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Bacon - Cost/production

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DEPARTMENT OF ECONOMICS
(Agricultural Economics)



AN ECONOMIC SURVEY OF THE
BACON CURING INDUSTRY
IN GREAT BRITAIN

BY
R. C. RICKARD

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R. C. RICKARD

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FOREWORD

This report attempts to answer some specific questions relating to the bacon-curing industry in Great Britain. The questions formed part of a brief prepared by the Distribution, Marketing, and Economic Committee of the Pig Industry Development Authority. As a result, a survey was initiated to study certain pig factors, curers' costs, and bacon realisation prices relating to British, Northern Irish, and Danish experience with a view to answering the following questions:

1. *Pig Factors*

- (a) Does G.B. farming now produce pigs (carcases) that are competitive in terms of suitability, regularity (i.e. consistency of quality) and cost of production?
- (b) Can G.B. farming so produce in the future?
- (c) Is the curer price, i.e. cost to curer, a price which shows a competitive return to the producer when account is taken of farm subsidy, direct and indirect at home and abroad?
- (d) Is the curer price of pigs (carcases), taking into account suitability and regularity, itself competitive?

2. *Costs*

Are the G.B. Wiltshire curer's "Wiltshire expenses" competitive:

- (a) from loading on farm to ex-maturing cellar?
- (b) from ex-maturing cellar to point of delivery under First Hand Sale (transfer from maturing cellar to curer's own wholesale department to be considered as delivery under a type of First Hand Sale)?

3. *Realisation*

Is the G.B. curer's realisation for Wiltshire sides competitive, taking suitability, regularity, etc., into account?

In addition to the subjects mentioned above, it was also suggested that an examination by a firm of chartered accountants of the trading accounts of curers over a period of years would be an integral part of the enquiry. This would permit an analysis to be made of the economics of curing with a view to ascertaining profitability over a period of years.

It is to be regretted that it has not been possible to deal in detail with every aspect. The principal shortcoming is the inavailability of information relating to bacon curing costs in Northern Ireland and Denmark. In certain other respects, too, the comparisons drawn have been limited by the quantity and quality of the data at hand. Such limitations apart, however, it is hoped that this report, with the introduction of new and collation of existing material, will shed some further light on the British bacon curing industry and reveal some of its problems as well as some of its advantages.

The Department of Agricultural Economics wishes to acknowledge the role of the Pig Industry Development Authority which sponsored the enquiry and provided the funds which made it possible. Grateful thanks

are also due to the Distribution, Marketing, and Economic Committee and to the officers, notably Messrs. R. A. Mackness, H. F. Marks and D. L. Toseland, of the Authority, for their valuable assistance and advice. The Department is also indebted to Messrs. Price Waterhouse & Co., of London, for their co-operation in the cost enquiry, and to those bacon factories who assisted so readily in this work. To name them individually would be to remove the anonymity which was a condition of their participation. However, the cost enquiry would not have been possible without their co-operation.

The report has been written by Mr. R. C. Rickard. The views expressed are, of course, entirely his own responsibility and do not necessarily represent those of the Authority, any other person or organisation.

S. T. MORRIS,

Provincial Agricultural Economist.

June 1967.

I INTRODUCTION

An examination of the questions specifically posed in the brief can be made under three broad headings: (1) the supplies of bacon to the United Kingdom markets; (2) the production or processing of bacon in the countries which supply the major share of that market and (3), at the beginning of the chain of processes, the production of pigs. As an introduction to the report, some general considerations of these aspects of the study will be offered as background information to the study itself.

Supplies of bacon in the United Kingdom

During the pre-war period, the United Kingdom production contributed 29% to the total annual supply of bacon and ham.* Separate figures are not available for Northern Ireland and Great Britain. In 1956, Great Britain alone supplied a similar share of the bacon eaten in the United Kingdom. Since that time there has been a significant drop in the contribution of Great Britain to the total supplies, although it must be pointed out that the situation during the war and the immediate post-war period favoured the domestic production of bacon.

In 1966, Northern Ireland and Great Britain jointly supplied 35% of the market, some 5% or 6% more than during the pre-war years. Although separate figures are not available for the earlier period, it is unlikely that the British share of the market has declined compared with that period.

The trend in, and pattern of, supplies of bacon to the United Kingdom market in the nineteen-sixties is illustrated in Table 1.

The overall supply position shows that Great Britain, with 725,000 breeding sows, supplied 22% of the United Kingdom bacon requirements in 1966. Northern Ireland, with a breeding herd one-seventh of the size of Great Britain's, supplied 13% of the total United Kingdom requirements. Denmark, with a breeding herd slightly less than that of Great Britain and Northern Ireland combined, supplied almost half the United Kingdom bacon requirements, or nearly 15% more than the contribution from the United Kingdom pig herd. It is, in fact, this differing relationship between total domestic production in each of the three countries and their own consumption requirements which is of fundamental importance to an examination of the problems of the pig industry.

Bacon production in Denmark, Northern Ireland and Great Britain

The normal market outlet for pigs in Northern Ireland is the United Kingdom bacon market, which is predominantly in the form of Wiltshire-type sides. As will be seen from Table 2, 94% of the pigs sold by the Pigs Marketing Board (Northern Ireland) in 1965 went to Northern Ireland curers, but this figure included 140,700 pigs "sold at special prices"†—a small number of heavy pigs procured for certain curers on

* Committee of Inquiry into Fatstock and Carcase Meat Marketing and Distribution. Report Cmd. 2282.

† 32nd Annual Report and Accounts, 1965. Pigs Marketing Board (Northern Ireland).

TABLE 1

SUPPLIES OF BACON IN THE UNITED KINGDOM, 1960 TO 1966

	1960		1961		1962		1963		1964		1965		1966	
	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%
<i>Home production</i>														
Great Britain	110.1	19	122.9	21	136.7	23	133.2	23	135.2	23	145.4	23	133.5	22
Northern Ireland	66.4	12	75.0	13	83.8	14	84.3	14	84.7	14	86.9	14	75.2	13
Total	176.5	31	197.9	34	220.5	37	217.5	37	219.9	37	232.3	37	208.7	35
<i>Imports</i>														
Denmark	276.4	49	276.8	47	277.0	46	279.9	47	280.2	47	296.9	47	297.0	49
Other	117.2	20	107.5	19	105.3	17	93.8	16	97.8	16	98.8	16	97.7	16
Total	393.6	69	384.3	66	382.3	63	373.7	63	378.0	63	395.7	63	394.7	65
Total home production and imports	570.1	100	582.2	100	602.8	100	591.2	100	597.9	100	628.0	100	603.4	100

Source: Intelligence Bulletins. Commonwealth Economic Committee.

