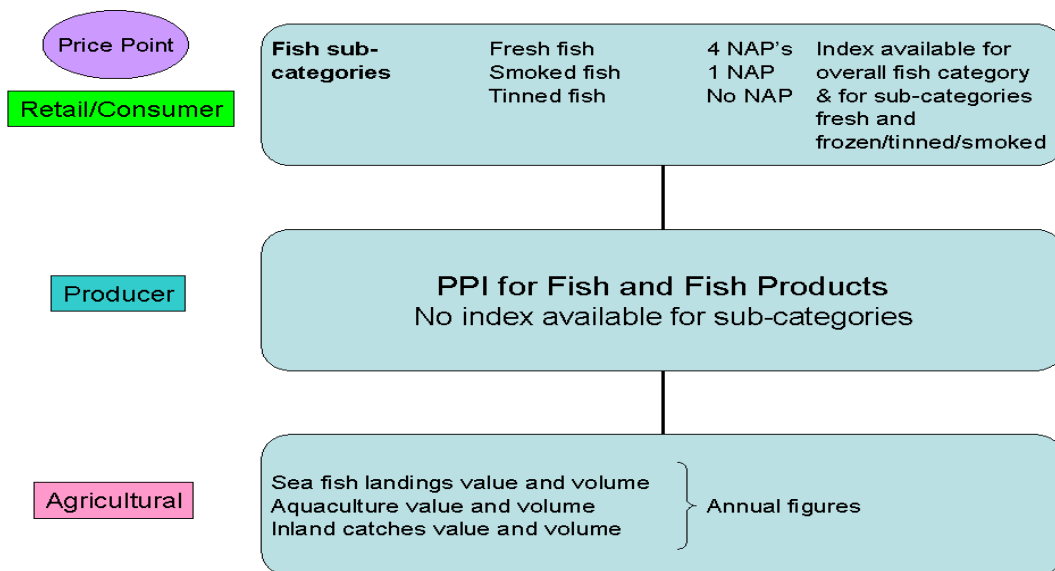
Fish accounts for 3 percent of the CSO consumer food basket. The breakdown of the fish weightings within the consumer price index is given in *Table 12.1*.

Table 12.1 CSO Consumer Price Weightings for Fish Products

<i>Fish</i>	<i>%</i>
Fresh fish	43.8
Frozen/tinned/smoked fish	56.2
Total	100

12.2 Data Sourcing and Availability

Figure 12.1 Data Sources and Availability for the Fish Category



The CSO collects prices for 10 fish products in the fresh fish and frozen/tinned/smoked fish categories. Of these, they currently report five NAP's (four in fresh sub-category and one in frozen/tinned/smoked sub-category) (*Figure 12.1*).

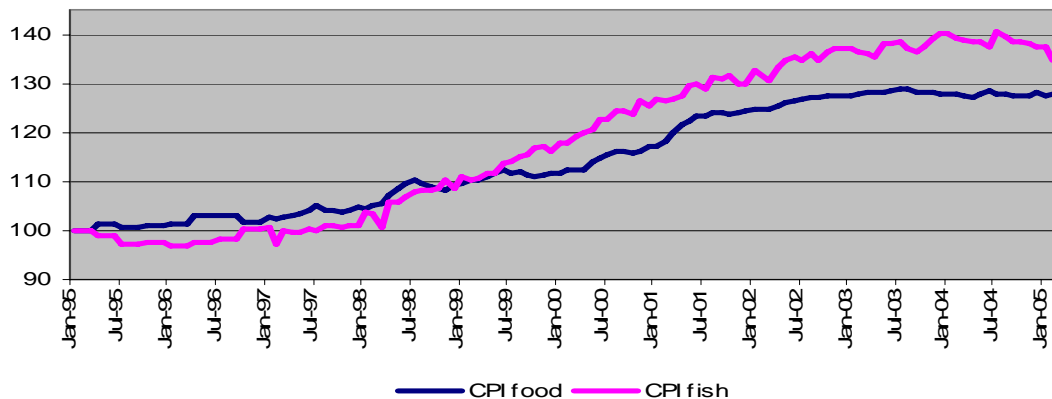
At a producer level, fish is covered under the processing and preserving of fish and fish products (NACE 152). For the purposes of this research, what we have available is a producer price index for fish and fish products (available monthly from 1995 to present).

Fishery statistics are collected by the Sea Fishery Officers of the Department of the Marine and Natural Resources. They are processed by the Sea Fisheries Control Division of the Department. Total fish produced in Ireland is made up of three categories: sea fish landings, aquaculture and inland catches. Value and volume data for these three categories are published by the CSO on an annual basis. The CSO has not published any data for any of the categories for 2003 and 2004. Monthly data is not available. Price change over the period 1995 to 2002 for the various species is presented in *Appendix 3*.

12.2 General Price Trends

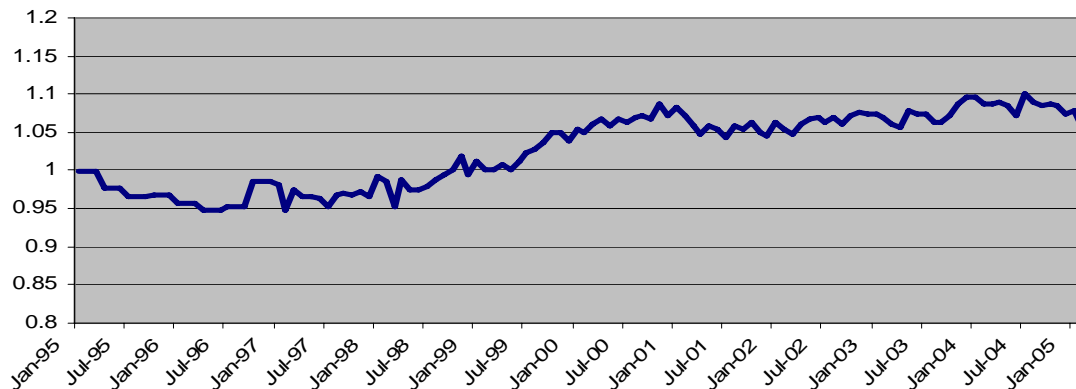
Figure 12.2 demonstrates the trend in food prices versus overall fish prices from January 1995 (base month) to present. Inflation in fish products was 35 percent over the review period, 7 points higher than for food. *Figure 12.3* displays that between January 1998 and December 2001, the relative price of fish increased consistently. This was followed by a period of relative price stability until July 2003 when fish prices began to increase again. The latter part of 2004 saw a reduction in the price of fish.

Figure 12.2 Retail Price Indices: Overall Fish vs. Overall Food (Jan. 1995 = 100)



Source: CSO

Figure 12.3 Retail Price Relativities: Overall Fish vs. Overall Food



Source: CSO

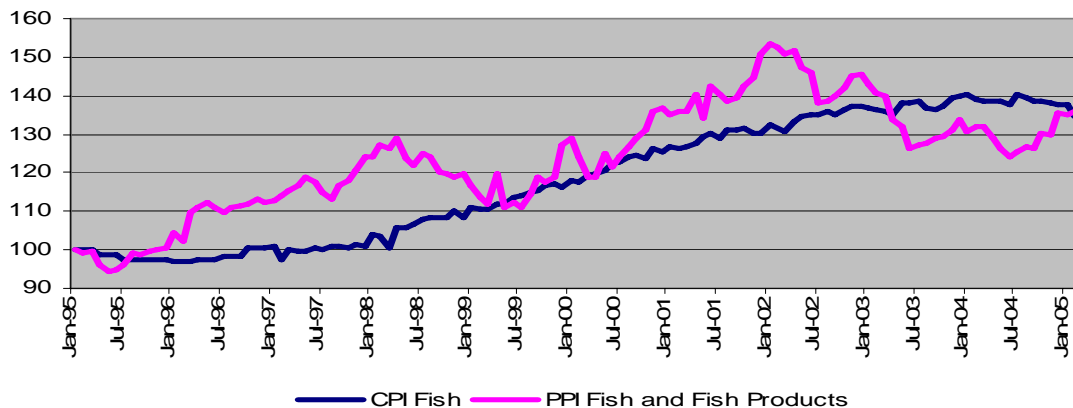
Table 12.2 demonstrates that over the period fresh fish products experienced higher inflation than frozen/tinned/smoked fish. Inflation rates peaked in 2000 at 10 percent but has been in decline since.

