6 Competition and prices

Contents

Introduction

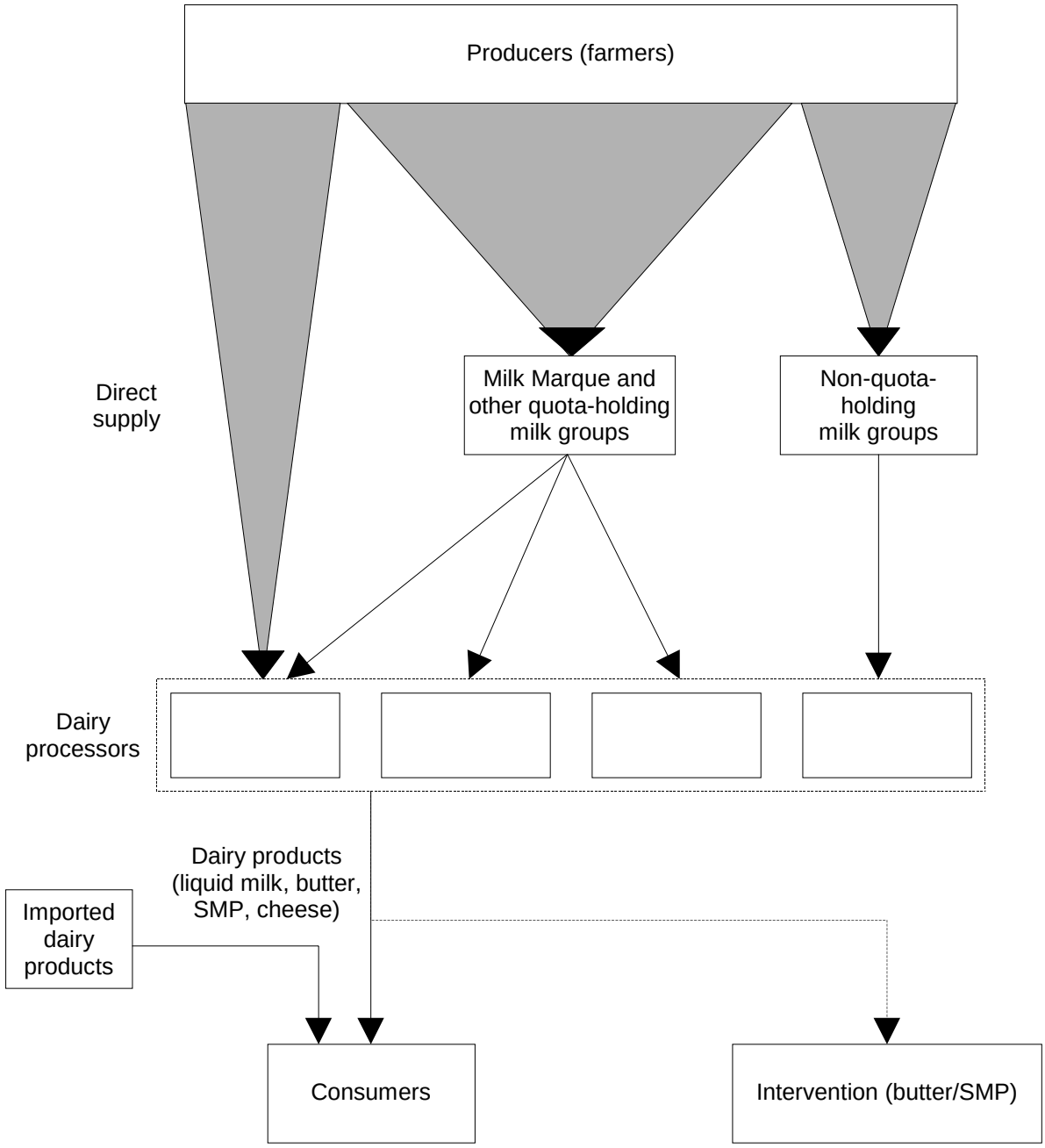
6.1. Competition in the supply of milk is a complex matter involving farmers (as producers of milk), processors (which manufacture milk into dairy products) and milk groups (which act as intermediaries between producers and processors).

6.2. Figure 6.1 provides a schematic illustration of the milk supply industry in Great Britain. The demand for milk is derived from the demand for the dairy products made by processors. In order to compete effectively in the dairy product markets, processors need to ensure that they purchase milk in a manner which gives rise to the lowest possible costs in their processing activities. In securing their milk supplies processors may either purchase from the farmer (directly or through a non-quota-holding milk group—see paragraph 4.40), or they may purchase from a quota-holding milk group (see paragraph 4.39), which will itself either have farmers as members or will have contracts with farmers for the supply of milk.

6.3. The physical characteristics and perishability of raw milk mean that its transportation is costly in relation to its value. Processors based in Great Britain must, as a consequence, rely almost entirely

FIGURE 6.1

Competition in the supply of milk



Source: MMC.

on milk produced in Great Britain (see Table 6.3). As described in paragraphs 3.48 to 3.57, the total volume of milk produced in the UK is limited by a quota system. As a result, processors must compete as purchasers to secure adequate individual supplies from a constrained total volume of production.

6.4. As a consequence of the limited supply of milk, entry into milk production is also restricted by the need to acquire quota (see paragraphs 6.57 to 6.60). Hence processors wishing to attract producers to supply them need to do so by offering a sufficiently higher price, or by offering other incentives. A central aspect of competition in the supply of milk is, therefore, in securing the output of producers.

6.5. In this chapter we look at competition in the supply of milk and the way this has been reflected in prices. By way of introduction, we provide an overview of the main categories of organizations which compete for the output of producers. Following that, we examine competition from the producer's perspective, looking at the factors which underlie his or her choice of purchaser. In this regard we consider the influence of a number of factors, in particular location and the prices offered, and the willingness of producers to switch between milk buyers. We then turn to look at the nature of competition in the supply of milk from the processor's perspective, focusing particularly on price competition. In this context we look at the interrelationships between the prices paid to producers by different milk groups and processors.

6.6. Having discussed the nature of competition, we then examine trends in producer prices before and after deregulation, looking at the main influences on aggregate producer prices. We consider the effects of the exchange rate, of the EC CAP price support system, and of other factors including the change in the competitive regime at deregulation.

6.7. Lastly, we look at the effect of changes in the raw milk price on the prices paid by consumers. In this context we examine whether, and if so to what extent, any relationship exists.

Competitors for the output of producers

6.8. As described in Chapter 4, there are a number of ways by which a producer can sell his milk for processing. He may sell it either via a milk group or directly to the processor by means of a direct supply agreement. Alternatively he may process all or part of his milk production himself.

6.9. Milk groups vary in a number of respects. For the purposes of looking at competition between milk suppliers, a key distinction is between quota-holding and non-quota-holding milk groups (see paragraphs 5.91 to 5.100). Whereas quota-holding milk groups aim to sell milk to a number of processors, the selling activities of non-quota-holding milk groups are typically based around a single processing company which administers the producers' quota. Non-quota-holding milk groups may in certain instances have been initiated by the processing company or receive administrative support from it. Thus, whilst individual producers may leave the non-quota-holding milk group if they wish to sell their milk elsewhere, the group itself typically finds it difficult to change purchaser. Furthermore, in a non-quota-holding milk group, typically the only contract is between the processor and the producer.

6.10. The arrangements for individual producers selling by means of direct supply agreements are similar to those of non-quota-holding milk groups in that, for the duration of the agreement, the producer's milk will be sold to a single purchaser who will be responsible for administering the producer's quota. If the producer wishes to switch purchaser, he must leave the existing selling arrangement and enter another selling arrangement.

6.11. As discussed in paragraph 4.37, it is estimated that there are about 45 milk groups in Great Britain. Seven of these are quota-holding, these being: Milk Marque, Scottish Milk, Claymore, The Milk Group, Peninsular, Sorn Milk and Torridge Vale. The remainder are non-quota-holding, the largest of these being the EMP (selling to Express Dairies), UMP (selling to the AWG and Unigate), and Premier Milk Producers (selling to MD Foods). The membership and milk pools of the larger milk groups are set out in Table 4.7, and the producer leaving terms of Milk Marque, Scottish Milk, AMCO and Claymore are described in Chapter 7.

Factors affecting a producer's choice of milk purchaser

6.12. Several factors influence a particular producer's choice of milk purchaser, the main ones being:

(a) Location. The producer must be located within the purchaser's coverage area. In addition, we were told by ADAS that producers have a strong sense of community and prefer to deal with local companies.

(b) Price. Producers will, other things being equal, be attracted to those purchasers paying the highest prices for their milk. Although purchasers' terms are generally openly declared, they will frequently pay different prices to different producers depending on factors such as the constituent elements of their milk (for example, fat and protein content), hygienic quality and the volume produced.

(c) Support for farmers' co-operatives. An individual producer may favour using a producer-owned co-operative even if he receives a lower price for his milk, in the belief that, unless farmers join together and exert collective bargaining power, they will ultimately be unable to resist the purchasing power of processors.

(d) Security. Producers take into account the financial stability of purchasers, which means that they tend to favour larger purchasers. Similarly, to reduce business risk, producers may favour milk groups which sell to more than one processor.

6.13. We continue by looking more closely at some of these factors. First, we consider the effect of location on a producer's choice of milk purchaser. Following that we compare the prices paid by different milk purchasers, looking first at pricing structures and then at price levels. Then we discuss the willingness of producers to switch between milk buyers.

Geographical coverage

6.14. The geographical coverage of milk groups, and of processors purchasing under direct supply agreements, vary considerably; in this respect, the successor organizations to the MMBs may be distinguished from the other milk groups.

The successors to the MMBs

6.15. Prior to deregulation, all producers were required to sell all their milk to the MMB within whose designated geographical area they fell, provided that milk met specified standards. At the time of deregulation, each of the successor companies to the four MMBs in Great Britain took on as a member any producer who had previously been a member of the relevant MMB and wished to join it.

6.16. As a result of this, the geographical coverage of Milk Marque, Scottish Milk, AMCO and Claymore can in part at least be explained by history. Scottish Milk has, however, expanded beyond its traditional geographical area and has recruited members from England, particularly in the North-West.