TABLE 2

DISPOSALS OF PIGS BY THE PIGS MARKETING BOARD (NORTHERN IRELAND), 1962 TO 1965

	1962		1963		1964		1965	
	<i>No.</i>	%	<i>No.</i>	%	<i>No.</i>	%	<i>No.</i>	%
<i>Sales to:</i>								
Northern Ireland Curers	1,800,843	89	1,813,065	89	1,774,924	95	1,942,000	94
Other sales	230,353	11	218,767	11	100,052	5	120,300	6
Total	2,031,196	100	2,031,832	100	1,874,976	100	2,062,300	100

Source: Annual Reports. Pigs Marketing Board (Northern Ireland).

an experimental basis and the remainder bacon-weight pigs supplied to curers for disposal in specific markets other than the British bacon market.

In the past, the operations of the Pigs Marketing Board (Northern Ireland) and the Northern Ireland pig industry generally have been directed towards a standard end-product—bacon or the bacon pig. Until fairly recently, the Board has had access to an expanding market in the United Kingdom and has been able to raise returns to producers in Northern Ireland. More recently, however, major steps have been taken by the Board to foster the development of other methods of processing and distributing pigmeat products. In so doing, an alternative would be provided to the Wiltshire bacon trade on which the pig industry in Northern Ireland has become so heavily dependent.

The Danish bacon industry, although vastly larger, is similar to that in Northern Ireland with Wiltshire curing being dominant over other products. The importance to Denmark of pig and pigmeat exports, and the importance of the United Kingdom in the Danish pattern of exports, may be seen from Table 3.

The nineteen-sixties have seen a considerable increase in pig production in Denmark, but domestic consumption has declined and nowadays accounts for barely a quarter of total production. The resultant increase in quantities exported has clearly gone to countries other than the United Kingdom. The apparent stability in the volume of exports to the United Kingdom can, after 1964, be attributed to the bacon-sharing agreement. Nevertheless, the figures do not exhibit any wide variation even before that date—a characteristic which is hardly surprising in view of the importance of the United Kingdom bacon market to the Danish pig industry.

Since the introduction of the E.E.C. pigs and pigmeat regulations, the possibility of Danish participation in a larger and growing European market has, in some quarters, led to forceful demands for an application to join the Common Market, irrespective of the actions of the United Kingdom or other E.F.T.A. countries. On the other hand, it is also argued that, in endeavouring to expand new markets, a substantial part of Danish production could be put in jeopardy.

It is a fact that the Danish pig industry has had to diversify its range of products to dispose of an increasing output on foreign markets. It has, moreover, become recognised that any division within the pig industry, such as for example the bacon industry and the canning industry, can have a distorting effect upon the pattern of supply and demand. From the pig production standpoint, the necessity of having to maintain one breeding line for bacon production and one for canning has been effectively dispelled. There are other factors pointing in the same direction, which seems to indicate that anything but an integrated industry, with a flexible range of diversified products, would be an anachronism in the near future.

The British pig industry, supplying as it does only a part of the domestic demand for pigmeat in all its various forms, has been responding to pressures far in advance of its Danish and Northern Irish competitors. A clear illustration of this may be provided by the example of

TABLE 3

PRODUCTION, CONSUMPTION AND EXPORTS OF PIGS AND PIGMEAT, DENMARK, 1960 TO 1966

	1960	1961	1962	1963	1964	1965	1966 ⁽⁴⁾
	thousand tons						
Production ⁽¹⁾	641	660	672	684	737	794	581
Consumption	192	189	184	176	181	184	137
Consumption as percentage of production	30%	29%	27%	26%	25%	23%	24%
<i>Exports to:</i> ⁽²⁾							
United Kingdom ⁽³⁾	286.6	276.9	281.4	277.7	288.2	298.1	246.7
W. Germany	2.7	3.0	2.9	2.3	4.0	8.1	3.7
Italy	1.7	0.8	2.8	6.1	—	—	—
France	—	—	—	19.2	11.6	11.5	10.3
Other	15.0	42.0	34.6	33.9	56.8	81.8	33.6
Total	306.0	322.7	321.7	339.2	360.6	399.5	294.3
Live pigs ('000 head)	190.3	179.3	136.0	126.6	122.2	181.4	153.8

Notes: ⁽¹⁾ Including offals and live pigs.⁽³⁾ Mainly bacon and ham.⁽²⁾ Excluding offals.⁽⁴⁾ January to October only.

Source: Intelligence Summaries. P.I.D.A.

the so-called "heavy hog". It is not the intention to get involved here in the all-too-familiar baconer *versus* heavy hog controversy—often a stultifying argument which has involved the British pig industry in divergent arguments and dissension at a time when a more united approach towards competition from Denmark and other overseas suppliers would have been more appropriate.

In Denmark and Northern Ireland, interest—and it must be admitted an increasing interest—in the heavy hog has not proceeded very far beyond the carcass dissection stage or, as it might be termed, the experimental phase. In Great Britain, on the other hand, the heavy hog is a commercial reality from the points of view of both the producer and the processor, with the retailer and the consumer acquiescing in the trend, to say the least. In 1961–62, it was estimated that 7.9% of all pigs certified, or 12.4% by weight, were over 9 score deadweight. Since then, it is likely that the share of the market accruing to such pigs has materially increased.

Confronted with a rising demand for fresh pork and for processed products, and new forms of bacon within an overall bacon consumption which, in terms of quantity per head of population has remained unchanged since pre-war days, it is hardly surprising that the pattern of pigmeat usage has exhibited a significant change in recent years. The statistics are not wholly satisfactory on this point. Nevertheless, within their limits they do show the general trend in pigmeat production.

A summary of the purposes for which pigs were slaughtered in the nineteen-sixties is given in Table 4.

The diminishing percentage of pigs used wholly for bacon and a compensating increase in the proportion used partly for bacon are a feature of this Table. When it is remembered that the figures refer to

TABLE 4

**PROPORTIONS OF PIGS SLAUGHTERED WHOLLY FOR BACON,
PARTLY FOR BACON AND FOR OTHER PURPOSES, UNITED KINGDOM,
1960 TO 1966**

	<i>Total number slaughtered</i>	<i>Percentage used for:</i>			
		<i>Bacon</i>	<i>Partly for bacon</i>	<i>Other purposes</i>	<i>Total</i>
	('000's)	%	%	%	%
1960	10,254	31.4	7.5	61.1	100.0
1961	10,729	30.8	10.9	58.3	100.0
1962	12,079	29.3	11.8	58.9	100.0
1963	12,206	27.6	13.5	58.9	100.0
1964	12,802	25.6	13.8	60.6	100.0
1965	14,327	24.8	13.2	62.0	100.0
1966	13,497	21.6	15.2	63.2	100.0

Source: Monthly Digest of Statistics, H.M.S.O.

the United Kingdom, which includes the very high concentration on bacon production in Northern Ireland, it seems fair to assume that the trend towards a multi-purpose pig has been even more pronounced in Great Britain.