Table 12.2 Annual Percentage Change in Retail Prices Fish Sub-categories

Sub-Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total % change
Fresh fish	+0.8%	+3.1%	+5.5%	+6.6%	+10.1%	+5.1%	+5.5%	+3.4%	+1.6%	+49.9%
Frozen/ tinned/ smoked fish	-1.5%	-0.1%	+6.8%	+6.9%	+5.3%	+6.4%	+3.0%	+1.2%	+0.5%	+31.8%
Overall fish	-0.1%	+1.9%	+6.4%	+6.7%	+7.4%	+5.8%	+4.2%	+2.1%	+0.9%	+41.0%

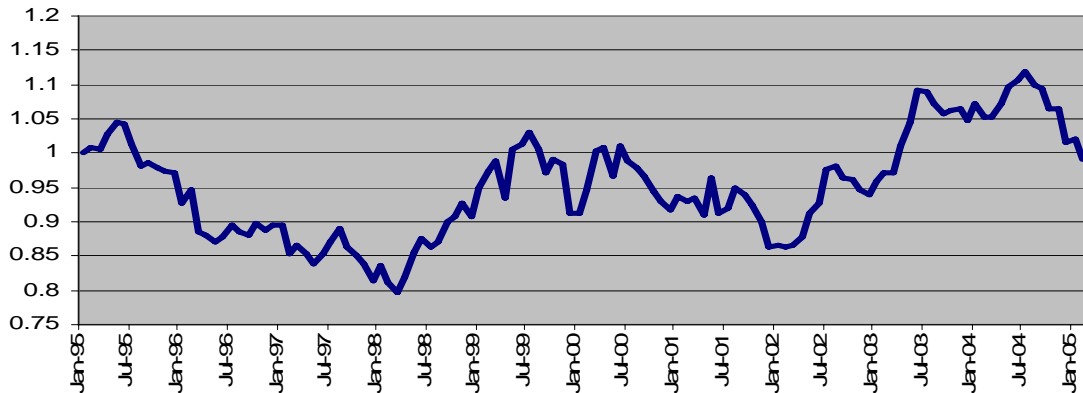
Figure 12.4 indicates that the CPI and the PPI for fish and fish products demonstrate a similar rate of inflation over the period. Despite this, there were significant differences between the indices with the PPI exceeding the CPI over much of the period. It is only since January 2003 that the PPI had fallen below the CPI. An examination of relative price movements (Figure 12.5) suggests a cyclical relationship between consumer and producer prices.

Figure 12.4 Comparison of CPI Fish and PPI Fish and Fish Products (January 1995 = 100)



Source: CSO

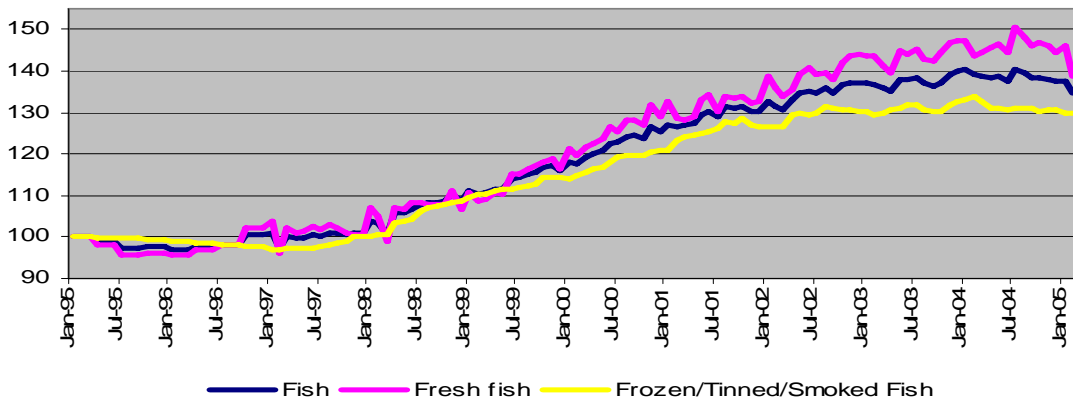
Figure 12.5 Relative Price Change CPI Fish vs. PPI Fish and Fish Products



Source: CSO

Figure 12.6 highlights the trends in fresh fish and frozen/tinned/smoked fish and overall fish prices. The dominant feature to emerge here is that prices for all three categories have increased consistently over the review period. There were sharp increases in prices for all three categories over the period January 1998 to mid-2001 and prices in all three categories have remained relatively stable at these high price levels since then.

Figure 12.6 Retail Price Indices: Overall Fish & Fish Sub-Categories (January 1995 = 100)

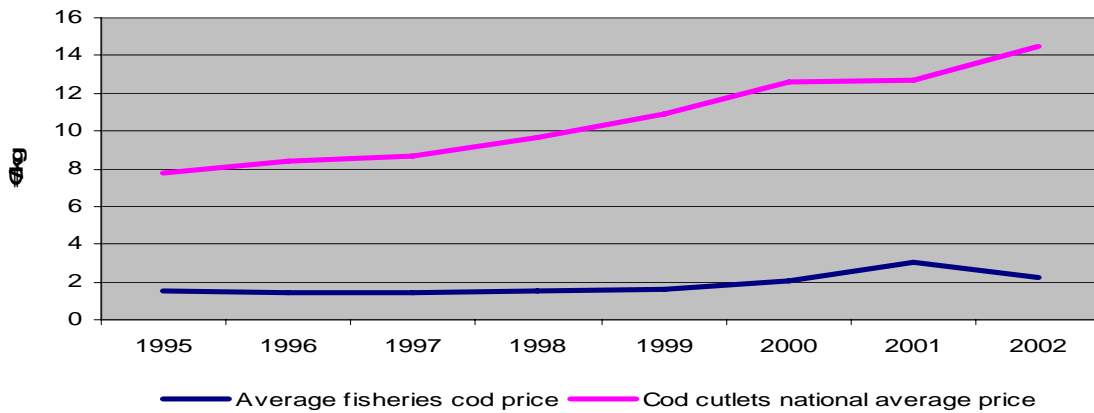


Source: CSO

Figure 12.7 presents the fisheries and retail prices for cod over the review period 1995 to 2002. Retail cod cutlet prices increased by 85 percent over the review period, while cod fish prices²⁸ rose by 51 percent. During 2001, national average prices for cod remained almost constant, while fishery prices rose by 42 percent. During the following year, retail prices increased by 23 percent, while fishery prices declined by 50 percent. Figure 12.7 demonstrates a widening marketing margin between fishery and retail prices.

²⁸ Fish price was calculated on the basis of value/volume = average fish price per kg

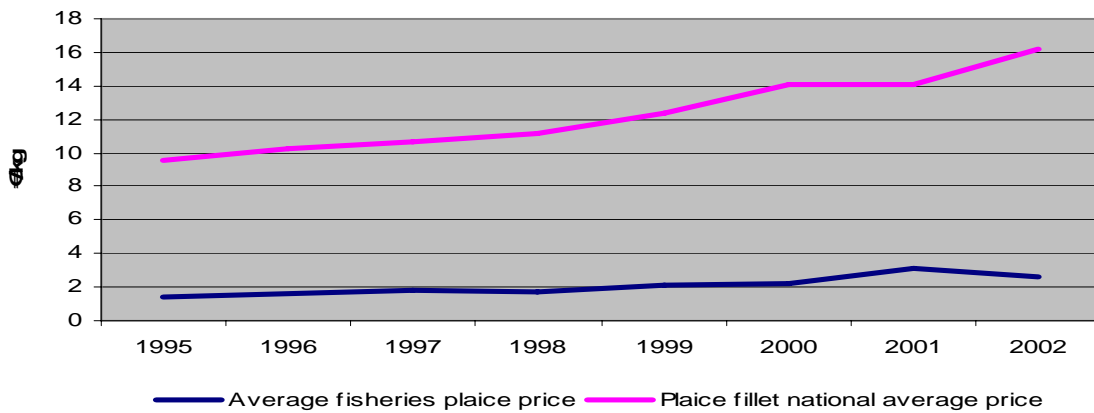
Figure 12.7 Retail – Fisheries Marketing Margin for Cod



Source: CSO

Figure 12.8 presents the price change that occurred in the plaice category. Again, the figure highlights a widening gap between retail and fishery prices.

Figure 12.8 Retail – Fisheries Marketing Margin for Plaice



Source: CSO

Figure 12.9 presents the fisheries and retail price index for whiting over the review period 1995 to 2002. Retail whiting fillet prices increased by 68 percent over the review period, while whiting fish prices rose by 19 percent.

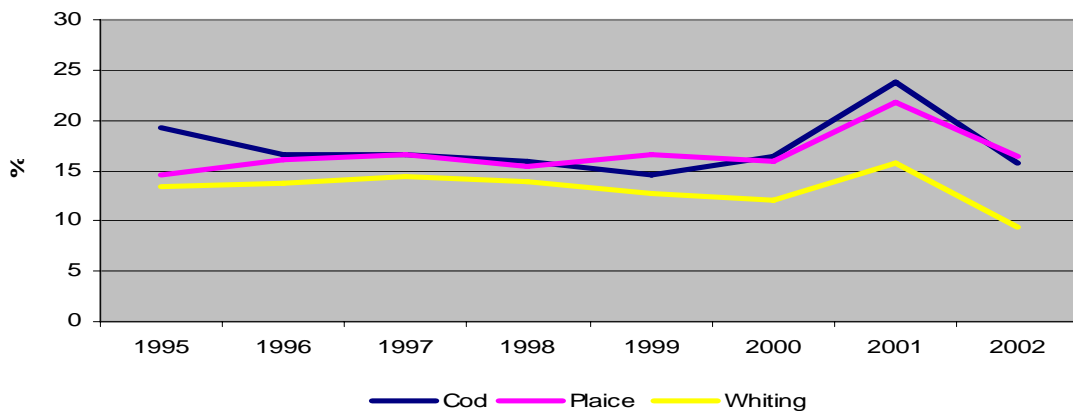
Figure 12.9 Retail – Fisheries Marketing Margin for Whiting



Source: CSO

Figure 12.10 highlights that the percentage of the national average price received by the fisherman for both plaice and whiting remained relatively constant over the review period. The percentage did increase in 2001. However, 2002 saw the percentage decline.