Other milk groups and processors purchasing under direct supply agreements

6.17. The catchment areas of other milk groups and of processors purchasing by means of direct supply agreements tend to be governed by transport cost considerations, and are thus determined by the location of existing suppliers and the location of the purchasers. As a result of this, their operations are typically concentrated in particular parts of the country where they can assemble efficient collection and delivery rounds. Non-quota-holding milk groups and direct supply producers tend to be located within easy access of the purchasing processor. Quota-holding milk groups, which may sell milk to more than one purchaser, and may control their own transport arrangements, have greater

flexibility in terms of their coverage, but will still focus their activities in distinct areas. The Milk Group, for example, which sells to over 20 purchasers, has members based in three areas: the North-West of England, the East Midlands and the Severn Vale (Gloucestershire and Herefordshire).

6.18. The regional density of milk production in Great Britain is illustrated in Figure 4.3, and the location of major purchasers is illustrated in Figure 4.2. Transport costs are discussed in Chapter 5.

The availability of milk purchasers in different regions of England and Wales

6.19. We commissioned ADAS, the agricultural consultants, to look at the influence of location on the number of purchasers potentially available to a producer. ADAS considered first the number of purchasers whose catchment areas covered each county in England and Wales and, given that not all milk purchasers are continually taking on new members, ADAS also looked at the number of purchasers actively recruiting producer members in July 1998.

6.20. Figure 6.2 shows the number of milk groups or processors collecting milk and recruiting producers in England and Wales in July 1998. It shows that the number of purchasers in a county varied from two (in the Isle of Wight) to twelve in Cheshire and Shropshire. The number of purchasers recruiting in a county at that time varied from two (in eleven counties) to eight (in north Somerset and Gloucestershire). The coverage areas of each purchaser in England and Wales in July 1998, by county, are set out in Appendix 6.1 while the number of purchasers actively recruiting members in July 1998 is at Appendix 6.2.

6.21. As expected, the data show that, in general, the operations of purchasers are concentrated in those areas of the country which produce the most milk. Using the information collated by ADAS, we related the number of purchasers to the density of the dairy herd in each county. The resultant diagram is in Appendix 6.3. This indicates that, looked at in relation to milk production, certain regions have a greater number of purchasers than others. In particular, the most under-represented areas are Cornwall, Pembrokeshire and the Isle of Wight. This under-representation may be explained in each case in terms of geographical position. Other under-represented areas include Dorset, Cumbria and North Yorkshire.

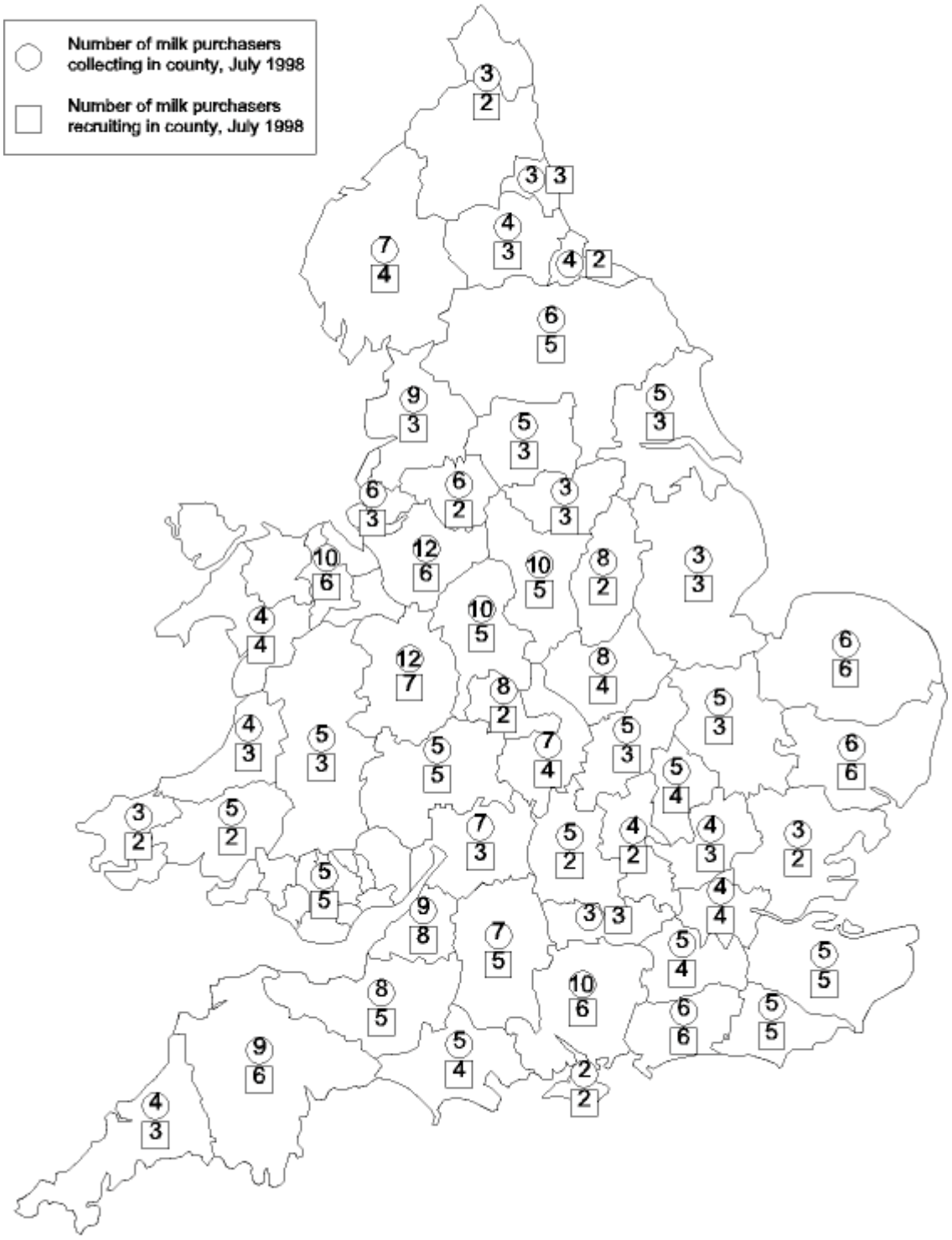
Pricing

6.22. Other things being equal, producers will be drawn to purchasers who pay them the highest price for their output net of collection charges. Because processors put their milk to different uses, purchasers may seek through different pricing structures to secure producers whose milk best fits the requirements of their products both in terms of the production profile and the constituent quality of the milk. Liquid milk processors will, for example, generally place a high value on a level supply profile, because daily demand for their output is usually stable and the product (either in raw or processed form) is highly perishable. Cheese, on the other hand, is a storable product and consequently a cheese manufacturer will generally be less concerned about having a steady supply and more concerned about the constituent composition of the milk (the higher the protein content, the easier it is for cheese manufacturers to achieve higher yields).

6.23. Consequently, the prices paid by a particular purchaser will be governed by a number of factors. First, there are transport and administrative cost-related considerations. In this respect a larger producer will typically be paid more net of collection charges and volume bonuses than a smaller producer, reflecting the lower unit transport and administration costs associated with collecting his milk. Similarly, a producer whose milk is collected every other day will typically be paid more per unit than one whose milk is collected daily. Second, a producer with a level production profile may be paid more than one whose production profile is subject to a high degree of seasonality, because of the cost advantages associated with stable levels of capacity utilization by processors and transport operators, and in recognition of any higher milk production costs involved in achieving a level profile. Third, producers will frequently be paid according to the compositional quality of the milk they produce, in particular the butterfat and protein content, the total bacterial count and the somatic cell count. The

FIGURE 6.2

Milk groups and direct supply dairies collecting and recruiting in England and Wales by county, July 1998



Source: ADAS.

pricing structures favoured by buyers vary according to the different weightings they give to each of these factors.

6.25. As a result, the prices obtained by producers will tend to vary according to their production profile and the type of milk they produce. We commissioned ADAS to carry out a price comparison on our behalf. In doing so they derived characteristics of the average UK dairy farm with respect to: the volume of milk produced monthly, the proportions of butterfat and protein, the bacterial cell count, the somatic cell count and the frequency of collection.

6.26. Table 6.1 sets out the average annual price per litre paid by 12 purchasers in England and Wales. The table shows that, on an average farm, the range of prices varied by up to 2 ppl in 1997/98. The prices of Milk Marque and Scottish Milk were the lowest prices paid to farmers. The price paid by The Milk Group, the only other quota-holding milk group on the list, was, by contrast, substantially higher than that of Milk Marque.

TABLE 6.1 **Average net prices paid to producers by major milk groups and direct supply purchasers in England and Wales, 1994/95 to 1997/98**

ppl

	1994/95	*1995/96*	*1996/97*	*1997/98*
Lancashire Dairy	25.50	25.71	25.90	22.52
AWG-UMP	26.63	26.65	26.32	22.33
MD Premier	25.81	25.77	26.13	22.25
Wiseman Manchester	-	25.66	25.91	22.21
The Milk Group	25.03	25.00	25.75	22.12
Waterford	25.76	25.54	25.69	22.09
Nestlé Ash	25.33	25.76	26.01	22.00
Northern Foods	24.56	24.96	25.57	21.94
Unigate UMP	26.41	26.26	25.54	21.68
Nestlé Girvan	25.50	25.49	25.93	21.48
Scottish Milk	23.92	24.55	24.41	21.16
Milk Marque	24.56	24.52	24.11	20.55

Source: ADAS.

Note: Figures are net of transport charges and volume bonuses.

6.27. Another ‘league table’ of producer milk prices throughout the UK is issued monthly in the publication *British Dairying* but is based on somewhat different assumptions from the ADAS comparison. Appendix 6.4 sets out the annual average producer price for the three years to December 1998. This also shows that the successor organizations to the MMB paid the lowest prices to producers of all purchasers of milk.