A parallel change may be seen from Table 5, which shows the trend in the type of bacon produced in Great Britain during the nineteen-sixties. The table clearly shows the trend away from bacon produced in the form of whole Wiltshire sides. It does not purport to show, as is often erroneously assumed, the development of non-Wiltshire bacon. The increase in "any other bacon" to just over a quarter of total British production in 1966 is partly due to processes other than the traditional Wiltshire-type cure and partly due to the processing by the latter method of part of the carcass. In other words, it shows a revival of the "cutting" trade which was a feature of the British pig industry during the inter-war years.

More direct evidence of the changing pattern of production may be gained from some results derived from a preliminary questionnaire circulated to the bacon factories in Great Britain in the initial stages of this survey.*

Almost every factory reported substantial changes in the pattern of business during the previous ten years. About one-third of the factories did not quantify the position but all, without exception, remarked on the change from producing bacon to either the manufacture of small goods, mainly sausages, or the sale of fresh pork. The change in the pattern of production seems to have occurred in two main directions. On the one hand, there were the factories which formerly concentrated their attention on bacon with the fresh pork trade as a subsidiary venture and, on the other, those with small goods as a subsidiary activity to bacon production. Both types of factory appear to have expanded their existing supplementary activities in the process of diversification. However, more recent experience seems to indicate that production is becoming even more diversified and that many factories are seriously entering the bacon, pork, and small goods markets.

This trend in production is being accompanied by substantial financial investments, which supports the contention that what has been happening in recent years is no transient phenomenon and that the factories are not likely to relinquish easily their newly found flexibility.

Pig Production in Denmark, Northern Ireland and Great Britain

As far as the supply of pigs is concerned, no less important changes have been occurring. The trends in breeding sow numbers over the past dozen years or so may be seen in Figure I.

The first, and probably the most fundamental, point is that, whatever the long-term trend, cyclical fluctuations are never absent. This type

* One hundred and seventy-eight factories were sent questionnaires, and 73 replies were received. Of this number, 17 stated that they were unable to complete the schedule, the principal reason being shortage of clerical staff. Ten firms reported that they were no longer curing bacon in any form and, in addition, two announced their decision to cease curing during 1965. Ultimately, 44 returned questionnaires were usable, though the majority were partially incomplete. Information on physical quantities was the principal shortcoming.

TABLE 5

BACON PRODUCTION IN GREAT BRITAIN, 1960 TO 1966

	1960		1961		1962		1963		1964		1965		1966 (*)	
	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%	'000 tons	%
Wiltshire sides	84.9	75.9	88.9	70.7	91.5	66.8	82.7	62.2	82.3	60.8	86.9	60.0	59.1	58.1
Hams and gammons.....	7.1	6.4	9.3	7.4	11.9	8.7	12.9	9.7	14.4	10.6	15.8	10.9	13.1	12.9
Rolls (Ayrshire and others)	6.4	5.7	7.3	5.8	7.7	5.6	7.3	5.5	4.8	3.5	3.5	2.4	2.7	2.6
Any other bacon	13.4	12.0	20.3	16.1	25.9	18.9	30.1	22.6	34.0	25.1	38.7	26.7	26.9	26.4
Total	111.8	100.0	125.8	100.0	137.0	100.0	133.0	100.0	135.5	100.0	144.9	100.0	101.8	100.0

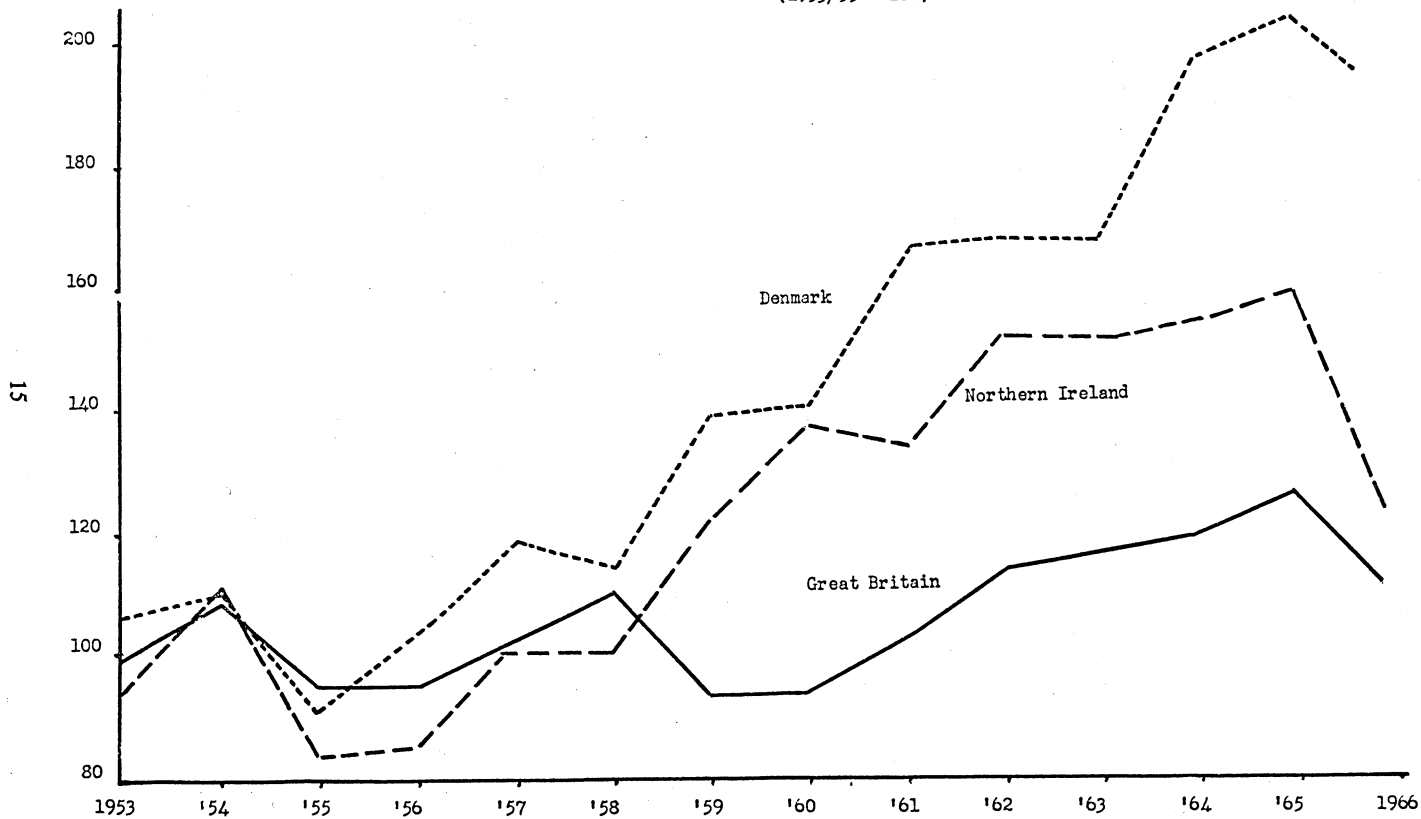
Notes: (1) January to September only.