Figure 12.10 Percentage of National Average Price Received by Fisherman



Source: CSO

12.3 Conclusion

Retail prices for fish have increased by 41 percent based on total annual percentage change. This rise in consumer prices has been faster relative to overall food prices. The discontinuity in prices at fisheries level means that analysis of price trends can only be carried out up to the year 2002.

13. EGGS CATEGORY

13.1 Introduction

Eggs comprise about 1 percent of the overall food basket. This food category exists as part of the COICOP classification ‘milk, cheese and eggs’, but due to the re-weighting of this category in order to separate dairy products into an individual group, ‘eggs’ remains as a separate category (with no sub-categories) for the purpose of this project. Two products account for the eggs category – large eggs and medium eggs.

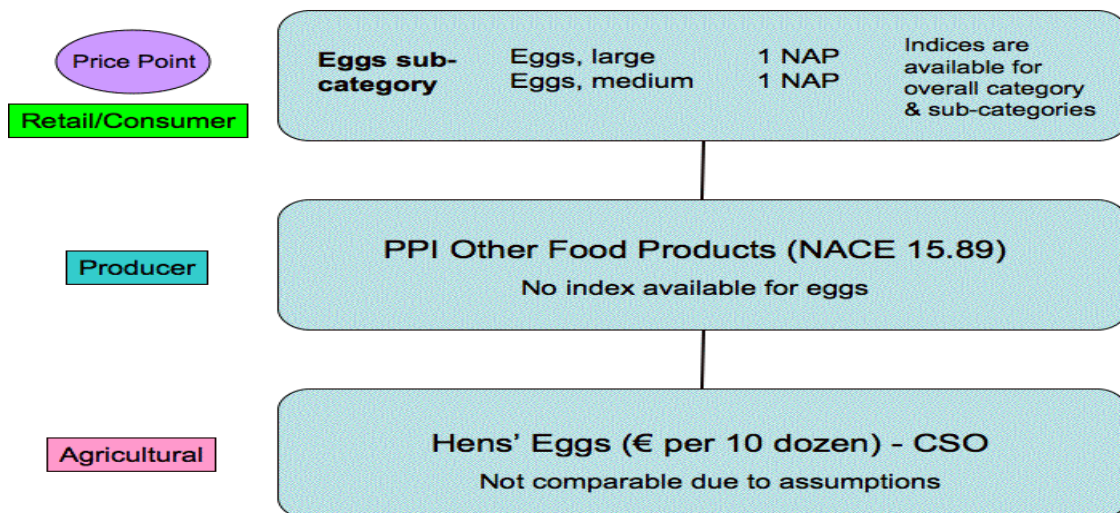
13.2 Data Sourcing and Availability

There is a wide variety within the eggs category with different production systems including “Eggs from cages”, “Free range eggs”, “Barn eggs” and “Organic”, sizes and grades generating a large number of divergent price points on the supermarket shelf. The CSO collect prices for two varieties, large (grade 2) and medium (grade 3) eggs for which national average prices are available.

Eggs producer prices are classified under the NACE category 15.89 (‘Manufacture of food products’). As this NACE category is so broad in nature, information at this level is not comparable with prices collected at retail level.

Agricultural/farm (hens’ eggs) prices are available from the CSO through the Agricultural Price Index (API). However, hen egg prices at farm level are not allocated a grade/size, so comparing farm-gate prices to retail prices is problematic. *Figure 13.1* outlines the data sources and availability of the eggs category.

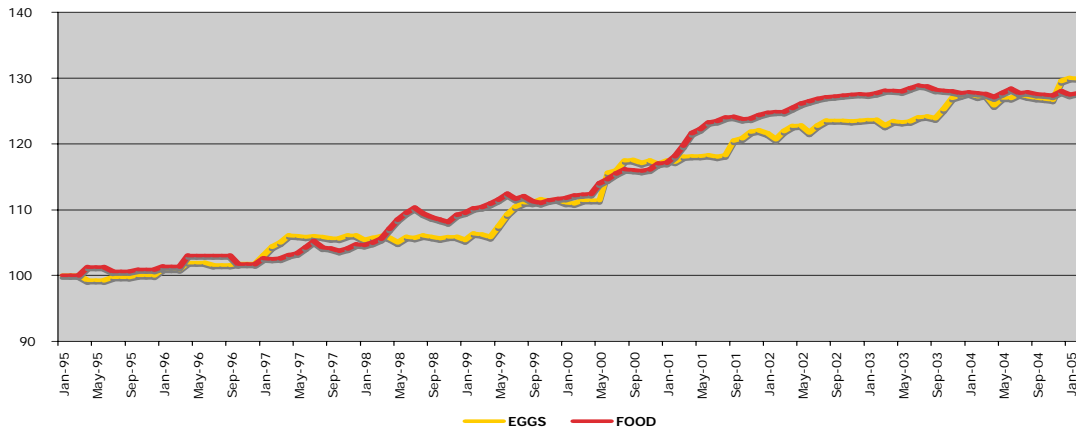
Figure 13.1 Data Sources and Availability for the Eggs Category



13.3 General Price Trends

The retail price of eggs has increased by 30 percent over the last decade, where January 1995 is the base month. This is in line with the increase in overall food prices which rose by 28 percent. *Figure 13.2* displays the gradual but sustained increase in prices over the period.

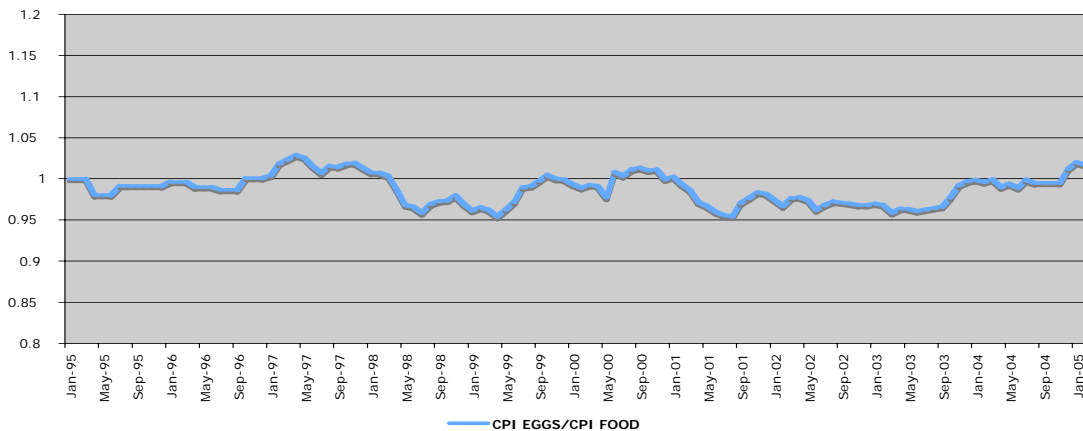
Figure 13.2 Retail Price Indices: Overall Eggs vs. Food (January 1995 = 100)



Source: CSO

The change in the retail price of eggs relative to overall food is demonstrated in *Figure 13.3*. It highlights little variation throughout the review period, with the price of eggs generally falling relative to overall food. This trend was slightly offset towards the end of the period where eggs prices increased marginally.

Figure 13.3 Retail Price Relativities: Overall Eggs vs. Food



Source: CSO

14. OILS & FATS

14.1 Introduction

Oils and fats are a small designated CSO category basket accounting for about 1 percent of the overall retail food basket. These products include: margarine, low fat spreads, cooking oils and fats, olive oil and other flavoured oils. The oils and fats category has been re-weighted for the purpose of this report. Butter has been extracted from the category in order to include the product in the new dairy category. Two sub-categories now account for the oils and fats category: margarine and low fat spreads and other oils and fats. The breakdown of oils and fats product weightings within the Consumer Price Index are given in *Table 14.1*.

Table 14.1 CSO Consumer Price Weightings for Oils and Fats Products

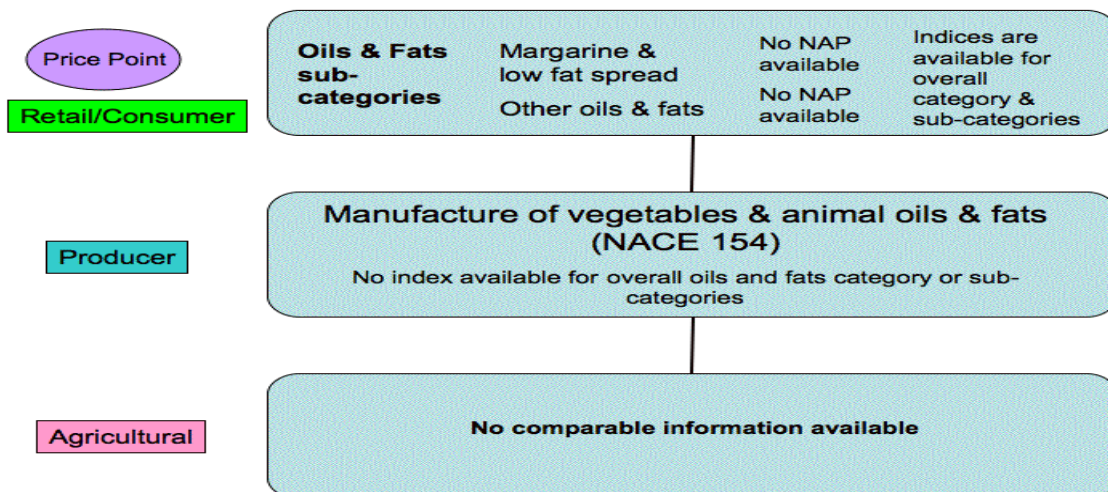
Oils and Fats Products	%
Margarine and low fat spreads	50
Other oils and fats	50
Total	100

Source: CSO

14.2 Data Sourcing and Availability

As oil and fat products represent such a small percentage of the overall retail food basket, the availability of data for this category is limited. Data for oils and fats is provided by the CSO. *Figure 14.1* gives an account of the availability of information for the oils and fats category and the problems encountered when tracing prices back the supply chain.