6.28. The figures in Table 6.1 can be translated into annual revenue for the average producer (see paragraph 6.24). Table 6.2 sets out the results. It demonstrates that the different prices paid can have a very significant effect on producers’ revenues. On the basis of the table, while an average producer selling through Milk Marque in 1996/97 expected an annual revenue of about £103,000, potentially, by selling direct, his revenue could have been increased to almost £113,000.

TABLE 6.2 **Annual revenues net of collection charges for average producer from major milk groups and direct supply purchasers in England and Wales, 1996/97**

£

AWG-UMP	112,804
MD Premier	112,005
Nestlé Ash	111,485
Nestlé Girvan	111,134
Wiseman Manchester	111,056
Lancashire Dairy	111,010
The Milk Group	110,370
Waterford Seas	110,120
Northern Foods	109,622
Unigate UMP	109,456
Scottish Milk	104,612
Milk Marque	103,349

Source: ADAS.

6.29. This relative positioning of the successors to the MMBs is ultimately attributable to their admission policies together with their pricing policies. As discussed in paragraphs 7.120 to 7.132, these organizations broadly continue to operate an 'open door' policy to producers within the statutory areas of their predecessor organizations. Most producers who achieve an acceptable minimum standard for their milk, therefore, have a successor body to the MMB available as a possible purchaser. As a consequence, other purchasers looking to buy milk need to pay producers a price which is at least as high as that paid by the successors to the MMBs. This does not, however, explain why such a course of action might be pursued by the processor. The reasons why processors pay premiums over the Milk Marque price are discussed in paragraphs 6.44 to 6.55.

Producers' willingness to switch between milk buyers

6.30. Despite the fact that Milk Marque's and Scottish Milk's prices to producers have generally been the lowest, both co-operatives have retained a significant number of members, although the memberships of both have demonstrated a downward trend (see Tables 4.11 and 4.18).

6.31. In part this may be explained by reference to the type of producers remaining in Milk Marque and Scottish Milk. Table 4.7 showed that Milk Marque and Scottish Milk members were, on average, smaller than those in the other large milk groups. Furthermore, Figure 6.2 showed that the number of available alternatives to Milk Marque varied throughout England and Wales.

6.32. Producers may, however, choose not to resign from their co-operative or change purchaser even when offered a higher price for their milk. We asked ADAS, which provides advice to farmers on selling their milk, to describe the factors that affect the willingness of farmers to change milk purchaser. ADAS said that producers were generally aware of the opportunities to sell to a choice of buyers, and that this was particularly the case with Milk Marque's farmer members. ADAS said it was well recognized, however, that there was a tendency among producers to prefer producer-owned co-operatives as milk purchasers. It added that Milk Marque had remained large because many farmers believed that if they remained united they would be able to influence prices, whereas if they were fragmented they would become price takers. ADAS told us that The Milk Group also had a strong following because it was a group of producers that sold to more than one buyer, and its members felt they were not being dictated to on price.

6.33. Milk Marque argued that direct supply farmers might need to be paid a price above that available from Milk Marque because, other things being equal, they preferred to sell to a co-operative society of which they were members than to a company in which they had no direct stake or financial interest. A purchaser would, therefore, need to be paid a premium over the Milk Marque price to induce him to give up an otherwise preferred option. The size of the necessary inducement, Milk Marque said, would differ from farmer to farmer. Milk Marque told us that this might explain why, as the number of direct supply farmers had been increasing, processors had been obliged to offer increasingly higher premiums to induce them to enter into direct supply agreements; ie the least loyal members had already left and higher premiums were needed to persuade more loyal members to leave. Price premiums are discussed in paragraphs 6.44 to 6.55.

6.34. We now turn to consider the processor's choice of supplier.

The processor's choice of supplier

6.35. Table 6.3 shows the sources of milk for the larger processing companies in Great Britain, from 1995/96 to 1997/98. The table is based on responses to a questionnaire sent to the largest processing companies. It shows that, increasingly, these companies have moved away from buying from Milk Marque, and towards using other means of securing milk, particularly direct supply, for a proportion of their requirements. In 1995/96 Milk Marque accounted for 62 per cent of purchases by these processors, whereas in 1997/98 the proportion had fallen to about 50 per cent. The proportion of milk purchased from other milk groups (both quota-holding and non-quota-holding) has, on the other hand, increased. Whereas in 1995/96 other milk groups, including Scottish Milk, accounted for 12 per cent of purchases, in 1997/98 this proportion had increased to about 18 per cent. The proportion

accounted for by direct supply in 1997/98 was also higher than it was immediately after deregulation, although this proportion did not increase between 1996/97 and 1997/98. Milk Marque told us, however, that it was wrong to distinguish between direct supply and non-quota-holding milk groups which, it said, were equivalent as far as processors were concerned. Table 6.3 provides statistical support, too, for the assertion made in paragraph 6.3 that very little milk processed in Great Britain is imported from outside Great Britain.

TABLE 6.3 **Sources of milk for large processors, 1995/96 to 1997/98**

per cent

Source of supply	*1995/96*	*1996/97*	*1997/98*
Milk Marque	62.0	55.9	50.4
Scottish Milk	2.4	3.0	3.5
Other milk groups	9.6	12.4	14.6
Direct suppliers	24.4	27.4	27.3
Other processors	1.2	1.3	1.4
Purchases from outside Great Britain	0.0	0.0	2.3
Other	0.4	0.1	0.5
Total	100.0	100.0	100.0

Source: MMC based on company information.

6.36. Table 6.4, which is based on the responses to our small processors' questionnaire (see paragraph 10.441), shows the breakdown of smaller processors' sources of milk as between Milk Marque, Scottish Milk and other milk suppliers. This indicates that smaller processors generally purchase a greater proportion of their milk from Milk Marque than larger processors. Small processors bought about 64 per cent of their purchases from Milk Marque in 1997/98.

TABLE 6.4 **Sources of milk for small processors, 1997/98**

Source of supply	%
Milk Marque	63.9
Scottish Milk	4.6
Other	31.5
Total	100.0

Source: MMC based on company information.

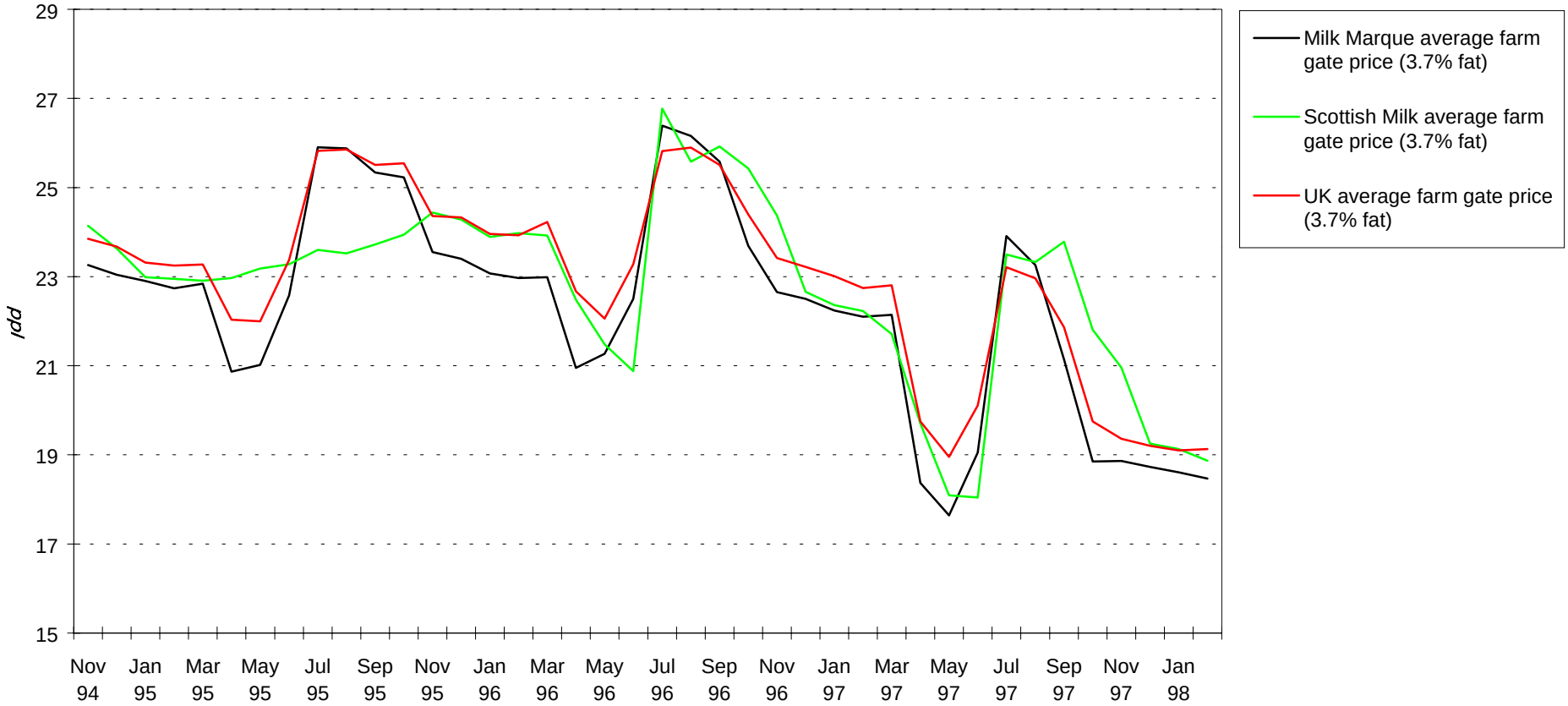
Price leadership

6.37. It follows from the discussion in paragraph 6.28 that the prices of the successors to the MMBs effectively set the floor price to producers in the market. Similarly, because the cost to a processor in purchasing milk comprises the payments to producers for the milk itself and a transport and administration cost, to the extent that Milk Marque establishes the baseline price to producers, Milk Marque also effectively determines the prices paid by purchasers throughout the market.