Source: Intelligence Summaries. P.I.D.A.

FIGURE I

Trends in breeding sow numbers, Northern Ireland, Denmark and Great Britain, 1953 to 1966

(1953/55 = 100)



of fluctuation, more popularly known as the pig cycle, arises under conditions in which producers have an imperfect knowledge of the future. Since one cannot envisage any radical changes in the ability with which producers are able to predict the course of prices, then cyclical movements can confidently be expected to continue, in the foreseeable future at least.

The second feature of the graph is the upward trend in pig numbers from the late nineteen-fifties, particularly sharp in Denmark, somewhat less so in Northern Ireland, and almost stable, by comparison, in Great Britain. An even more striking characteristic is the sharp drop in breeding herds which commenced during the early months of 1965. It was at this time that official policy throughout the whole of western Europe took quite drastic measures to halt the increase which took place throughout 1964. It will, perhaps, be recalled that it was in this year that producer quotas, "the pig cards", were under serious consideration in Denmark. In the event the rise in pig numbers did not turn out as badly as was expected and it is probably that repressive measures were imposed on an industry whose size would have contracted in the "natural" course of events. Hence, the sharp and, as it has proved, persistent recession which has preoccupied the industry during the past year.

A third feature of the pig industry in the nineteen-fifties and -sixties relates to its structure. In all countries the number of pig herds is decreasing. In Denmark there were 166,000 pig producers in July 1960, compared with 177,000 two years earlier. In 1966, 61% of the pigs produced in the country were in herds of under 200 pigs compared with 65% in 1964 and roughly 90% in 1961. No less rapid changes are occurring in the United Kingdom, and Northern Ireland and Scotland show no great divergence from the national trend, in which an increasingly large proportion of production is moving into the control of a smaller number of producers. The number of pig producers in England and Wales fell by 10% between 1960 and 1964 at a time when, according to Figure I, the pig population was steadily rising. In 1964, 53% of the pig population in England and Wales was in herds of under 200 pigs, compared with 66% in 1960.

A final development which merits attention is the growth of producer groups and an increasing degree of vertical co-operation between pig processing factories and feedingstuffs manufacturers. Improved breeding stock, assistance with costing records, and management advice are becoming increasingly available to pig producers. In fact, the dissemination of management advice and assistance with recording from private and public sources have developed to such an extent that one begins to suspect an unnecessary duplication of effort. As far as producer groups are concerned, their record, particularly in the more recent past, apparently indicates that many are "fair weather" enterprises and that they fail, even to the point of liquidation, when the economic climate is unfavourable—at the very time when they should benefit their members the most.

II THE PRODUCTION OF PIGS

In Denmark a grading system for pigs is operated by the Bacon Factories Export Association, to which both co-operative and private bacon factories belong. The system applies to all pigs between 50 and 90 kilogrammes (110 and 198 lb.) deadweight.* Pigs outside this weight-range, and those slaughtered in public abattoirs, together accounting for less than 10% of total slaughterings, are not graded.

By way of interest, it should be pointed out that the laws regarding domestic slaughtering by producers are very strict, having been greatly tightened up in July 1965. The home market regulations provide for a domestic tax of nearly 100 kroner, or £5 per pig destined for the home market and the temptation to evade the tax by illicit slaughtering is quite strong. Although it was suggested that evasion on the part of producers should be countered by the banning of domestic slaughtering and that all pigs should go to slaughterhouses, the Government and the Lower House of the Danish Parliament would not agree. However, extremely strict rules for domestic, or producer, slaughtering are now in force.

As far as Great Britain and Northern Ireland are concerned, the number of pigs certified in accordance with the Fatstock Guarantee Scheme gives an accurate picture of the various methods of disposal of pigs. The importance of the various marketing outlets and the manner in which their relative importance has changed during the nineteen-sixties may be seen from Table 6.

The figures relating to Northern Ireland are so clear-cut as to require very little amplification. Almost all the pigs certified go to the bacon factories and, according to Table 7, a very high proportion of this number is between 7 score and 8 score 5 lb. deadweight. All these pigs are purchased by the bacon factories on a grade and deadweight basis. The pig industry in Northern Ireland, judged by such criteria as, of the three countries under consideration, the most highly specialised, although Denmark must take precedence in terms of numbers.

As will be seen from Table 6, the percentage of pigs certified in Great Britain at livestock auction markets has continued its steady and significant decline during the nineteen-sixties. Deadweight sales of pigs—i.e. at ordinary deadweight centres and bacon factories—rose from just under 69% of certifications in 1960 to just under 80% during the first three months of 1966. Within these figures, sales to bacon factories, as a percentage of total certifications, fluctuated slightly from year to year, but there was no sustained increase in the percentage as there was in the sales at ordinary deadweight centres.

The majority of the pigs classified as having been certified at bacon factories were purchased on a grade and deadweight basis. The per-

* Deadweight is defined as the chilled slaughter weight, including head, feet, and leaf fat only.

TABLE 6

PERCENTAGE OF PIGS CERTIFIED IN GREAT BRITAIN AND NORTHERN IRELAND, 1960 TO 1966

	1960 (1)	1961	1962	1963	1964	1965	1966 (2)
<i>Great Britain</i>	%	%	%	%	%	%	%
Auction	30.6	28.0	25.8	23.3	21.8	19.7	19.5
Liveweight Private	0.7	0.9	0.9	0.7	1.0	0.8	0.8
Ordinary Deadweight	30.2	29.6	30.2	32.6	35.3	38.5	40.4
Bacon factories	38.5	41.5	43.1	43.4	41.9	41.0	39.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Northern Ireland</i>	%	%	%	%	%	%	%
Auction	0.3	0.2	0.1	0	0	0	0
Liveweight Private	0.1	0.1	0.1	0	—	0	—
Ordinary Deadweight	0.7	0.3	0.1	0.1	0.1	0.2	0.3
Bacon factories	98.9	99.4	99.7	99.9	99.9	99.8	99.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: (1) April to December only.

(2) January to March only.