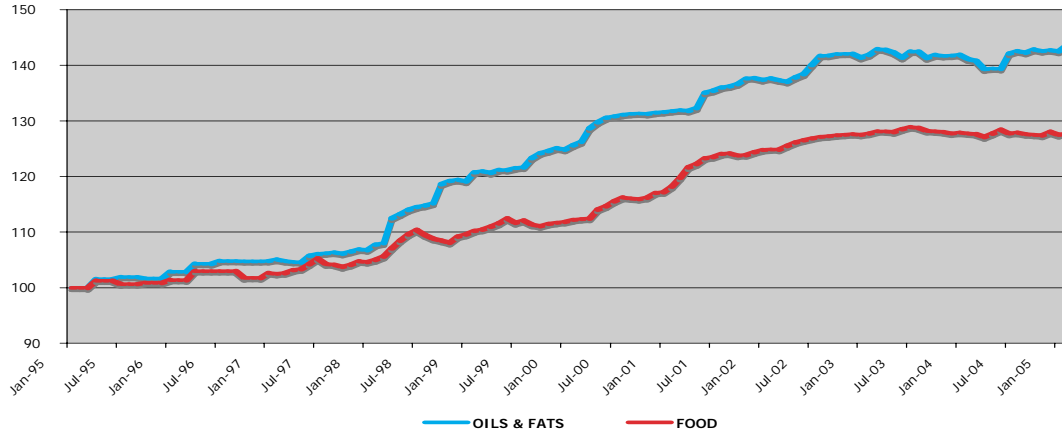
Figure 14.1 Data Sources and Availability for Oils and Fats



14.3 General Price Trends

Overall retail prices for oils and fats have increased by about 43 percent over the last decade, in comparison to overall food prices increase of 28 percent. *Figure 14.2* clearly shows that oils and fats consumer prices have been rising at a faster rate relative to food prices. Inflation for the category was highest between March 1998 and June 2000.

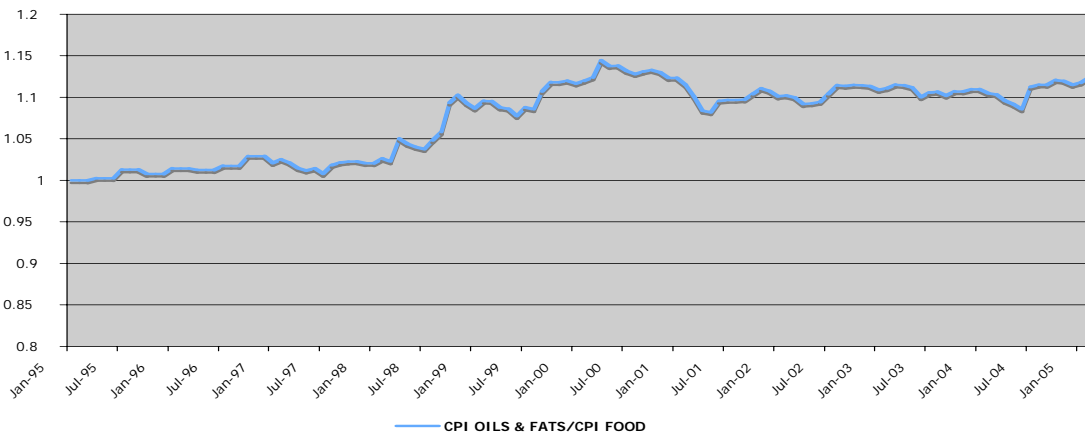
Figure 14.2 Retail Price Indices: Overall Oil & Fats vs. Food (January 1995 = 100)



Source: CSO

Figure 14.3 demonstrates that the price of oils and fats rose rapidly relative to overall food during the 1998 to 2000 period after which relative prices have stabilised.

Figure 14.3 Retail Price Relativities: Overall Oils & Fats vs. Food



Source: CSO

15. CONCLUSIONS AND RECOMMENDATIONS

While overall food prices at retail level increased by approximately 27% over the decade, the prices for meat and dairy products increased by only 21 and 20 percent respectively. These are the two most important food categories for Irish food processors and farmers, and account for 45 percent of the Irish shoppers' food basket.

The analysis revealed that the period 1998-2002 accounted for 84 percent of the inflation during the decade. It also showed that there has been a sustained reduction in food prices relative to prices in general since the introduction of the Euro in early 2002. Since then food prices have fallen by 10 percentage points relative to prices in general. This downward trend continues. Food prices have fallen by over 20 percent relative to average industrial earnings over the 1997-2004 period.

There have been significant additions to retail capacity since 1997, with a 40 percent increase in the number of stores under the main retail groups. This growth in store numbers has been driven by the discounters since their arrival in 1999 and 2000. More recent store openings by Tesco Ireland and Dunnes Stores indicate that the rise in store numbers will continue, generating increased competition at local level throughout the country.

The report assessed the extent to which available data provides comparable information on price trends and price formation at different stages in the food chain in Ireland. The analysis highlighted substantial variations in retail price inflation both across and within the major food categories. However the research found that the lack of producer prices for sub-categories that could be meaningfully linked to consumer prices greatly constrained the analysis of the distribution of the marketing margin across the food chain. Consequently, it was not possible to identify the share of these higher prices, or their trends, that are appropriated by retailers or processors. The CSO's need to maintain confidentiality is the reason for the lack of data at producer price level.

The lack of producer prices for the individual meat species represented the most important information gap. One aggregated producer price index, which covers all meat species and other meat products, is the only data available for meat. The inherent problem of using this index when analysing price movements for individual species is highlighted by the fact that beef prices at retail level fell by 1 percent while lamb prices increased by almost 70 percent over the period. Using a common producer price index for both species in this situation is far from ideal.

Given the available data, it was possible to develop models to estimate the proportion of the retail price absorbed by farmers for liquid milk, cheddar cheese, butter, beef and lamb. The proportion of the beef and lamb retail prices paid to farmers has declined considerably. Using deadweight prices it was estimated that, in the 12 months to January 05, beef farmers received less than 45 percent of the retail price of beef. This had fallen from over 50 percent of the retail price in the 12 months to

January '95. The proportion of the lamb price paid to farmers has declined to less than 30 percent in the 12 months to January 05.

Retail prices of total dairy products (liquid milk, cheese, butter, other dairy products e.g. cream, yogurt) have risen by about 20 percent over the last decade, compared with an increase of 27 percent for food prices in general. Producer (processor) prices for total dairy products have increased slightly by about 5 percent over the last decade while agricultural prices for milk have declined by about 10 percent. Thus the retail-producer margin has widened by about 15 percent, with virtually all of this occurring since 2001. Likewise the retail-agricultural margin for dairy has increased by about 25 percent over the decade.

In considering the declining proportion of the retail price being returned to farmers, it must be noted that under the CAP reform, direct payments will contribute to farm incomes. The static or declining prices at agricultural level for beef, lamb and milk over the last decade, as outlined in this report, reflect the CAP reform process at work. To date these price trends at agricultural level have not generally been reflected in price trends at consumer level for these products.

The Central Statistics Office is the primary collector and reporter of price information. While other sources of price data exist, these sources complement the work of the CSO. Consequently, to redress many of the data difficulties encountered during this investigation would require the assistance of the CSO.

The first area where assistance is desirable would be to re-examine the reporting of producer prices. As it stands, reporting under nine broad product categories does not provide a basis for understanding price transmission or absorption throughout the food chain. Thus it is recommended that producer prices be reported at a level, which may be more meaningfully linked to consumer price groupings. In particular it is recommended that producer prices or indices are reported for each of the major meat species.

The brief of the Consumer Price Unit at the CSO is to record and report price changes. The majority of the analysis in this report is based on information provided by the unit. During the analysis, a number of data needs emerged. In the absence of an alternative data source this data might, at a later date, be sourced from the Consumer Price Unit. This however would extend beyond the unit's immediate brief. Two specific needs emerged:

- First, to assist the calculation of the share of the meat price obtained by the farmer it is recommended that the consumer/retail prices recorded by the CSO be supplemented. Currently, the selection of products reflects the Irish shoppers' food basket. We recommend that this basket be extended to include sufficient products to be representative of each of the individual species' carcasses and published in the form of National Average Prices. Product descriptors would also need to be more precise due to the wide differences in the retail prices of certain cuts (e.g. round steak mince versus standard mince);

- Second, as it stands the CPI does not distinguish between Irish produced and imported products. An index and a series of national average prices for Irish and imported products would be of particular use in the case of vegetables and fresh meat.