6.38. Figure 6.3 plots Milk Marque's average producer price against the UK average. Given that, in 1997/98, Milk Marque accounted for about 45 per cent of UK sales of milk, a correlation between the two trends must be expected. Nonetheless, this correlation appears particularly strong (especially given that milk sales in Northern Ireland are included in the UK total). Specifically, the correlation coefficient between the two data series is 0.97. (Perfect correlation is reflected in a correlation coefficient of unity, whereas no correlation is reflected in a coefficient of zero.) Furthermore, Milk Marque's price is generally below the UK average; those instances where this is not the case are generally confined to particular months in the year (July to September), which indicates that this is attributable to variations in the monthly payment profile. Producer price trends are discussed further in paragraphs 6.61 to 6.80.

FIGURE 6.3

UK, Milk Marque and Scottish Milk average producer prices, November 1994 to February 1998



Source: MMC, based on information from Milk Marque, Scottish Milk and MAFF.

6.39. The large processors, when setting the terms of direct supply agreements or agreements with other milk groups, generally recognize that they must pay producers at least as much as Milk Marque. As part of this inquiry we sent a questionnaire to the larger milk processors. In this we asked how prices were set in respect of each of their suppliers and whether prices with suppliers other than Milk Marque were set by reference to Milk Marque's prices. We received 17 responses out of a possible 20. All except one of the respondents said that its prices were set with reference to Milk Marque's prices. In some cases, the prices paid to other suppliers were explicitly indexed to Milk Marque's prices; 6 out of 17 respondents told us that they agreed contracts which explicitly paid producers a premium over Milk Marque's prices.

6.40. Milk Marque argued that there could be no inference of price leadership if two or more sellers sold at the same, or nearly the same, price. It said that it did not 'set' prices to buyers, nor did it set the premiums paid by processors purchasing by direct supply. It told us that the term 'price leadership' was apt to mislead (see paragraphs 8.76 to 8.80).

Scottish Milk's prices

6.41. Since Milk Marque's universal service coverage extends only to producers located in those areas previously covered by the EWMMB, other successor organizations to the MMBs, in particular Scottish Milk, may be in a position to undercut prices to producers. Table 6.1 showed, however, that Scottish Milk's prices to producers, although below Milk Marque's prices immediately following deregulation, were in subsequent years slightly higher.

6.42. Figure 6.3 also sets out Scottish Milk's average prices to producers between November 1994 and February 1998. It shows that Scottish Milk's prices have generally been at similar levels to those paid by Milk Marque. The figure also shows, however, that the relationship between the two price series has become much stronger in recent years. This change has coincided with Scottish Milk's movement away from selling through an auction system and towards selling through individually negotiated contracts. Immediately following deregulation, 34 per cent of Scottish Milk's milk was sold through its various auction processes and none by individually negotiated contracts. Most of Scottish Milk's milk at that time was sold as option milk (see paragraph 5.78) and on the secondary market. In 1997/98 only 2 per cent of its milk was sold via its auctions while 87 per cent was sold by individually negotiated contracts.

6.43. Analysis of the data supports this point. We divided the data series into two successive periods of equal length and compared the correlation between the Milk Marque price and the Scottish Milk price in the first period with that in the second period. Whereas for the first period (from November 1994 to June 1996) the correlation coefficient is 0.48, in the second period (July 1996 to February 1998) it increases substantially to 0.92.

6.44. Scottish Milk told us that its contract prices were determined by reference to market forces at the relevant time. It said that pricing information was widely available in respect of the milk market, with Milk Marque's selling processes setting the benchmark for almost all milk sold in Great Britain.

Premiums

6.45. As discussed above, Milk Marque's producer price has, since deregulation, remained one of the lowest in Great Britain. The question therefore arises as to why processors have been increasingly turning to other sources of milk for which they must pay premiums to producers over and above the Milk Marque price.

6.46. The analysis carried out by ADAS indicates that for the average producer (see paragraph 6.24) a 1 ppl increase in the price which he is paid for his milk implies an increase in annual revenue of about £4,300. Table 6.5 (derived from Table 6.1) sets out the premiums over the Milk Marque prices paid by other milk groups and under direct supply agreements. The table shows that in 1997/98 the premiums have, in some cases, been almost as much as 2 ppl. Furthermore, the table

indicates that the premiums paid over Milk Marque's prices have generally increased since deregulation. The unweighted average premiums set out in Table 6.5 indicate an increase from about 0.9 ppl in 1994/95 to about 1.4 ppl in 1997/98.

TABLE 6.5 **Premiums over Milk Marque prices to producers, 1994/95 to 1997/98**

ppl

	1994/95	*1995/96*	*1996/97*	*1997/98*
Scottish Milk	–0.64	0.03	0.30	0.61
Nestlé Girvan	0.94	0.97	1.82	0.93
Unigate UMP	1.85	1.74	1.43	1.13
Northern Foods	0.00	0.44	1.46	1.39
Nestlé Ash	0.77	1.24	1.90	1.45
Waterford	1.20	1.02	1.58	1.54
The Milk Group	0.47	0.48	1.64	1.57
Wiseman Manchester	-	1.14	1.80	1.66
MD Foods Premier	1.25	1.25	2.02	1.70
AWG-UMP	2.07	2.13	2.21	1.78
Lancashire Dairy	0.94	1.19	1.79	1.97
Average*	0.88	1.06	1.63	1.43

Source: ADAS.

*Unweighted.

6.47. It has been argued by Milk Marque that the behaviour of processors in relying increasingly on sources of milk which involve them paying higher prices to producers than they pay to Milk Marque appears irrational. Milk Marque's view was that the processors were willing to pay the premiums, even where it was cheaper for them to buy from Milk Marque, because they wanted to reduce Milk Marque's overall membership and the volume of milk it supplied, so reducing whatever countervailing power Milk Marque had vis-à-vis the large processors. It said that processors regarded a reduction in profits in the intervening years as a worthwhile sacrifice if in the longer term it served to strengthen the processors' position sufficiently vis-à-vis dairy farmers. Milk Marque put it to us that it would be commercially irrational for a major processor to pay a premium to direct supply farmers unless it was confident that other major processors would do likewise, and that this behaviour by processors accordingly implied some co-ordination of buying policies.

6.48. In paragraphs 6.48 to 6.55 we discuss possible reasons why processors might choose to pay a premium for direct supply, as opposed to purchasing from Milk Marque.

6.49. For an individual processor, the choice to purchase milk from a source other than Milk Marque would be profitable if, compared on a like-for-like basis, the price paid by the processor was in fact lower than that paid to Milk Marque. In principle a processor may, however, be acting in an independent profit-maximizing manner by paying producers premiums over the prices that Milk Marque is able to pay its members: that is, first, if direct supply has advantages over purchasing from Milk Marque in terms of the product quality, service quality and quality assurance associated with the two sources of raw milk; or second, if the transport costs associated with collecting the milk from the farm and delivering it to the dairy under direct supply contracts are significantly lower than those of Milk Marque.

6.50. The processors argued that the quality of service offered by Milk Marque to processors was inferior to that of farmers supplying them directly. They argued that whereas most milk obtained from Milk Marque was purchased on contracts which involved a high level of unpredictable fluctuation, milk sourced from direct supply arrangements was purchased on an ex-farm basis, which had less fluctuation. A processor wishing to purchase from Milk Marque under an ex-farm profile would, therefore, have to pay Milk Marque a higher than average price. Looking at the January 1998 selling process, for example, Milk Marque's Ex-farm Profile contract price, at 21.71 ppl, was 1.81 ppl higher than Milk Marque's average price to processors. A processor wishing to purchase milk with an ex-farm profile might, therefore, be able to pay up to this amount above the Milk Marque producer price to a direct supply producer without incurring additional cost.

6.51. Milk Marque, however, argued that, even allowing for this, it could be demonstrated that in many cases buying direct from farms could not be cheaper for the processor than buying from Milk Marque on an Ex-farm Profile contract. It provided us with an analysis based on 1997/98 figures which indicated that the average premium paid by processors (1.7 ppl), combined with an average transport cost (in the range of 0.6 ppl to 1.3 ppl which Milk Marque said was consistent with figures provided to the MMC by processors) and an administration cost (estimated by Milk Marque to be at least 0.3 ppl), implied that the total cost to a processor purchasing directly was between 23.3 ppl and 24.0 ppl. Milk Marque's average ex-farm profile price from the January 1997 selling process (for sales from 1 April 1997) and the July 1997 selling process (for sales from 1 October 1997) was 23.5 ppl and, as such, Milk Marque argued that direct supply would in many cases cost processors more than purchasing milk under Milk Marque's ex-farm price.

6.52. Milk Marque further argued that this conclusion was reinforced by the fact that Milk Marque's Ex-farm Profile contract had many advantages over direct supply contracts, in that, since it was based on aggregate supplies from Milk Marque's membership, it ensured a far more stable supply than any particular farm or any processor's portfolio of farms, being smaller than Milk Marque's membership, would be able to provide. It said that it was, therefore, disingenuous to compare Milk Marque's Ex-farm Profile contracts with direct supply arrangements between a processor and a producer or group of producers.

6.53. We pursued this with the larger processors by asking them to provide us with the aggregate supply profiles of their direct supply contracts and comparing these with the profile of Milk Marque's Ex-farm Profile contracts. This indicated that the situation varied between processors, some of whose direct supply profile was very similar to that of Milk Marque's Ex-farm Profile contract and some of whose direct supply profile was less stable, although not substantially so.

6.54. It has also been argued that direct supply has additional benefits over purchases from Milk Marque in terms of service quality. First, obtaining milk directly enabled processors to respond better to their customers' concerns about traceability. Second, the DIF drew our attention to the uncertainties associated with the Milk Marque selling system as a result of the constant changes that Milk Marque made to the rules (see Appendix 8.1). The issue of traceability in connection with Milk Marque is discussed in paragraphs 5.166 to 5.169 and the alleged uncertainties associated with Milk Marque's selling system are discussed in paragraphs 7.98 to 7.107.