TABLE 7

WEIGHT DISTRIBUTION OF PIGS CERTIFIED AT BACON FACTORIES IN GREAT BRITAIN AND NORTHERN IRELAND,
1960 TO 1966

	1960 (1)	1961	1962	1963	1964	1965	1966 (2)
<i>Great Britain (Deadweight)</i>	%	%	%	%	%	%	%
3sc. to 6sc. 9lb.	3.7	3.7	5.1	2.2	1.8	1.8	1.8
6sc. 10lb. to 6sc. 14lb.	3.1	3.0	3.7	1.9	1.6	1.6	1.4
6sc. 15lb. to 6sc. 19lb.	85.8	85.4	84.3	3.4	3.1	3.0	2.9
7sc. to 8sc. 5lb.	7.4	7.9	6.9	81.9*	83.4*	83.6*	84.1*
8sc. 6lb. and over				10.6*	10.1*	10.0*	9.8*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Northern Ireland (Deadweight)</i>	%	%	%	%	%	%	%
3sc. to 6sc. 9lb.	3.0	2.5	4.3	2.0	1.7	1.9	1.6
6sc. 10lb. to 6sc. 14lb.	3.8	3.6	7.3	3.2	3.0	3.2	2.9
6sc. 15lb. to 6sc. 19lb.	89.5	90.9	86.6	10.2	9.7	10.0	9.4
7sc. to 8sc. 5lb.	3.7	3.0	1.8	82.2	82.7*	82.2*	83.5*
8sc. 6lb. and over				2.4	2.9*	2.7*	2.6*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: (1) April to December only.

(2) January to March only.

* 7sc. to 8sc. and over 8sc.

centages of numbers certified at bacon factories on a grade and deadweight basis, and other pigs, are given in Table 8.

TABLE 8

TYPE OF CERTIFICATION AT BACON FACTORIES, GREAT BRITAIN,
1960 TO 1966

	<i>Grade and deadweight</i>	<i>Other pigs</i>	<i>Total</i>
	%	%	%
1960 (1)	63.4	36.6	100.0
1961	70.6	29.4	100.0
1962	75.6	24.4	100.0
1963	74.0	26.0	100.0
1964	76.3	23.7	100.0
1965	62.9	37.1	100.0
1966 (2)	57.2	42.8	100.0

Notes: (1) April to December only. (2) January to March only.

The figures in the above table are intended to indicate the importance of grade and deadweight pigs in relation to other pigs within each particular year. Comparisons over the period covered in the table, especially from 1964 onwards, should not be made because, prior to April 1964, the distinction was between pigs attracting the bacon pig stabiliser and other pigs. The division after that date is not therefore comparable with earlier years.

Pigs purchased on a grade and deadweight basis can be subject to contract arrangements, or non-contract. In the absence of any official statistics on this particular point, it has been estimated that between 90% and 95% of the total grade and deadweight pigs are purchased on the basis of contracts. However, the whole pattern of the purchases of pigs and pigmeat by bacon factories is not particularly clear, and this is hardly surprising in view of the bacon factories' long-term trend towards greater diversification and also the more short-term fluctuations in the number of pigs available.

The methods by which bacon factories in Great Britain obtain their pigs are, for such reasons as have been explained above, extremely complex, and the official statistics provide little information. Bearing in mind the diverse nature of the term "bacon factories", embracing as it does the production of bacon, fresh pork, and small goods, it is to be expected that the pigs are purchased in a variety of ways. Some factories carry out no slaughtering but obtain their supplies in carcase form. Others purchase carcasses to augment their own slaughterings. The purchases of pigs are made in various ways—grade and deadweight basis, through the auctions, from dealers and direct from producers on a flat rate deadweight basis. However, the Wiltshire curers on the whole prefer to purchase pigs on a grade and deadweight basis, with delivery direct from farm to factory.

To sum up, the situation in which the pig industry of Great Britain finds itself is in many respects very different from that facing its principal "competitors"—Northern Ireland and Denmark. Fundamentally, the three countries have many aspects in common: for example, the cyclical fluctuations in numbers are similar. Furthermore, pig production in each country is becoming concentrated in fewer hands; and the momentum with which this is happening is now just as strong in Denmark as elsewhere, in spite of the fact that the co-operative nature of the Danish pig industry is supposed to enable the small producer to remain in business by giving him the advantages in marketing and the buying of feeding-stuffs which are normally associated with large-scale units.

However, in one major consideration the pig industries of the two former countries are very different indeed from that of Great Britain. The British pig industry supplies only a fraction of the country's total demand for pigmeat and the form which that demand takes is highly diversified. Indeed, with its different kinds of bacon production, fresh pork, small goods, and speciality meats, demand for pigmeat in all its forms is probably more varied than anywhere else in the world. The pig industries of Denmark and Northern Ireland are, by contrast, moulded predominantly to the specialised demand of the United Kingdom bacon market. Their pigmeat production is vastly in excess of demand from their domestic markets, and competition for a share of the market in the United Kingdom has in the past undoubtedly provided a strong incentive to develop a highly standardised and efficiently produced side of bacon. It is this aspect which should be constantly borne in mind when comparisons are drawn between the past performances of the three countries. However, the extent to which those conditions, namely a highly specialised bacon production on traditional lines, are likely to be relevant in the future will influence the relative position of all three countries.

The grading of pigs

As has been pointed out in the previous section, virtually all the pigs produced in Denmark and Northern Ireland are sold deadweight and graded. The standards of weight, length, and backfat measurement are precisely determined. In Great Britain, on the other hand, only about 40% of the pigs are certified at bacon factories, of which approximately 60% are procured on a grade and deadweight basis. Very roughly, a quarter then of all the pigs certified in Great Britain are graded according to nationally determined carcase standards. However, it should be obvious that this is not the same as saying that three-quarters of all the pigs produced in Great Britain are of too poor a quality and would not measure up to the carcase standards which have been laid down. A more realistic interpretation would be that the strength of demand from other sectors of the pig industry, with standards of carcase quality which are admittedly less exacting and with weight requirements which are greatly different, has attracted pigs away from the grade and deadweight method of marketing which, incidentally, is also the system of procurement for the traditional bacon carcase.

The grading standards for bacon pigs currently being used in Denmark, Northern Ireland, and Great Britain are set out in Table 9. It seems fairly obvious that the Danish specifications differ from those of

TABLE 9

GRADING STANDARDS FOR BACON PIGS IN CERTAIN COUNTRIES AT JANUARY 1967

Grade	Weight range	Length mm.	Maximum measurements (mm.) at:			
			Shoulder	Midback	Loin	C. Probe
<i>Great Britain</i>						
1A	6sc. 15lb. to 8sc.	790 and over	48	28	28	22
1B	6sc. 15lb. to 8sc.	790 and over	48	28	28	25
2	6sc. 10lb. to 8sc. 10lb.	—	53	33	33	—
3	6sc. 10lb. to 8sc. 10lb.	—	Over 53	Over 33	Over 33	—
<i>Northern Ireland</i>						
1	6sc. 15lb. to 7sc. 10lb.	775 and over	48	28	28	—
3	6sc. 15lb. to 7sc. 10lb.	Under 775	48	28	28	—
5	6sc. 15lb. to 7sc. 10lb.	Under 775	53	33	33	—
7	6sc. 15lb. to 7sc. 10lb.	Under 775	Over 53	Over 33	Over 33	—
<i>Denmark</i>						
A1 ⁽¹⁾	57 to 63kg. ⁽²⁾	—	40	20	20	27 ⁽³⁾
A	57 to 63kg.	—	46	28	26	30
2	57 to 63kg.	—	52	34	32	37
3	57 to 63kg.	—	Over 52	—	—	—

Notes: ⁽¹⁾ Described as: A1—Extra lean; A—First class; 2—Second class; 3—Second, over fat.