Finally, the Consumer Price Index, which measures and reports the price change of a fixed basket of goods, explicitly excludes changes in shoppers' behaviours. Given the increase in the number of competing stores throughout the country, the apparent rise in price promotional activity, and the growth in price consciousness among shoppers, it is likely that shopper behaviour will have evolved, displaying more switching behaviours between both brands and stores. This will have implications for prices actually paid by shoppers and the revenues available to pay retailers, producers and farmers. However, the impact of switching behaviours may not be captured in CSO's food inflation figures due to the fixed basket methodology. Consequently it is recommended that a further study be carried out into shoppers' purchasing habits and the cost of food in supermarkets.

APPENDICES

APPENDIX 1

Sub-report on Modelling the Distribution of the Retail Price across the Chain: Beef, Lamb and Dairy Products.

Introduction

The purpose of this sub-report is to describe the models developed to estimate the share of the food price distributed throughout the food chain and to highlight the findings that emerge. The models established use freely available, independent data sources that may be used to monitor trends in the share of the food price over time. In the first instance, it must be noted that the length of the food chain will vary by product category. While meat and dairy products sold in Irish butchers and supermarkets are likely to have been produced on Irish farms, many products such as fruit are largely imported. Other products, for example preserves, biscuits, breakfast cereals, will have a very high import content. Either the final product itself or a large proportion of its raw materials will have been imported and as such will have no identifiable price links with Irish agriculture. In the case of these “short” domestic supply chain products, ascertaining and monitoring the distribution of the retail price back the chain is reduced to estimating and monitoring retail gross margins for specific products and product categories. Earlier research, using disaggregated producer price data obtained from the Central Statistics Office (CSO) investigated the movement of derived retailers’ gross margins at a sub-product category level²⁹. However, due to confidentiality concerns, this data is not currently published or made available in any form by the CSO. In the absence of disaggregated producer prices, the only means of obtaining any measure of the trends in retail gross margins at sub-category level is by obtaining margin information from either food producers or retailers themselves. This sub-report focuses on domestic chains that extend from the checkout back to the farm, and provides a basis for estimating the distribution of the retail price back the chain. In particular it deals with meat and dairy products.

Availability of Retail Prices

The consumer prices section of the Central Statistics Office is the primary source of retail price information in Ireland. An alternative source of price information was explored during this research but analysis of this company’s data indicated that the CSO price series was the most appropriate for the task at hand. The chief difficulty in using the private company data was that average prices provided were subject to validation and reconciliation processes involving the use of ex factory and industry data. In some instances this led to changes in average prices of up to 20 percent. More importantly, if prices are to be monitored over time, it is imperative that it is the same basket of products that are checked on an ongoing basis. This is the strength and ultimate purpose of the retail prices collected by the CSO. The prices reported by the CSO are calculated using prices actually observed on the shelf and can be compared in a consistent manner across time. The CSO collect prices for 171 varieties of ‘food and non-alcoholic beverages’. Of these, 51 prices are actually published. The remaining unpublished prices contribute to the calculation of prices indices which are reported for a wide range of food product categories and sub-categories. However, to model the distribution of the retail price across the food chain, one is reliant on the 51 prices published in the form of national average prices (NAPs).

²⁹ Collins, A. Burt, S. and K. Oustapassidis (2001). Below cost legislation and retail conduct; evidence from the Republic of Ireland. *British Food Journal* 103 (9): 607-622

Model to Estimate the Appropriation of the Retail Value of Beef

The number of prices and their usefulness in model building varies across product categories and subcategories³⁰. In the case of beef, 5 national average prices are reported. These will serve as the basis for our model examining the distribution of the “beef price” distributed across the chain. To estimate and monitor the distribution of a product’s price across the food chain, the units at each stage of the chain need to be comparable. Farmers produce beef animals, which are ultimately purchased by customers in the form of a range of meat cuts. To understand the relationship between the price of any specific meat cut (e.g. sirloin steak) and the price the farmer gets for his animal, one must consider the price of all the meat cuts that make up the animal: a rise in the retail price of sirloin steak may be offset by a fall in the price another cut. Thus the first part of the model is to establish an overall retail value for a typical carcass using the 5 prices reported by the CSO. The efficacy of doing this is in part determined by the distribution of the cuts across the carcass. If for instance all the cuts for which prices were collected were high value (e.g. sirloin, fillet and rib-roast), the estimated retail value of the carcass would be overvalued and the share of the retail price received by the farmer would be underestimated.

Table 1 details the calculation of the retail price per kg of beef using the cuts priced by the CSO after December 2001. Column (A) of the table details the products for which national average prices are available. There are no national average prices for mince meat but it accounts for such a large share of the carcass that it was considered necessary to incorporate it into the analysis. Column (B) details the proportion of the carcass that these products account for. This information was obtained from a meat processor. Column (C) adjusts this to bring the total to 100 percent. Column (D) provides the national average prices per kg for February 2005. Using column (C) as weights enables the calculation of the value attributable to each cut. The sum of column (E) yields an estimate of the retail price per kg of beef for February 2005 (€8.25 per kg)^{31,32}.

Table 1: Estimation of the Retail Price of the Beef Carcass Per kg in Feb 2005

Retail Product (A)	% of Carcass (B)	Adjusted % (C)	National Average Price Per Kg (D)	Value Per Kg (E) = (C*D)/100
Round Steak	8.7	11.79	9.262	1.09
Sirloin Steak	5.0	6.87	12.793	0.88
Striploin Steak	5.3	7.18	18.951	1.36
Roast Beef/Topside	8.7	11.79	8.841	1.04
Sliced/Diced Beef	8.9	12.06	7.774	0.94
Mince ^a	37.3	50.41	5.831 ^b	2.94
Total	73.8	100.00		8.25

^a A national average price is unavailable for Mince. ^bThe price above is calculated at 75% of the diced/sliced beef price.

³⁰ For instance, no national average prices are reported for poultry products.

³¹ This follows the methodology as outlined by Sheehy, S. et al. (2000). “Report of the independent group into anticompetitive practices in the Irish Beef Industry”.

³² This represents an average across the Irish retail industry as it is based on national average prices. However, the model can easily be applied to a specific butcher or retailer, using prices obtained in their stores. Comparisons with other butchers can then be made.

The total value in column E represents the price per kg of the beef carcass. This figure may be meaningfully compared with the deadweight price received by the farmer.

In February 2005 the deadweight price of an R3 Heifer paid to farmer was:
(Source: Bord Bia)

(F) €2.58

Thus the proportion of beef price paid to farmers: $\text{€}2.58/\text{€}8.25 = 31.2\%$

While the producer (processor) paid the farmer €2.58 per kg, a substantial proportion of the deadweight carcass is lost due to trim. A trim factor of 69%³³ was applied, yielding the cost of saleable meat to the producer (processor). This represents the raw material cost per kg of the meat, purchased from the farmer, than can be sold by the producer (processor) to its customers (e.g. butchers).

Trim Factor

(G) 0.69

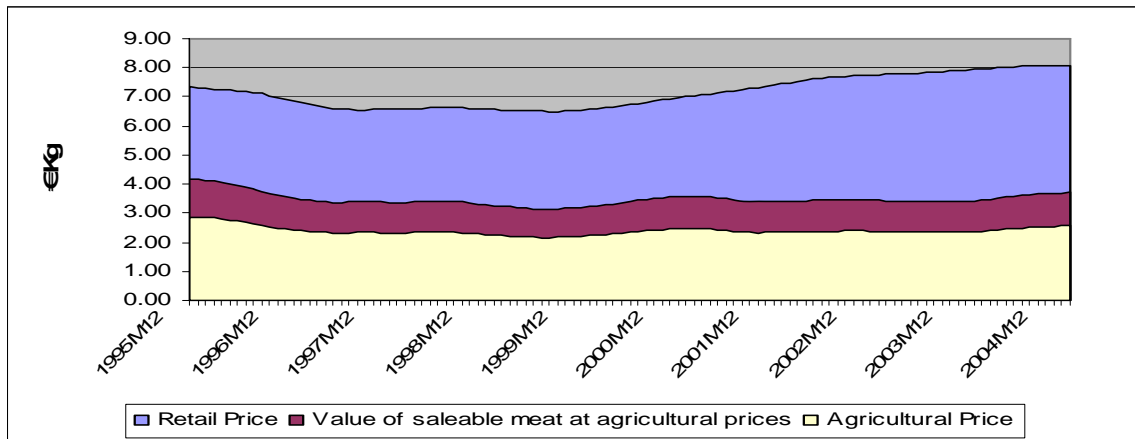
Cost of saleable meat to the meat producer (processor)

H= (F)/(G) €3.73

The Central Statistics Office collect producer prices for beef products. However these prices, or the indices that reflect the movement in these prices, are not available due to confidentiality concerns. An aggregated producer price index is reported for “meat and meat products”. Consequently, for individual meat species, it is not possible to fit a producer price between the retail price and the cost of saleable meat to the producer.

The relationships between each of the variables above, the retail price, the cost of saleable meat to the producer and the agricultural price paid to the farmer may be calculated and monitored on a monthly basis. The recent trends in these variables are presented in figure 1, which uses a 12 month rolling average to smooth seasonal effects.