6.55. With regard to transport costs, under its present arrangements a processor purchasing from Milk Marque pays a price for delivered milk which includes an implicit price for transport, reflecting the average cost of collecting milk from all Milk Marque members and distributing it to all Milk Marque purchasers. The processor purchasing by direct supply, on the other hand, is in a position to select farms which involve lower transport costs to its dairies. In principle, therefore, a processor buying direct may more easily afford to pay premiums over the Milk Marque price in these circumstances. As discussed in paragraph 5.160, this action is, however, likely to result in an increase in the average transport costs of supplying the remaining Milk Marque customers. Data provided by processors (referred to in paragraph 6.38) indicated that transport costs to processors using direct supply ranged from 0.6 ppl to 1.3 ppl.

6.56. Lastly, with respect to Milk Marque's argument set out in paragraph 6.46, it may be contended that, in any event, a strategy on the part of processors which involves paying unprofitably high prices to direct suppliers to draw producers away from Milk Marque would ultimately not be effective if producers were able to regroup once Milk Marque had been suitably weakened and the direct supply premium subsequently reduced to profitable levels. Milk Marque, however, argued that it was incorrect to assume that it would have no difficulty regaining its former members in such circumstances. To do so it would have to pay producer prices which were higher than those warranted by its net sales' revenue. It said that this would mean it would have to borrow funds in order to re-establish its former operational and transport economies. In any event, Milk Marque argued, it was wholly unreasonable to suppose that farmers would be attracted to rejoin a co-operative which had failed them in the recent past and which would have to borrow if it were to pay its members a sufficiently high price.

Barriers to expansion and entry in milk production

6.57. In principle, the threat of entry into a market may act as a curb on persistently high profits. In particular, if entry into and exit from a market were costless, any high profits being earned by existing firms would draw in new entrants, increasing competition and eroding profits. Accordingly, in a perfectly contestable market, characterized by free entry and exit, incumbent firms will be unable to earn higher than normal profits in the long term. If, on the other hand, there are barriers to entry which constrain a new entrant's ability to compete with incumbent firms, then it may be possible for incumbent firms to earn persistently high profits.

6.58. The competitiveness of an entrant or indeed of an existing producer wishing to expand production is affected by the CAP quota system. A new entrant into milk production, or an existing producer wishing to increase output, would have to purchase or lease a suitable quota allowance. Although quota is generally available, it is costly. Such producers would, therefore, incur additional costs and, to this extent, be limited in their ability to operate more efficiently and to undercut the prices of existing producers who do not have to incur this cost.

6.59. It may be argued that the price at which quota is traded is a measure of the economic rent of a marginal increase in production by an efficient producer. An entrant or a milk producer wishing to expand output would be willing to pay any amount for the quota up to that level which still leaves him enough profit to break even (as long as this does not cost more than paying the super-levy for producing over quota—see paragraph 3.53). Thus he will pay any amount up to the difference in the price he receives and the marginal cost he incurs for producing an additional litre of milk. In a competitive quota market in which purchasers compete over a limited supply of quota, all purchasers will pay a price which is close to their maximum valuation. The quota will be sold to the highest bidder and, consequently, the producer with the largest margin between price and marginal cost will determine the price at which quota is bought and sold.

6.60. To the extent that the price of quota is determined in this manner, the threat of entry will provide no constraint on the profitability of milk production. In actual fact, however, the price at which quota is traded is subject to other influences which may mean that it is not a precise measure of the economic rent of a marginal increase in production by the efficient producer. The purchase of quota may be driven by 'lifestyle' considerations, rather than by strict profit-maximizing considerations. Farmers may, accordingly, be willing to pay higher than competitive levels in order to remain in dairying. Access to finance may be limited, driving down the price of quota. Furthermore, quota trading is most active towards the end of the quota year, as producers balance their quota entitlement against unexpected variation in actual production to avoid paying the super-levy. Lastly, there may be barriers to producers leaving the industry. These barriers—which might, for example, take the forms of acquired skills or sunk capital costs—could cause producers to continue producing milk even when short-term profits were below normal levels. As a consequence, producers may be willing to 'overpay' for quota.

6.61. Notwithstanding this, it is clear that the prices at which quota is leased and traded provide substantial additional costs to producers wishing to expand their production, and to new entry. Table 6.6 sets out annual average quota trading prices for the last three years.

TABLE 6.6 **Quota trading prices, 1995/96 to 1997/98**

ppl

	Sale	*One-year lease*
1995/96	65.71	12.17
1996/97	61.64	13.58
1997/98	45.49	9.61

Source: Milk Marque.

Trends in producer prices

6.62. Having considered competition in milk supply, we now turn to examine trends in producer prices and their main influences. The data series published by MAFF covers the UK as a whole. As shown in Table 4.1, about 90 per cent of UK milk is produced in Great Britain. For this reason, the trend in UK average farm gate prices will be similar to the trend in the average producer price in Great Britain. In our analysis of price trends we have, therefore, used the UK average producer price series published by MAFF.

6.63. Figure 6.4 sets out the trend in UK average producer prices from January 1992 to December 1998, ie a period of about three years prior to deregulation and four years after deregulation. The figure shows that producer prices are subject to substantial short-term fluctuations of a seasonal nature. These short-term seasonal fluctuations can be smoothed out using a 12-monthly moving average of the same data series. The resultant trend line has been included in Figure 6.4 in order to illustrate the long-term trend more clearly. This shows that, around the time of deregulation, milk prices were rising. After deregulation, they continued to rise until 1996, since which time they have fallen substantially. Whereas the average producer price in June 1996 was 22 per cent higher than that in June 1994, it was also 24 per cent higher than the price paid to farmers in June 1998.[1]

The influences on milk prices

6.64. There are a host of potential influences on the price of milk. These include: the exchange rate, the CAP price support system, the competitive environment, and other factors affecting conditions of supply and demand. Consequently in the following paragraphs we look, in turn, at the effect of each of these factors on the price of milk.

The exchange rate

6.65. An increase in the value of sterling against foreign currencies would be expected to cause the UK milk price to fall (other things being equal) through two mechanisms. First, the levels of support prices are specified in euros and before 1 January 1999 were set in ecus. In the UK, these prices must be translated into sterling terms. Under the CAP, the conversion from ecus into sterling was carried out at the 'green rate' which itself was derived on the basis of the actual market £/ecu exchange rate (see paragraph 3.43). Since 1 January 1999, market £/euro exchange rates have been used. Thus an increase in the £/euro (previously the £/ecu exchange rate), for example, implies that the sterling values of these support prices fall, leading to a weakening of price support in the UK. Secondly, an increase in the value of sterling against foreign currencies would make UK-based processing companies less competitive internationally, reducing the volume of dairy products exported and increasing the volume imported. The consequent fall in demand for the products of UK processors will translate into a fall in demand for milk, and prices would therefore be expected to fall.

6.66. Figure 6.4 also plots the ecu/sterling rate and illustrates the effect of the sterling exchange rate on the price of milk. Throughout the period the milk price has tended to move together with the ecu/sterling exchange rate. While, immediately after deregulation, sterling was depreciating, between July 1995 and October 1997 it appreciated by 22 per cent during which time the average UK price of milk fell by 21 per cent.

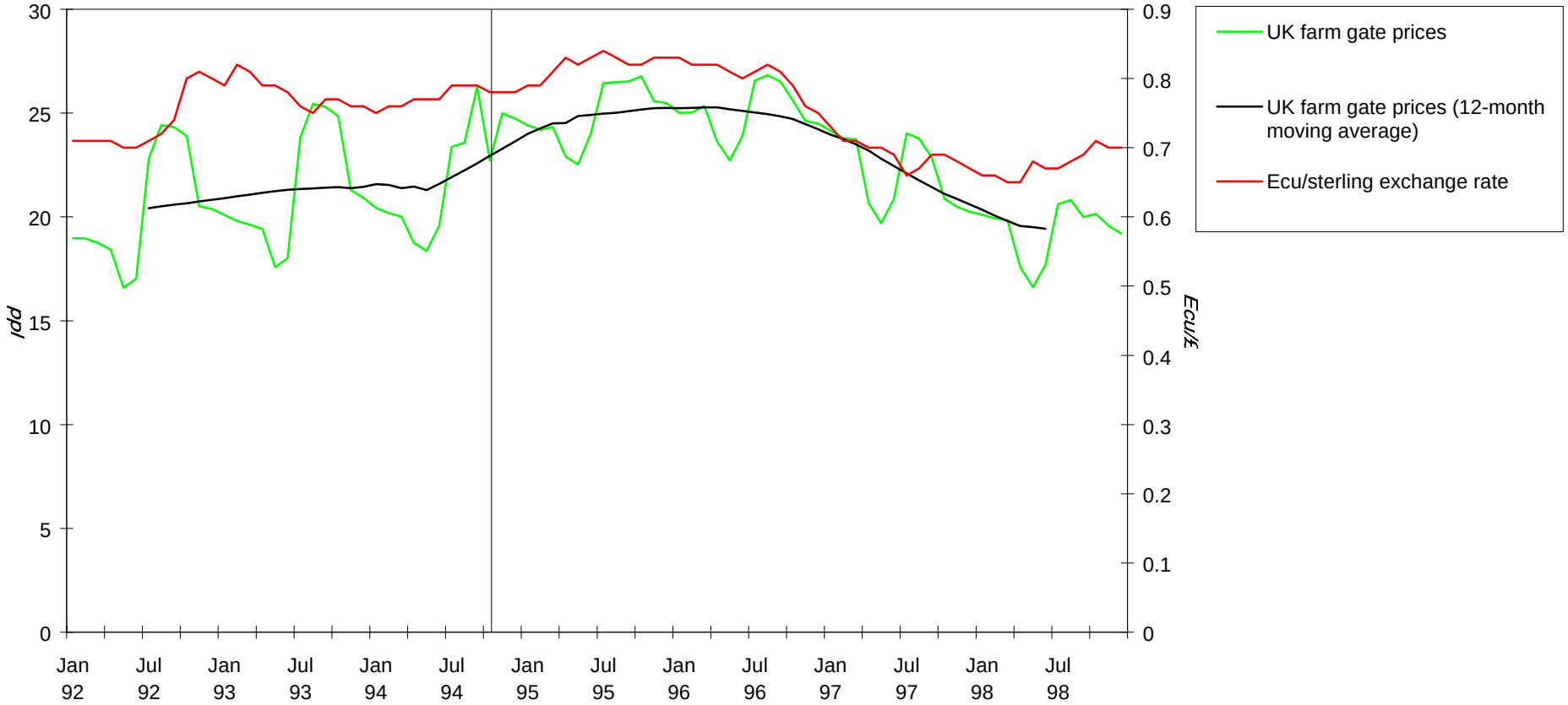
The CAP price support system

6.67. As discussed in paragraph 3.38, an objective of the CAP is to increase the earnings of farmers. It does this by means of supporting the price which farms are paid for the products they produce. In the dairy sector a 'target price' is set for milk by the Council of Ministers (see paragraph

[1]All comparisons are in nominal terms.