⁽²⁾ 6sc. 5½lb. to 6sc. 18½lb. ⁽³⁾ Slight of lean measurement for Denmark, which is not comparable to the "C" probe.

the other two countries in two respects. First, and somewhat less obviously, the weight requirement is less and much narrower in range.* However, as experience in the recent past has shown, the weight range in Denmark is capable of being altered to suit particular situations. The specification was temporarily relaxed when pigs were generally in short supply and Denmark was anxious to fulfil its commitments according to the bacon understanding.

The second point to notice is that the Danish A1 grade (extra lean) is greatly superior to the highest classifications in the other two countries. The current 1A grade in Northern Ireland and Great Britain is, in fact, only one millimetre different from the Danish A grade before it was amended in March 1965.

In making comparisons between countries, it should be obvious that making assessments of the relative standards is one thing and comparing the number of pigs which fall into each category is quite another. Moreover, comparisons over time are very difficult to make because the grading standards themselves change. Such difficulties as these would apply even if the grading standards and the weight ranges were the same; the fact that they are not makes comparison fraught with difficulties.

The grading results for Denmark in recent years are shown in Table 10, which refers to all fat pigs, excluding sows, piglets, and sucking pigs, handled by the Bacon Factories Export Association.

TABLE 10

GRADING OF FAT PIGS (1)
DENMARK, 1962 TO 1966

	1962	1963	1964	1965	1966
	%	%	%	%	%
AI	11.1	14.4	19.0	23.0	24.3
A	68.2	69.3	68.3	64.6	61.9
B	17.8	14.1	11.2	11.4	12.8
C	2.9	2.2	1.5	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0

Note: (1) Excluding sows, piglets and sucking pigs.

In 1966, the total was nearly 11 million and in 1965 11.4 million, and the majority lie within the weight range established for bacon pigs. It should also be pointed out that the maximum backfat measurements for grade A pigs were reduced from March 1965 onwards. In spite of

* Strict comparability should take into account the fact that the deadweight definition of the Danish side is slightly different from the British because (a) the tongue diaphragm (skirt) and kidneys are not weighed, and (b) a higher hot/cold shrinkage allowance (4% instead of 4 lb. on a 7-score carcass).

reservations which may be placed on the data, the fact that 24% of the pigs slaughtered in 1966 were in the A1 grade is an impressive performance.

The trend in grading results in Northern Ireland and Great Britain in respect of pigs certified at bacon factories on a grade and deadweight basis are given in Table 11. A comparison of the results for both countries reveals very little difference in either the improvement registered over the period or in the percentages falling within each grade. The increased percentages in the AA + grade* is particularly marked. It should also be borne in mind that the Northern Ireland figures relate to almost all the pigs slaughtered in that country, while the British figures concern a very much smaller proportion of the total pigs certified. It would be a great over-simplification to assume that these are all the bacon pigs of grade A and above that the British farmer can produce; it would be equally improbable to assume that the British pig industry, if it were to switch all its production immediately to grade and deadweight bacon pigs, could achieve the same gradings on the larger number of pigs as it does on the smaller. What the figures do suggest is that the specialist British bacon-pig producer is capable of matching the performance of his competitor in Northern Ireland.

However, when comparing the grading results from both Northern Ireland and Great Britain with those published for Denmark, the difficulties begin. The gradings shown in Table 11 ceased to exist in April 1966 but, with backfat measurements (maximum) of 50 millimetres at the shoulder and 30 millimetres at the loin, one could not have even begun to use them as a basis of comparison.

The possibility of making comparative assessments is made somewhat easier by the introduction, from April 1966, of new grading standards in the United Kingdom, although the period of observation is rather short. An analysis of producer grades, described in Table 9, clearly establishes no effective standard of comparison. However, the Ministry of Agriculture, Fisheries, and Food publish the grading results for Northern Ireland and Great Britain by a more comprehensive class code. This classification is based on returns submitted by the bacon factories for the purpose of calculating the amount of the quality premia (at 1/6d. per score deadweight during the 1966-67 fatstock guarantee year) to be paid to the factories by the Treasury.

Data relating to Great Britain are published in Table 12, and the results from Northern Ireland, as was found in Table 11, are not materially different.

The results for Denmark and Great Britain are presented side by side in Table 13.

The basis for comparison is thickness of backfat only, and excludes the criteria of length, weight, and other carcass standards. In view of the reservations surrounding the data, any conclusions can only be tentative and subjective. Although the general conditions favour the Danish results—generally lighter pigs and a narrower weight distribu-

* Pigs meeting the backfat measurements of the A grade and the minimum length requirement of 800 mm.

TABLE 11

A COMPARISON OF GRADING RESULTS, NORTHERN IRELAND AND GREAT BRITAIN, 1960 TO 1966 ⁽¹⁾

	<i>Northern Ireland</i>				<i>Great Britain</i>			
	<i>AA+</i>	<i>AA</i>	<i>A</i>	<i>A and over</i>	<i>AA+</i>	<i>AA</i>	<i>A</i>	<i>A and over</i>
	%	%	%	%	%	%	%	%
1960 ⁽²⁾	42.0	18.3	5.0	65.3	46.6	13.5	3.3	63.4
1961	44.3	17.8	4.6	66.7	48.4	13.9	3.4	65.7
1962	44.8	20.9	5.8	71.5	46.8	14.1	3.4	64.3
1963	46.9	23.4	6.9	77.2	51.8	14.9	3.2	69.9
1964	51.9	21.1	5.3	78.3	57.2	14.7	2.8	74.7
1965	54.0	19.2	4.5	77.7	60.0	14.1	2.5	76.6
1966 ⁽³⁾	53.0	19.6	4.8	77.4	61.5	15.4	2.9	79.8

Notes: ⁽¹⁾ Pigs certified at bacon factories on a grade and deadweight basis.

⁽²⁾ April to December only.

⁽³⁾ January to March only.