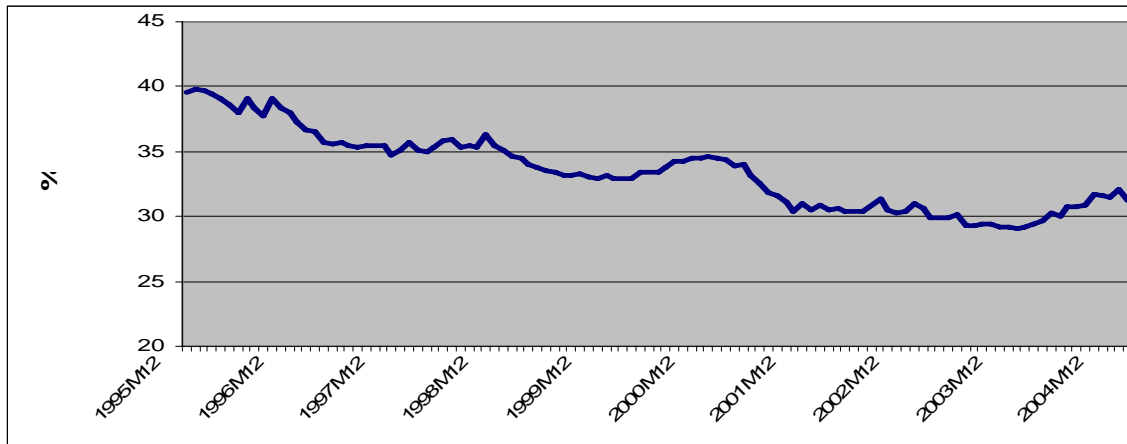
Figure 1: Average Prices for Beef (12 month rolling)



³³ Source: Meat producer

The figure highlights the distribution of the retail price across the chain. The first feature to note is that the retail price of beef began to rise in 2000 and continued to rise until the early part of 2004. Also, the gap between the value of saleable meat at agricultural prices and retail prices has increased. This gap represents the average revenue per kg of beef that is available for distribution between retailers and producers (processors). This share of the retail price, appropriated by retailers and producers (processors), has grown considerably. The share appropriated by farmers has declined from 40 percent over the 12 months ending December 1995 to just over 31 percent in February 2005 (figure 2)³⁴.

Figure 2: Percentage of the Retail Price of Beef Received by Farmers



³⁴ In December 2001, the beef prices collected by the CSO were revised. This led to a discontinuity in the pre December 2001 and post December retail price series. This was smoothed using inter-month price variations in the calculated monthly price. In figure 2 above the actual calculated prices as demonstrated are used to estimate the farmer's share until December 2001, while inter-month price changes (because of the different product mix) are used prior to December 2001.

Model to Estimate the Absorption of the Retail Value of Lamb

A similar model is developed to estimate the share of the retail price of lamb absorbed throughout the channel. Five national average prices are provided by the CSO for a number of cuts and these form the basis of our calculation. Table 2 details the method used to calculate the retail price of the lamb carcass. Column (A) details the products for which national average prices are available. Column (B) details the proportion of the carcass that these products account for. This information was obtained from a meat processor. Column (C) provides the national average prices for February 2005. Using column (B) as weights enables the calculation of the value attributable to each cut. The sum of column (D) yields an estimate of the retail (price) value per kg of lamb for February 2005 (€12.00 per kg).

Table 2 Estimation of the Retail Price (value) of the Lamb Carcass Per Kg. (February 2005)

Retail Product (A)	% of Carcass (B)	National Average Price Per Kg (C)	Value per Kg (D) = (B*C)/100
Whole Legs	30.8	10.272	3.16
Loin Chops	37.70	15.943	6.01
Gigot Chops	14.20	9.975	1.41
Neck (lamb pieces)	12.30	9.565	1.18
Liver	4.30	5.532	0.24
Total	100		12.00

Deadweight price paid to Farmer (source Bord Bia) (E) €3.90

Trim Factor (Source: Meat Producer) (F) 0.86

Cost of saleable meat to the meat producer G= (E) / (F) = €4.53

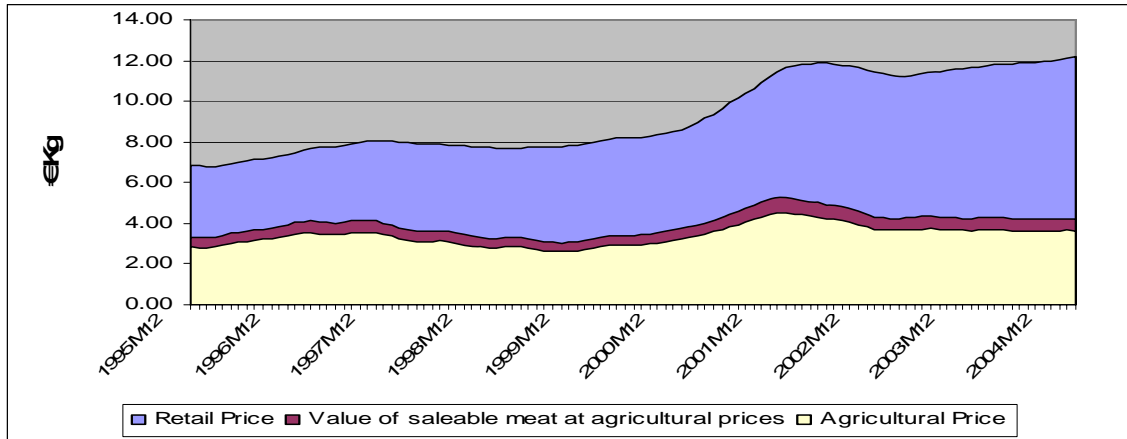
Producer price (Not Available)

Proportion of lamb price paid to farmers: $3.90/12.00 = 32.5\%$

Proportion of lamb price paid to producer: (Not Available)

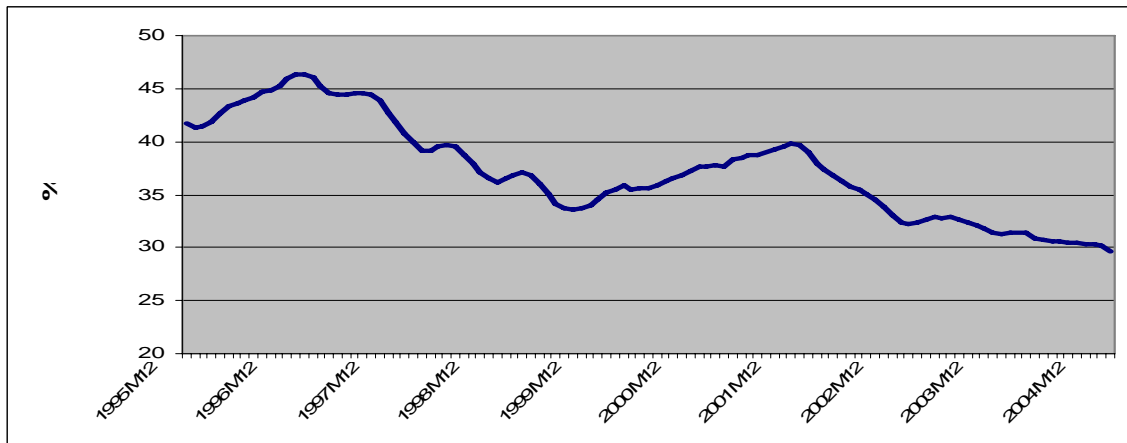
Once again each of the values above, the retail price, the cost of saleable meat to the producer and the agricultural price paid to the farmer may be calculated on a monthly basis. These are presented in figure 3, which uses a 12 month rolling average to smooth seasonal effects. The trend in the distribution of the lamb price highlights the dramatic rise in the price of lamb during 2001 and the increase in the share of the price appropriated by retailers and producers (processors). It is notable that while the price of lamb paid to farmers stabilised in 2003, the retail price resumed its upward trend.

Figure 3: Average Prices for Lamb (12 month rolling)



Once again we can monitor the share of the retail price received by farmers. Using a rolling 12 month average price to smooth seasonal fluctuations shows that the share of the lamb price received by farmers has declined from 41 percent over the 12 months ending December 1995 to just 30 percent in the 12 months ending February 2005 (figure 4).

Figure 4: Percentage of the Retail Price of Lamb Received by Farmers



**Model to Estimate the Absorbion of the Retail Value of Red Meats
(Beef and Lamb)**

In addition to investigating individual species, the model may also be used to aggregate across species. It may be of interest to see the distribution of the “red meat” price across the marketing channel. This may be done by aggregating both species according to their consumption weighting in Irish households’ food basket. These weights are provided by the CSO. The relative weightings for beef and lamb are 69.75: 30.25.

Applying these weights to the retail prices, agricultural prices and the cost of saleable meat for beef and lamb, gives us an aggregate price series for “red meats”. Earlier, the lack of a producer (processor) price for individual meat species was highlighted. However, an overall producer price index for “meat and meat products” is reported. It would be inappropriate to apply this overall producer price index to an individual species because of the wide variations in retail price inflation among species. However, by aggregating across species the individual variations are smoothed, yielding a stronger case for applying the producer price index.

A number of butchers and retailers were queried about their gross margins during February 2005. Estimates suggested that these margins were in the region of 30 percent and 28 percent respectively. Taking the retail price for each species, and deducting the estimated gross margin yielded a delivered to butcher price for beef and lamb in February 2005. Using the CSO beef: lamb ratio, we can derive a delivered butcher cost price for each species and the aggregated red meats product. The calculation is demonstrated in table 3³⁵.