FIGURE 6.4

Trends in UK producer prices and ecu/sterling exchange rate, January 1992 to December 1998



Source: MMC, based on data from MAFF and Office for National Statistics.

3.41). The target price is stated to be the price '… which it is aimed to obtain for the aggregate of producers' milk sales on the Community market and on external markets during the milk year'.[1]

6.68. The CAP regime does not, however, directly fix the price of milk at the target level. Instead the CAP operates several support measures which generally act at the level of the processed product rather than at the point where producers sell milk (see paragraphs 3.38 to 3.47).

6.69. The indirect nature of the CAP price support measures implies that it is not feasible to determine precisely the degree to which the actual level of prices prevailing at any one time is attributable to the CAP, as opposed to other factors. There are, however, a number of benchmarks which might potentially be suitable as broad measures of the price effect of the CAP, the most obvious being the target price, intervention prices and the IMPE. The target price has the advantage that it is intended to reflect the entirety of the CAP measures. By contrast, intervention prices and the IMPE relate to only one (albeit important) aspect of the CAP, the intervention system. Furthermore, intervention prices relate to butter and SMP, not to milk, whilst the IMPE is not explicitly set by the EC, but is an imputed price which must, therefore, be estimated. (The estimation of an IMPE for the purpose of the assurances Milk Marque gave to the OFT (see paragraph 5.15) is discussed in paragraphs 7.93 to 7.97.) In fact, intervention prices and the target price have tracked very similar courses. The choice of using the target price rather than these intervention prices as a benchmark is, therefore, unlikely to have a significant impact on the analysis of trends in actual prices.

6.70. Milk Marque, however, argued that it was not tenable to assert that the EC target price reflected those price movements which were due to the CAP. It said that the target price was a policy goal and that there was no reason to suppose that the Council of Ministers set and changed the target price in 'strict, or even loose' relationship to estimates of the price effects of the CAP. Furthermore, Milk Marque said, the Council set the target price for the EC as a whole, and the price effects of the CAP would differ between member states. Any direct connection between changes in the target price and changes in the price effects of the CAP in a particular member state (or part of one) was for this reason also wholly implausible.

6.71. With respect to the first point, it is clear that, as defined, the target price constitutes an objective rather than an effect and is not, in itself, an instrument of substantial policy. It is, however, set every year and for this reason it is likely to represent levels which the Council of Ministers believes could be attained. This view is supported by analysis carried out by DGVI of the European Commission which shows that in the 17 years up until 1996, the average milk price obtained by farmers on the EC market in the medium term reflected closely the evolution of the target price for milk.[2]

6.72. We refer to the ratio of producer prices to the target price as the 'coverage ratio'. This ratio can be measured on two bases depending on whether it is the producer's price delivered to dairy or the producer's farm gate price which is used. The target price, as specified in Article 3 of Regulation (EEC) 804/68, is fixed for milk containing 3.7 per cent fat, delivered to dairy. The difference between the producer's farm gate price and the producer price delivered to dairy is mainly attributable to transport costs. The ratio of producer prices for milk delivered to dairy to the target price is, consequently, the better one to use as a measure of achievement of the target price. Table 6.7 sets out our estimates of certain EC member states' achievement of the target price for the years 1991 to 1996 (the most recent year for which we were able to obtain published data for all countries). The most recent published data that we were able to secure on these costs related to the member states set out in Table 6.7 for the years 1990 to 1993. The figures in Table 6.7 assume that the proportionate difference between producers' farm gate prices and producers' delivered to dairy prices has remained constant throughout the period at the average 1990 to 1993 level.

6.73. Table 6.7 indicates that different member states have indeed varied in terms of their achievement of the target price. The table shows that the UK has persistently achieved a price below the target level. These differences between member states may be attributed to several factors,

[1]Regulation (EEC) 804/68 Article 3.
[2]Situation and Outlook: Dairy Sector, CAP Working Document, European Commission, Directorate General for Agriculture (DGVI), 1997.

including different industry structures, patterns of consumption and trade patterns. The UK dairy industry has a number of particular characteristics. First, UK production and processing are not vertically integrated to any substantial degree and milk is actively traded on the open market, whereas in other countries there is a higher degree of vertical integration (see paragraph 3.40). Second, the UK's consumption pattern differs from that of most other European countries in that the UK consumes a large amount of fresh liquid milk. Third, the UK, unlike other member states, imports a large proportion of its butter from outside the EC.

TABLE 6.7 **Producer prices delivered to dairy as a percentage of the target price for milk at 3.7 per cent fat, 1991 to 1996**

	1991	*1992*	*1993*	*1994*	*1995*	*1996*	*Average (1991–96)*
Germany	94	97	98	97	100	97	97
France	85	88	93	95	97	98	92
Netherlands	96	100	104	103	104	99	101
Belgium	83	86	92	92	96	92	90
UK	87	86	87	91	96	98	91
Ireland	80	87	91	93	97	100	91
Denmark	101	102	102	104	104	106	103

Source: MMC estimates, based on information from Eurostat and *EEC Dairy Facts and Figures* (1992 to 1994).

6.74. In view of the need to estimate the costs incurred between the farm gate and the dairy, the coverage ratio measured by dividing farm gate prices by the target price may be regarded as a more precise figure than the coverage ratio discussed in paragraph 6.71. This ratio is less useful in comparing the achievement of the target price in different member states because of national differences in transport and other costs. It is, however, helpful in considering movements over time in a particular country, and we employ it for this purpose in paragraphs 6.74 to 6.76.

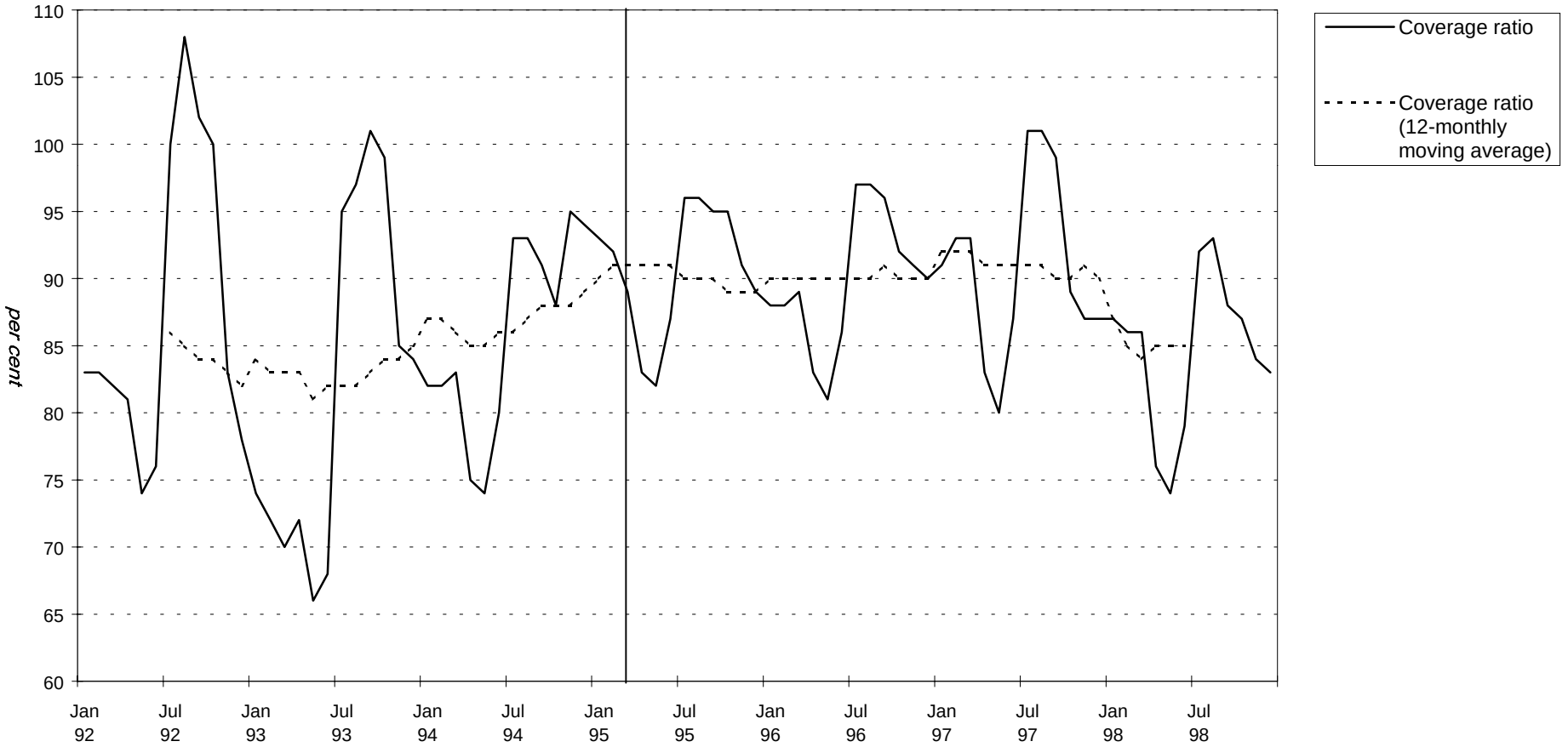
6.75. Figure 6.5 plots the trend in the UK average coverage ratio defined as producers' farm gate prices divided by the target price. The figure shows that the monthly ratio fluctuates considerably. This is particularly true of the pre-deregulation period, largely as a result of the highly seasonal profile of milk prices under the MMBs. This fluctuation reduced in the period immediately following deregulation until 1997/98, but since that time it appears to have increased again.