TABLE 12

GRADING RESULTS FOR CERTAIN CLASS CODES, GREAT BRITAIN, 1966

Class Code	Weight range	Length	Backfat (max.)		Percentage of pigs certified at bacon factories by grade and deadweight
			Shoulder	Loin	
	<i>Deadweight</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>%</i>
21 (1)	7sc. to 8sc.	800 and over	45	25	32.2
22 (1)	7sc. to 8sc.	800 and over	48	28	16.7
23 (1)	7sc. to 8sc.	800 and over	50	30	8.2
1	6sc. 10lb. to 8sc. 10lb.	Under 800	45	25	11.1
2	6sc. 10lb. to 8sc. 10lb.	Under 800	48	28	7.8

Notes: (1) These grades attract the quality premia of 1s. 6d. per score.

TABLE 13

**COMPARATIVE GRADING RESULTS,
DENMARK AND GREAT BRITAIN, 1965-66**

Denmark—Percentage of all fat pigs	Backfat (max.)		Great Britain— Percentage of pigs certified at bacon factories by grade and deadweight
	Shoulder	Loin	
%	mm.	mm.	%
23.0	40	20	43.3
64.6	45	25	
	46	26	24.5
	48	28	
<hr/> 87.6 <hr/>			<hr/> 67.8 <hr/>

tion—it is difficult to avoid the conclusion that they are superior to the British figures. However, that is the position as it occurs at the present and, in view of the improvement shown in the British grading results over a relatively short period—at least by Danish standards—the possibility of a narrowing of the difference between the two countries is by no means out of the question, provided the conditions are right.

Seasonal fluctuations in production

It is clear that the marketing of pigs shows no very pronounced seasonal pattern, except for a move towards bacon from pork in the summer and a substantial rise in the number of pigs for pork before Christmas. The pig enterprise is relatively independent of other forms of agricultural production and thus the systems of husbandry do not have such a pronounced effect on the seasonality of pig marketing as they do with cattle and sheep. The phasing of production is determined by demand and the type of market supplied.

Such seasonality as has occurred in the marketing of bacon pigs is almost the same in Northern Ireland and Great Britain. Until fairly recently, there has been a similar situation in Denmark, but the evidence of the past two years seems to indicate that the seasonal pattern there has moved out of phase with that in the two former countries. This may well be the result of the bacon understanding with its opportunity for phasing the flow of imports in a manner that stabilises the home market.

Producer prices for pigs

A comparison of the average prices received by producers for all pigs would tend to mislead rather than to instruct. This would be particularly so in making a comparison between Great Britain and either Northern Ireland or Denmark. The actual weight at which pigs are

marketed obviously has a preponderant effect on the average price which producers receive. The pig industry in Great Britain is clearly much more diverse than that of Denmark and Northern Ireland with their concentration almost wholly upon one market and thus one type of pig.

An attempt has been made to establish a basis for a comparison of producer prices in Table 14. As has been mentioned earlier, exactly comparable grades of carcase classification are not available, and the same problems arise when endeavouring to compare prices. Attention has already been drawn to the difference in the definition of deadweight which exists between Denmark and the United Kingdom.

It will be seen from Table 14 that the producer prices for each country during the period from April to December 1966 do not greatly differ. However, attention should be drawn to the weight ranges and carcase standards required for the grades in each country. A summary is given below.

	Grade	Weight range (lb. deadweight)	Maximum thickness at:	
			Shoulder mm.	Loin mm.
Denmark	A	125½ to 138½	46	26
	2	125½ to 138½	52	32
Great Britain	1A	135 to 160	48	28
	2	130 to 170	53	33
Northern Ireland	1A	135 to 150	48	28
	2	135 to 150	53	33

The Danish weight range is relatively very narrow, and increased weights above the range shown in Table 14 would incur penalties, as shown below:

Approximate weight-range (lb. deadweight)	Deduction (per score deadweight)
138 and under 142	11d.
142 „ „ 144	2/10d.
144 „ „ 148	3/9d.
148 „ „ 154	4/7d.
154 „ „ 198	5/7d.

It would therefore appear to be a reasonable assumption that, if the Danish price schedules were applied to both Northern Ireland and Great Britain, the operation of the weight limits would have a very adverse effect on the prices received in the two latter countries.

A further consideration is that the prices shown in Table 14 are subject to additions and deductions of various kinds which, hardly surprisingly, are not the same in each country. Danish pig producers, who are mainly, though not wholly, members of co-operatives, receive retrospective dividend payments which are not shown in the price quotations. Until fairly recently, the dividends ranged from 0.26 to 0.38 kroner per kilogram (roughly from 2/6d. to 4/0d. per score deadweight), but the tendency nowadays is to increase the price quotation and to leave a much smaller residual amount to be paid as dividends. The question of deductions from the quoted prices is very much on a local basis and, as

TABLE 14

**PRODUCER PRICES FOR GRADE AND DEADWEIGHT BACON WEIGHT PIGS
DENMARK, NORTHERN IRELAND AND GREAT BRITAIN, 1963 TO 1966 ⁽¹⁾**

	Denmark ⁽²⁾		Northern Ireland ⁽³⁾		Great Britain ⁽⁴⁾											
	Grade A ⁽⁵⁾	Grade 2	AA+	A	Contract		Non-contract									
					AA+	A	AA+	A								
	s.	d.	s.	d.	<i>Per score deadweight</i>		s.	d.	s.	d.						
1963	39	6	36	8	46	2	41	8	45	5	42	5	44	10	41	11
1964	43	0	40	2	48	4	43	10	46	3	43	3	45	11	42	11
1965	39	5	36	7	46	3	41	10	44	11	42	7	44	2	41	11
1966 January to March.....	} 45	} 0	} 42	} 2	47	6	43	0	44	7	42	7	43	11	42	0
April to December					<i>1A</i>	<i>2</i>	<i>1A</i>	<i>2</i>	<i>1A</i>	<i>2</i>	<i>1A</i>	<i>2</i>	<i>1A</i>	<i>2</i>		
					47	6	44	6	48	7	44	9	47	4	43	6

Notes: ⁽¹⁾ The prices shown are subject to various supplements and charges. In Denmark, dividends are paid and deductions such as delivery charges made, all of which are very much on a local basis. Producer prices in Northern Ireland are subject to the Pigs Marketing Board's "contribution," insurance and transport charges, and bonus payments are made from time to time. In Great Britain, delivery charges are deducted from the prices shown and the pigs sold under contract attract a level delivery bonus.

⁽²⁾ Prices paid by co-operative bacon factories.

⁽⁴⁾ F.M.C. producer prices—England and Wales.

⁽³⁾ Pigs Marketing Board (Northern Ireland)—producer prices.

⁽⁵⁾ The Danish A1 (extra lean) grade commands a premium of .20 kroner per kilogramme (or approximately 2 shillings per score) deadweight.

such, is subject to considerable variation. Delivery charges from farm to factory are the biggest item, but they are by no means on a common basis applicable throughout Denmark. In Jutland, for example, the factory pays transport costs and insurance; the sale thus takes place at the farm gate. In Zealand, however, the usual system is that the factory buys the pigs on arrival at the factory. For such reasons, it is not possible to make with any reasonable degree of accuracy an estimate of what an average deduction would be.