Table 3. Estimation of the Delivered Butcher Cost Price for Red Meat (Feb 2005)

	Retail Price	Gross Margin at Store	Delivered Butcher Cost Price	CSO Weight	Delivered Butcher Cost * Weight
Beef	8.25	30%	5.78	69.75	4.028
Lamb	12.00	28%	8.64	30.25	2.613
Red Meat Delivered Butcher Price €kg.					6.641

This price represents the price paid by the butcher for beef and lamb when delivered to the shop. Aggregating these prices according to the CSO weights yields an aggregated delivered butcher price for red meats for February 2005. This delivered butcher price does not include the margin appropriated by multiple retailers’ head office or the gross margin absorbed by wholesalers.

The producer price index reported by the CSO for meat and meat products measures the change in prices received by food producers (processors) ex factory over time. Assuming a full pass through of producer price changes, the inter month variations in this producer price were applied

³⁵ Gross margins will vary from business to business. This calculated margin will provide the starting point for analysis for the change in gross margins over time. A higher or lower initial margin can be incorporated into the analysis but the trend will remain unchanged.

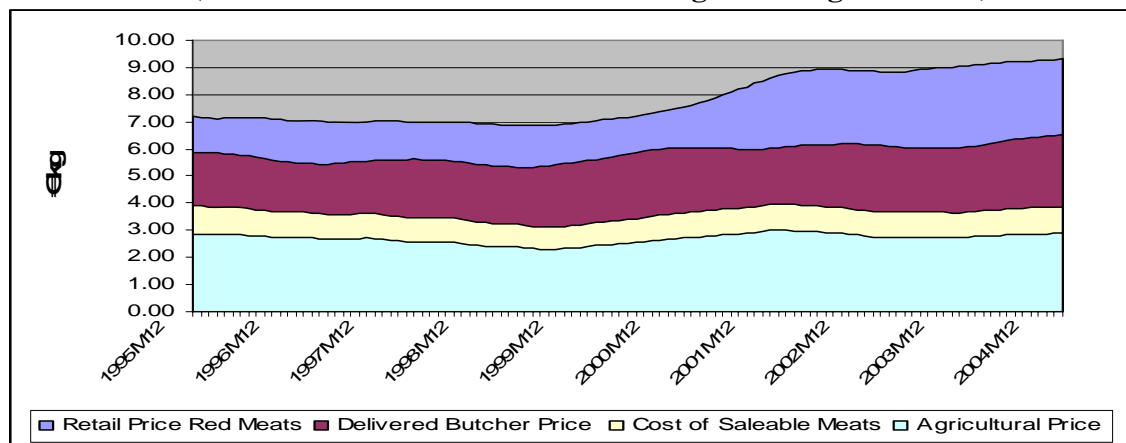
to the delivered butcher price in February 2005, yielding a delivered butcher (shop) price back throughout the time period under review. The calculation of the January 2005 margin is demonstrated in table 4.

Table 4. Derivation of the Delivered Butcher Price Using the PPI.

	February 2005	January 2005	PPI Jan/ PPI Feb
PPI Meat and Meat Products (source CSO)	113.931	112.175	.9846
Red Meat Delivered Butcher Price €kg	6.641	$(.9846)*6.641$ = 6.54	

The results are presented in figure 5. It is clear that the gap between the retail price and the delivered butcher price has increased substantially. This indicates that the increase in the retail price of red meats post 2000 was largely absorbed at store level. In more recent periods, the gap between the delivered butcher price and the cost of saleable meat has also increased, indicating that the revenue distributed among retailers' head office function, wholesalers and meat producers has also grown.

Figure 5: Distribution of the Red Meat Price (based on a 30% beef and 28% lamb gross margin at store)



Model to Estimate the Appropriation of the Retail Value of Butter and Cheese

As outlined earlier, the CSO collect prices for 171 varieties of food and non-alcoholic beverages. Of these they publish 51 prices in the form of national averages; four are dairy products, two milk products, cheddar cheese and butter. These four prices form the basis for our models³⁶.

Modelling the distribution of the retail price for milk across the food chain requires that one is comparing like-for-like products. This is not a problem in the case of liquid milk where retail and agricultural prices can be directly compared. However, for the remaining dairy products such as cheese and butter this is not the case and the price of these products cannot be directly compared to agricultural milk prices. To ensure a like for like comparison, a milk price has to be calculated for each final consumer product. Thus in the case of butter, an agricultural milk price equivalent must be calculated. A separate agricultural milk price equivalent must be calculated for cheese

The estimation of the agricultural milk price equivalent involves 2 key components. The first is the amount of raw milk required in the production of a kg of the product. In the case of butter, to produce 1 kg requires 22.276 litres *1.0279 = 22.9376 kgs of milk. However, butter utilises only the fat content of the milk. The remaining non-fat content also has a commercial value. This must be deducted to derive the milk price equivalent for butter. This value proportion is governed by the butter/skimmed milk powder value ratio.

Currently butter accounts for 11.91/28.41 of the value of milk = 41.92%³⁷

Consequently, the conversion factor to derive agricultural milk price for comparison with butter:
= 22.9376*.4192 = 9.616.

In other words, to compare the agricultural price of manufacturing milk (3.7% fat) with the retail or producer price for butter we must multiply the agricultural price of milk by a factor of 9.616. The corresponding conversion factor for cheddar cheese is 8.33. This factor takes account of the fact that some of the value of milk is also derived from whey products.

Having established the means of generating a milk price equivalent for both butter and cheddar cheese we can now progress to examine the trends in these values relative to the average prices for the consumer products reported by the CSO.

The CSO does not report the producer prices for butter or cheese due to confidentiality concerns. Instead a more aggregated price index is reported for dairy products. However an EU Eurostat source was identified and used to provide producer prices for both butter and cheddar. There are no producer prices available for liquid milk.

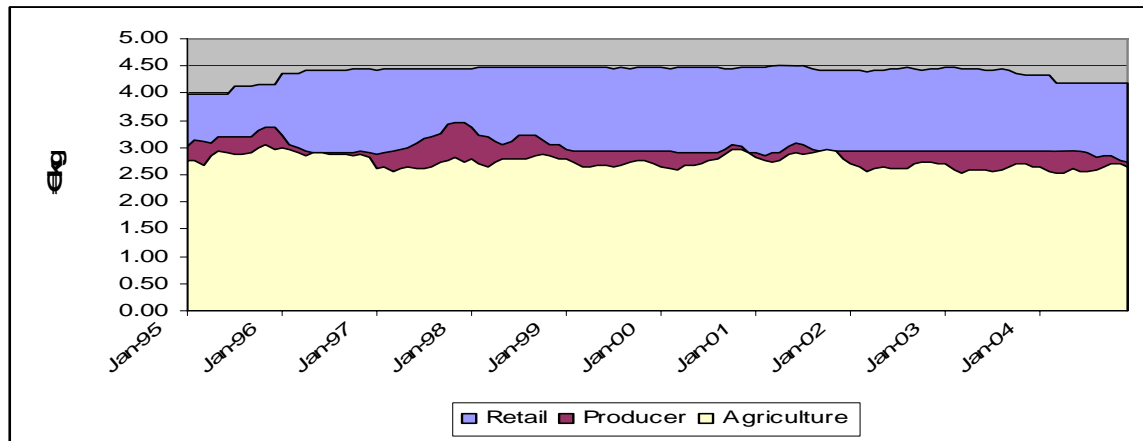
Using the conversion factors outlined above, the CSO retail prices and the producer prices obtained from Eurostat provides the distribution of the butter price and cheddar cheese price

³⁶ Analysis of prices and price absorption across the dairy chain usually focuses on these kinds of product. See Dairy Supply Chain Margins 2004-2005. Who made what in the dairy industry and how it has changed. Milk Development Council UK 2005

³⁷ This allocation is now changing from year to year due to CAP reform (Source: Eurostat European Commission).

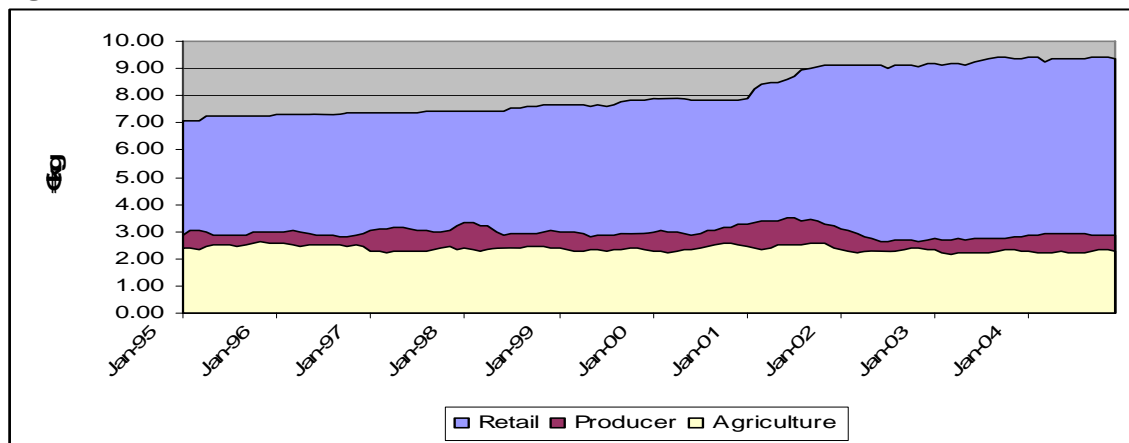
across the supply chain. This is presented in figure 6, which in the case of butter, shows extremely tight producer margins, a stable agricultural price and a declining retail price.