6.76. The figure also includes a 12-monthly moving average of the ratio. This shows that the coverage ratio rose at deregulation and remained at a higher level than it had been prior to deregulation until late 1997, after which it fell for a short period.

6.77. Table 6.8 sets out the annual averages of the UK coverage ratio (again measured as farm gate prices divided by the target price). This similarly shows that the coverage ratio increased at deregulation and remained at those higher levels for the years following deregulation, but fell again in 1998. The table also sets out the annual average milk price (adjusted to 3.7 per cent fat) and the target price converted into sterling at the green rate. It shows that, although the UK milk price has fallen considerably since 1996, because of the sterling appreciation, the target price has also fallen. Also included in the table are the average figures for that part of the data series preceding deregulation and that following deregulation. The target price was, on average, at similar levels for the period prior to deregulation and following deregulation (the average differential being about 0.4 ppl). The UK milk price, on the other hand, has on average been about 1.6 ppl higher in the period following deregulation. As a consequence, the average coverage ratio for the period after deregulation (at 89 per cent) has been about five percentage points higher than the average prior to deregulation.

FIGURE 6.5

UK coverage ratio, January 1992 to December 1998



Source: MMC, based on data from MAFF.

TABLE 6.8 **EC target price, UK farm gate milk price and the coverage ratio, 1992 to 1998**

	EC target price p/kg	*UK farm gate milk price* p/kg*	*Coverage ratio (%)*
1992	21.82	19.07	87
1993	24.97	20.33	82
1994	24.21	20.80	86
1995	25.79	23.36	91
1996	26.03	23.34	90
1997	22.60	20.53	91
1998	21.41	18.08	84
Pre-deregulation (Jan 1992–Oct 1994)	23.62	19.89	84
Post-deregulation (Nov 1994–Dec 1998)	23.98	21.49	89

Source: MMC based on information from MAFF and *Dairy Facts and Figures*.

*Adjusted to 3.7 per cent fat content.

Note: Data are for calendar years. Estimates of coverage ratio differ from the ratios of delivered price of milk to target price in Table 6.7 owing to the additional costs incurred between the farm gate and the dairy.

Other factors affecting the price of milk since deregulation

6.78. The movements in the coverage ratio since deregulation might be taken as indicating that the change in the competitive regime at deregulation has led to higher prices than would have been attained prior to deregulation. Such an inference, however, also presumes that the change in the coverage ratio at deregulation cannot be explained in terms of other factors affecting supply and demand.

6.79. Milk Marque told us that the change in the coverage ratio could be explained in terms of many other factors, and provided the following examples:

(a) the degree of processor purchasing power;

(b) changes in world demand and price levels;

(c) the relative strengths and weaknesses of demand for particular products (for example, fresh liquid milk);

(d) seasonal demand fluctuations for particular products against the available milk supply;

(e) the efficiency of processing and marketing channels;

(f) the quality of milk supply and products;

(g) changes in the structure of the product markets as they affect milk use; and

(h) strengths and weaknesses of demand for competitive products (for example, margarine).

6.80. Many factors may potentially influence the price of milk but they are likely to differ considerably in their individual significance. We consequently asked Milk Marque for evidence of a quantitative nature in this regard. Milk Marque told us in reply that quantification of these factors was not straightforward and that it would require a major piece of research to uncover the picture which, it said, would require a scale of resources which it did not possess.

6.81. Scottish Milk also argued that prices were subject to other influences and these could also affect the coverage ratio. In particular, it told us that shortly after deregulation sterling depreciated, causing an increase in demand for UK butter both from Continental Europe and from Russia. We asked Scottish Milk to provide further quantitative information in support of its argument. Scottish

Milk told us that it did not hold quantitative information regarding world demand since deregulation, but told us that the increase in demand referred to had been well publicized at the time.

The effect on retail prices

6.82. As discussed in paragraph 6.62, the price of milk has risen and fallen over the years. A number of producers have argued that the recent fall in prices has not fed through to retail prices, but that it has taken the form of increased margins either at the processor or at the retailer level. In paragraph 6.82 we provide an overview of the retail price movements of dairy products. In paragraphs 6.83 to 6.100 we move on to look at the relationship between the prices of raw milk and retail prices.

Trends in the retail prices of dairy products

6.83. Data on the retail price trends of dairy products is supplied by the Office for National Statistics (ONS). Between 1990 and 1997 average prices of cheese and butter increased in real terms (by about 13 per cent and 10 per cent respectively). The average retail price of fresh liquid milk, on the other hand, rose by 4 per cent between 1990 and 1995, but the ONS data show a subsequent fall and in 1997 prices were, in real terms, at similar levels to those in 1990. The average price of milk products (yogurts, fresh cream, powdered milk and fromage frais) has generally fallen in real terms across this period. These trends are, however, likely to have been affected by changes in the mix of products being purchased. Most significantly, it should be noted that the fresh liquid milk prices in the ONS series include sales in shops as well as doorstep deliveries, and the classification 'milk products' covers a wide range of different products. If consumer taste has been moving towards higher value-added products, this would reflect itself in these figures as an increasing real price trend (assuming other factors remained constant). Conversely, a move in the other direction, that is away from value-added items such as doorstep delivery, would, other things being equal, show up as a declining trend.

The relationship between raw milk prices and retail prices

6.84. In this section we compare movements in the retail price of milk with those of raw milk prices to assess whether the former can be explained in terms of the latter. We first focus on fresh liquid milk retail prices, after which we turn to the retail prices of other products.

6.85. Milk Marque argued that the recent fall in raw milk prices had not been reflected fully in prices in the shops and provided us with a number of pricing comparisons which, in its view, supported this. First, it said that despite the substantial fall in the price of raw milk between 1996 and 1998, according to ONS data the retail price of fresh liquid milk had barely moved, that of butter had increased slightly, and whilst the retail price of cheese had fluctuated more than the other two prices, at the start and finish of that two-year period the price was about the same. Second, it said that whereas the Milk Marque raw milk selling price fell by approximately 3 ppl in April 1997, Nielsen data on retail prices showed that the price of a 4-pint polybottle fell from 23.7p per pint in February 1997 to 22.4p per pint in April 1997, equivalent to a fall of 1.3p per pint or 2.3 ppl. The retail price of doorstep milk across the same time period, Milk Marque said, rose from 38.8p per pint to 38.9p per pint. Thirdly, Milk Marque said that between April 1997 and October 1998, the raw milk selling price had fallen by a further 3 to 3.5 ppl, while Nielsen data showed that the retail price of a 4-pint polybottle fell from 22.4p per pint to 22.0p per pint in October 1998. This was equivalent to a fall of just 0.4p per pint or 0.7 ppl. Across the same period, the retail price on the doorstep fell from 38.9p per pint to 38.6p per pint, a fall of just 0.3p per pint or 0.5 ppl.

6.86. Assessments of pricing relationships based simply on comparing prices at two points in time will, however, necessarily be limited, not least by the particular points in time used for the comparisons. We consequently carried out our own statistical analysis looking, more generally, at monthly movements in raw milk prices and retail prices to ascertain whether, and if so to what extent, any relationship existed.

6.87. In carrying out such a statistical exercise there are a number of problems which must be addressed. First, there is the effect of a change in product mix, which includes changes in the proportions of different end-products and of different channels of distribution for the same product. The discussion of retail price trends in paragraph 6.82 looked at average price movements for certain product categories. The fresh liquid milk trend, for example, included milk delivered to the doorstep, as well as that sold in supermarkets. It also included different container sizes and container types as well as fresh liquid milk with different fat contents. As mentioned in paragraph 6.82, however, changes in the product mix over time may therefore affect the price trend on this measure. For example, increases in the proportion of fresh liquid milk sold through supermarkets at the expense of doorstep sales, and a general increase in the size of containers in supermarkets, will both have the effect of reducing the average retail price per litre of fresh liquid milk. For our analysis we have focused on the price trend of one product type, namely the 4-pint container, which is the container type in which the majority of fresh liquid milk is sold in retail outlets. The market research company Mintel[1] reports that in 1997 over one-third of sales through retail outlets were in 4-pint containers, 14 per cent were in 6-pint containers, 11 per cent were in 2-pint containers and 8 per cent were in 1-pint containers (sales in metric containers accounted for the majority of the remainder). We also focused on sales through multiple grocery outlets, although initial inspection of the data suggested that this would not affect the results substantially. Furthermore, the 4-pint container type has changed little over the period examined. The relevant price series is plotted in Figure 6.6.

6.88. Second, whereas raw milk prices are subject to substantial short-term fluctuations (see Figure 6.6), those of retail prices are less so. This is for two reasons. First, retailers generally seek to maintain a degree of stability in the prices charged and thus do not generally adjust prices in response to short-term pressures. Second, although producers are paid prices which have a seasonal profile (as described in Chapter 5, where we examine Milk Marque's selling system), the contracts purchased by processors do not incorporate this seasonality. The existence of seasonality in one data series but not in the other may lead any relationship between the two series to be obscured. To deal with this we therefore adjusted the milk price series to eliminate seasonality by means of a 12-monthly moving average. Figure 6.6 plots both the seasonally adjusted trend together with the unadjusted trend.

6.89. Third, a rise in the price of raw milk is unlikely to be passed through into retail prices immediately and, consequently, the relationship between milk prices and retail prices is likely to be a 'lagged' one. The size of lag is, however, difficult to assess a priori. As such, in examining the relationship between the two time series we looked at a number of different lags.