Figure 6: Distribution of the Butter Price



The situation in cheddar cheese is remarkably different, with a substantial increase in both retail and producer prices in 2001 (figure 7). It is noteworthy that while producer prices declined during 2002, retail prices remained at their higher levels.

Figure 7 Distribution of the Cheddar Cheese Price



With this information it is possible to calculate and monitor changes in margins over the period. Taking the retailers' and processors' margins as a percentage of the retail price yields the results in table 5. It demonstrates that retail margins have increased by 10 percentage points over the 1995 to 2004 period for both butter and cheddar cheese. The size of the retail margin in cheddar cheese has been noted as the highest of any EU market³⁸.

³⁸ Dairy Supply Chain Margins 2004-2005. Who made what in the dairy industry and how it has changed. Milk Development Council UK 2005.

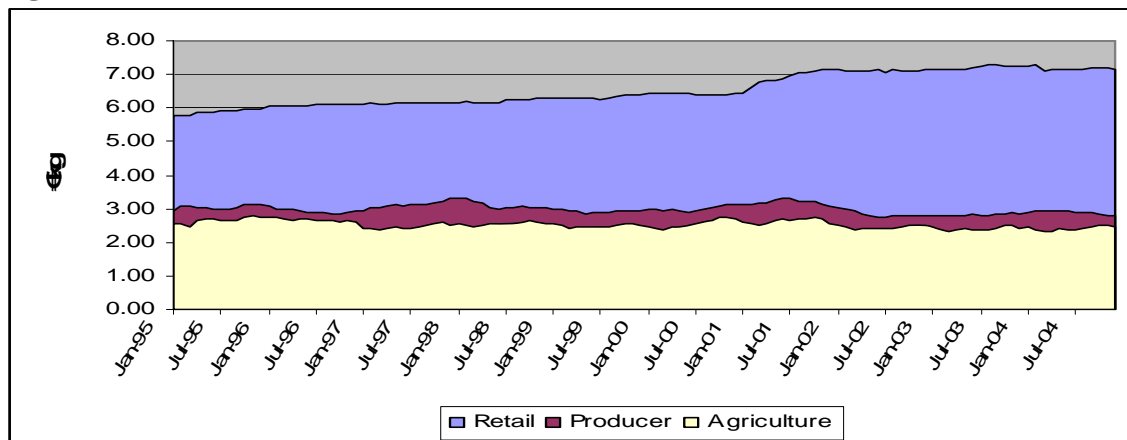
Table 5 Distribution of the Retail Price for Cheese and Butter

	Average Prices			Margins ^a		
	Year			Year		
Cheese	1995	2000	2004	1995	2000	2004
<i>Retail</i>	7.22	7.85	9.37	59.42	61.42	69.17
<i>Manufacturer</i>	2.93	3.03	2.89	6.03	8.07	6.70
<i>Agriculture</i>	2.50	2.40	2.26	34.55 ^b	30.51	24.13
Butter	1995	2000	2004	1995	2000	2004
<i>Retail</i>	4.06	4.47	4.21	21.14	34.14	31.72
<i>Manufacturer</i>	3.20	2.95	2.88	7.92	4.02	6.37
<i>Agriculture</i>	2.88	2.77	2.61	70.94	61.84	61.91
Cheese and Butter						
<i>Retail</i>	5.88	6.42	7.18	48.19	53.34	59.82
<i>Manufacturer</i>	3.05	2.99	2.88	6.58	6.87	6.62
<i>Agriculture</i>	2.66	2.55	2.41	45.23	39.79	33.56

^aAll margins are expressed as a percentage of the retail price.
^bThe agriculture margin expresses the milk price equivalent as a proportion of the retail price.

Similar to red meats, by using the consumer weights as provided by the CSO we can calculate an aggregated cheese and butter category. The distribution of the retail price for this aggregated category demonstrates that the entire increase in the retail price of these products was appropriated by the retail and wholesale functions. In fact the actual prices received by both farmers and processors declined over the period (figure 8).

Figure 8: Distribution of the Cheese and Butter Price



Conclusion:

The models outlined above have achieved the following:

- Established the means of calculating retail prices for beef and lamb that can be meaningfully compared with farm prices over time, using independently sourced and consistent data from the Central Statistics Office;
- Provided the basis for monitoring the share of the retail prices of beef and lamb received by farmers over time;
- Established the means of deriving a “red meats” price which can be meaningfully compared with farm prices;
- By aggregating to the “red meats” level, the model has derived a meat price which facilitates the incorporation of the aggregated producer price index for meat and meat products. This provided the basis for calculating a “delivered butcher” price which was incorporated into our analysis;
- Using the delivered butcher price, the model separates out the proportion of the retail price absorbed by meat outlets;
- The dairy models, by accounting for producer yield factors, fat/non fat, and protein/whey value ratios, provide the basis for calculating agricultural milk price equivalents for butter and cheddar cheese.
- These milk price equivalents enable the calculation of the share of the cheese and butter price received by the farmer;
- By integrating the retail, producer, and agricultural prices, the model provides the means of monitoring the share of these key products prices that is appropriated by each stage of the food chain;
- Finally, the models above can be estimated and updated using independently sourced price information.

The findings emerging from the models indicate that:

- In the case of dairy products, the share of the retail price being appropriated by retailers has increased dramatically. While the milk price equivalents for butter and cheese have actually fallen for farmers and processors, the combined retail price for these products has increased substantially. The retail margin now accounts for almost 60 percent of the combined cheese and butter price.
- In the case of beef, the share of the retail price received by farmers has declined from just over 39 percent in the 12 months to December 1995 to just 32 percent in the 12 months ending December 2004.
- In the case of lamb, the share of the retail price received by farmers has declined from just over 42 percent in the 12 months ending December 1995 to just 30 percent in the 12 months ending December 2004.
- By incorporating a delivered butcher price, the analysis indicates that retail stores (including butchers) have absorbed the increase in the retail price since 2000.

APPENDIX 2

Table 1 Sea Fish Landings by Fish Species

Fish species	Average price per kg 1995 (€)	Average price per kg 2002 (€)	% change in price 1995 - 2002
Total fish species	0.46	0.86	+85.6%
Demersal ³⁹	1.36	1.97	+44.8%
Brill	4.04	6.70	+66.0%
Cod	1.51	2.27	+50.1%
Dogfish	0.54	1.37	+152.1%
Dover sole	7.38	11.36	+53.9%
Haddock	1.00	1.34	+34.9%
Hake	2.95	3.44	+16.5%
John Dory	3.51	4.25	+21.3%
Lemon sole	1.37	2.48	+80.7%
Ling	0.88	1.25	+42.1%
Megrim	2.10	2.95	+40.9%
Monk/Angler	2.27	3.23	+42.3%
Plaice	1.27	2.65	+108.8%
Ray/skate	0.83	1.11	+33.2%
Saithe	0.72	1.31	+80.8%
Turbot	7.62	10.60	+39.1%
White Pollock	1.11	1.69	+52.1%
Whiting	0.64	0.82	+28.6%
Witch	1.26	2.06	+63.8%
Cutlassfish	1.00	1.81	+81.13%
Other demersal	0.99	1.38	+41.2%
Pelagic ⁴⁰	0.18	0.37	+100.1%
Herring	0.23	0.21	-8.9%
Horse mackerel	0.12	0.30	+151.9%
Mackerel	0.18	0.54	+195.2%
Sprat	0.14	0.35	+154.7%
Tuna	1.55	1.86	+19.7%
Shellfish ⁴¹	1.69	2.10	+23.7%
Blue mussel	0.36	0.93	+161.6%
Crab	0.94	1.34	+42.2%
Crawfish	19.50	24.36	+24.9%
Dublin Bay prawns	3.41	4.79	+40.6%
Escallop	2.17	2.96	+36.4%
Lobster	11.27	12.92	+14.6%
Periwinkle	0.74	1.00	+35.6%
Prawn tails	1.29	1.50	+16.4%
Shrimp	6.78	6.91	+1.96%
Squid	2.48	2.08	-16.1%
Whelk	0.43	0.64	+47.9%
Other shellfish	2.21	2.53	+14.5%

³⁹ Demersal fish are found near the bottom of the sea. They are often referred to as white fish.

⁴⁰ Pelagic fish live in the surface waters or the middle depths of the sea.

⁴¹ Shellfish are of two kinds, crustaceans – prawns, lobsters, crabs etc. and molluscs – mussels, oysters etc.

Table 4 Aquaculture by Fish Species

Fish species	Average price per kg 1995 (€)	Average price per kg 2002 (€)	% change in price 1995 - 2002
Aquaculture total	2.28	1.87	-18.0%
Shellfish	0.62	0.93	+50%
Finfish	4.04	3.34	-17.3%
Salmon	3.96	3.21	-18.9%

Table 5 Inland Catches by Fish Species

Fish species	Average price per kg 1995 (€)	Average price per kg 2002 (€)	% change in price 1995 - 2002
Inland total	8.89	6.92	-22.2%
Salmon	9.61	7.27	-24.3%
Other inland	5.29	4.89	-7.5%