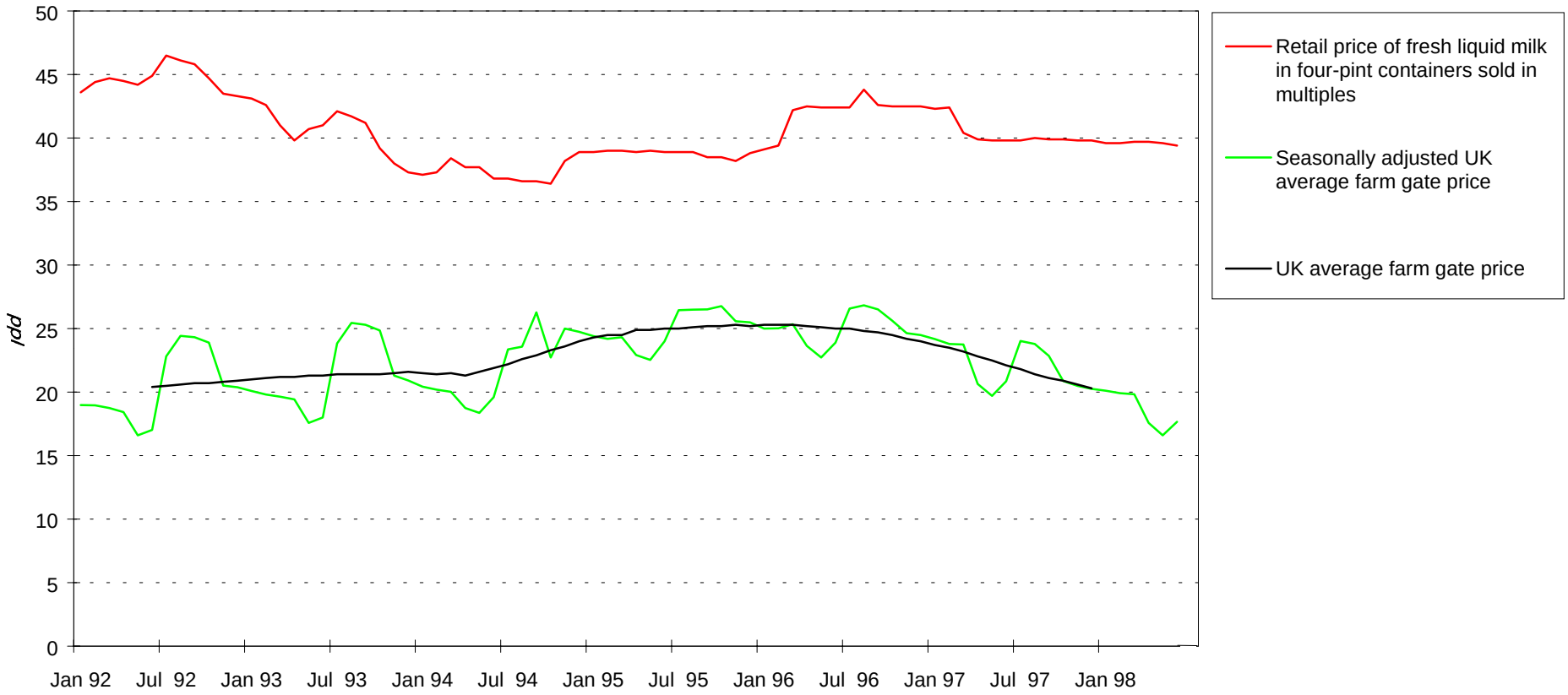
6.90. The DIF told us that in considering this issue it was necessary to distinguish between pass-through from the raw milk price to the processor to the processor's wholesale price to the retailer, and pass-through from the wholesale price paid to the retailer to the retail price. The DIF said that in its view falling and rising prices were passed through to some degree at both the processor and the retailer level. However, there was, the DIF suggested, a highly uneven picture as between rising prices and falling prices. When raw milk prices were falling, pass-through at the processor level was high and immediate, whereas at the retailer level it was low and slow. When, on the other hand, raw milk prices were rising, the degree of pass-through was partial at both the processor and the retailer level.

6.91. Express Dairies also provided us with a study looking at this question. Its analysis of the data indicated that there was a fairly close correlation between its raw milk price and its average wholesale price of fresh liquid milk to major multiple retailers. It argued that this reflected vigorous competition between processors to secure business from retailers which was the result of strong competition among the processors, the extent of overcapacity in processing, and buying power on the part of supermarket purchasers. As to the relationship between wholesale prices and retail prices, Express Dairies said that processors had no control over supermarket retail prices, and that aggregate price data might not correlate closely with the retail prices charged by individual supermarkets due to differences in the particular factors affecting prices. Express Dairies said, however, that it endorsed the general comments of the DIF (see paragraph 6.89) regarding the relationship between wholesale and retail prices, and added that it believed that supermarkets' margins had varied over the period although it estimated that

[1]Mintel International Group, 'Milk', March 1998.

FIGURE 6.6

Trends in retail prices of fresh liquid milk in four-pint containers and raw milk prices, January 1992 to June 1998



Source: MMC, based on Nielsen data provided by the DIF and information from MAFF.

margins were presently the same in percentage terms as they had been in 1991, but on a lower selling price.

6.92. We explored the data in the light of these observations, estimating the relationship between retail prices and seasonally-adjusted raw milk prices, allowing for a range of lags between zero and 15 months. Table 6.9 sets out the main findings for each assumed lag in terms of the estimated effect on the retail price per litre of fresh liquid milk sold in 4-pint containers of a 1 ppl change in the raw milk price. The table also reports whether the raw milk price was a statistically significant determinant of the retail price, ie whether one can be reasonably confident that the raw milk price has an effect on the retail price within the simple relationship estimated.

TABLE 6.9 **The estimated effect of a 1 ppl change in the raw milk price on the retail price of a litre of fresh liquid milk sold in 4-pint containers**

Length of lag	*Effect on liquid milk retail price (ppl)*	*Statistically significant?**
No lag	–0.2	No
3 months	0.1	No
6 months	0.4	Yes
9 months	0.6	Yes
12 months	0.7	Yes
15 months	0.8	Yes

Source: MMC estimates.

*At the 95 per cent confidence level.

6.93. The table shows that with no lag or an assumed lag of three months there is no statistically significant relationship between the raw milk price and the retail price. With assumed lags of between 6 and 15 months, however, the data support a positive statistically significant relationship. More specifically, with a six-month lag, a 1 ppl change in the raw milk price was passed through as a 0.4 ppl change in the liquid milk retail price. The analysis with a 15-month lag indicated a stronger relationship, with a 1 ppl change in the price of raw milk being passed through as a change of about 0.8 ppl in retail prices.

6.94. The DIF also commissioned a study to look at whether raw milk prices fed through into fresh liquid milk retail prices. This study, which is summarized in Appendix 6.5, looked at six series of monthly prices, each relating to different retail product categories. Each data series was considered separately to see whether a relationship could be found with the unadjusted series of UK milk producer prices. To this end the study employed a standard econometric model which allowed for time lags in the adjustment of retail prices to raw milk prices. Two time lags were modelled: a four-month lag and a six-month lag.

6.95. The study found that the degree of pass-through estimated by the model varied sizeably depending on the retail price series used and the assumed lag. In all cases, however, the model indicated a positive relationship, albeit in a wide range (between 30 and 80 per cent). The relationship, however, was not in all cases estimated with a good deal of precision. The study's most reliable estimate (which allowed for lags of four and six months) indicated a statistically significant pass-through in the order of 50 per cent in the medium term.

6.96. The DIF said that for technical reasons the results of the econometric study had to be taken with a degree of caution. First, the number of observations was modest. This had a detrimental effect on the accuracy of the estimates, especially after adjusting for lags. Second, the Milk Marque price adjusted only every six months, which made it more difficult to draw statistical inferences from the data series.

6.97. Milk Marque told us that it disputed that any rise in the price of raw milk was unlikely to be passed on immediately to retail fresh liquid milk prices. Industry experience, it said, was to the contrary. Thus Milk Marque was of the opinion that any statistical analysis which purported to show a lag of 6 or 15 months between raw milk prices and fresh liquid milk retail prices was without credibility. Milk Marque said that it believed there were sufficient grounds for doubting that the MMC's statistical

exercise had established any reasonable causality. Milk Marque added that, in its view, the exercise failed to address the fact that retail prices had remained static, whilst recently raw milk prices had fallen significantly.

6.98. We recognize that there are inherent limitations with these types of analyses when studies are considered individually. A number of these have been discussed above. In addition to these, the relatively short data series increases the potential for bias in the estimated relationship. Taken in the round, however, we believe that the various analyses support the proposition that for every 1 ppl change in the price of raw milk, the price of fresh liquid milk changes by an amount in the order of 0.5 ppl in the medium term.

6.99. It has been put to us that the retail policies of supermarkets acted as an impediment to changes in raw milk prices feeding through into retail prices. Specifically, it was claimed that, because milk was a 'known value item' to shoppers, supermarkets had 'loss led' on these products, accepting relatively low margins in order to draw in other business. The quantitative analyses described, however, indicate that any such practices appear not to have stifled the general relationship between raw milk prices and retail prices. Notwithstanding this, we wrote to the largest supermarkets asking them to describe their pricing policies with respect to fresh liquid milk and, in particular, whether they had loss led on these products. The responses, summarized in Chapter 11, supported the view that the price of a pint of milk was an important element in supermarkets' overall levels of business, with a large majority of supermarket customers making this purchase. While one supermarket said that it had accepted below normal mark-ups on fresh liquid milk, all the others said that they set prices in line with the other large retailers.

6.100. The discussion in paragraphs 6.84 to 6.98 focuses entirely on fresh liquid milk retail prices. As discussed in Chapter 4, about one-half of the milk produced in Great Britain is used in the manufacture of fresh liquid milk while about one-half is used in the manufacture of other dairy products, with cheese, butter and SMP accounting for the greater part of milk not made into fresh liquid milk.

6.101. These dairy products compete in different geographical markets. Whereas fresh liquid milk is typically not traded between Great Britain and elsewhere, cheese, butter and SMP are internationally traded. To the extent that products are subject to international competition, a rise in prices would be expected to lead to a reduction in competitiveness, which is likely to bring about an increase in imports and a decline in exports. The DIF told us that, because of international competition, higher milk prices had little direct effect on the consumer prices of tradeable products such as butter, SMP, and cheese, and that, for such products, the main effect of higher prices was that processors were prevented from earning a normal return on capital, causing investment to be deterred, employment reduced and harming the competitiveness of UK products.