In Northern Ireland, the prices shown in Table 14 are subject to adjustment, both deductions and additions. From 1st June 1964 the "contribution" payable by producers to the Pigs Marketing Board (Northern Ireland) was reduced from 4/6d. per pig to 4/0d. Two shillings of the latter sum is taken to meet the administration expenses of the Board, and the other half is credited to the Board's Investment Fund. The insurance deduction has remained at 1/6d. per pig throughout the period covered by Table 14. From 1st June 1964 the transport deduction for the service provided by the Ulster Transport Authority was increased from 4/3d. to 4/9d. per pig, but this flat-rate farm-to-factory service was discontinued in May 1965. On the positive side, payments to producers in Northern Ireland are augmented from time to time by bonuses of one kind or another. During the 1963 to 1966 periods, the following payments were made:

1963	week commencing	3rd June	5/0d. per pig
	"	22nd July	5/0d. " "
	six weeks	10th June	10/0d. " "
1964	week	1st June	5/0d. " "
	"	20th July	5/0d. " "
	six weeks	8th June	10/0d. " "
1965	week	31st May	5/0d. " "
	"	19th July	5/0d. " "
	six weeks	7th June	10/0d. " "
1966	week	30th May	5/0d. " "
	"	18th July	5/0d. " "
	six weeks	6th June	10/0d. " "
	nine weeks	21st November	10/0d. " "

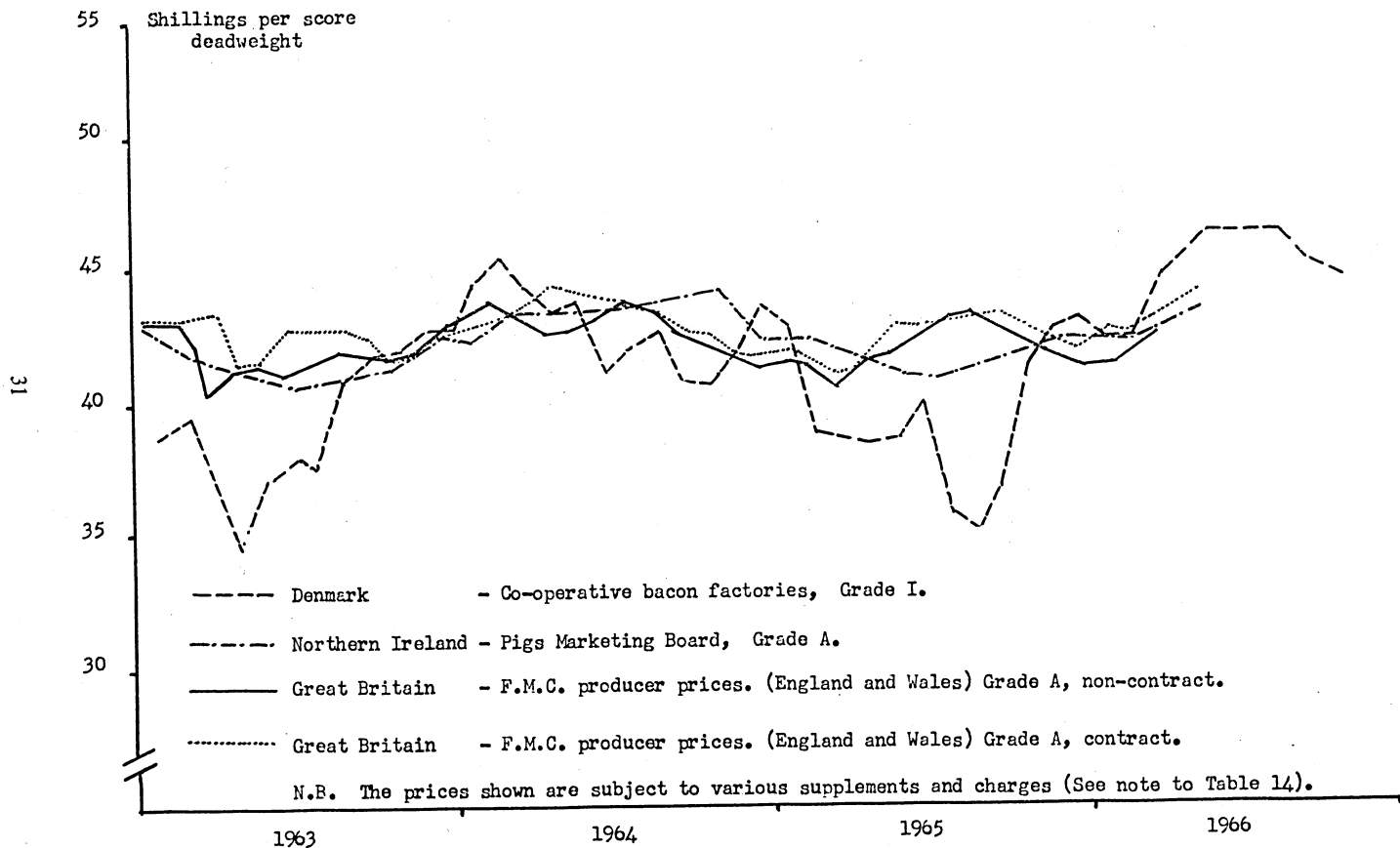
In Great Britain, the price quotations shown in Table 14 are subject to a deduction of 7/0d. per pig. Prior to April 1966 the rate was 6/6d. per pig. Those pigs sold on contract qualify for level delivery bonus payable at the end of each contract period. The current rate probably amounts to about 4/6d. per pig.

The prices shown in Table 14 exhibit variations from year to year which are more pronounced in the Danish figures than in those of Northern Ireland and Great Britain. The same prices have been plotted in Figure 2 and the fluctuations in monthly producer returns can be compared.

Subject to the qualifications already made regarding the adjustments to the prices quoted, there is little to choose between the prices paid to producers in Northern Ireland and Great Britain. A considerable degree of similarity exists between them both in their comparative levels and in the absence of wide fluctuations. The prices received by Danish pig

FIGURE 2

Bacon pig prices, Denmark, Northern Ireland, Great Britain: 1963 to 1966



producers, on the other hand, exhibit fluctuations of a far greater magnitude, due probably to the fact that the predominant influence of export prices is allowed to exert itself on domestic producer returns. The effect of price support measures on the level of, and fluctuation in, producer prices will be discussed more fully later in this section. However, it would appear that producers in Northern Ireland and Great Britain are sheltered from market forces to a much greater extent than their counterparts in Denmark, in spite of the operation of the home market price regulations in that country.

Costs of production

A comparison of prices, without reference to the costs of the factors of production and to the levels of productivity attained in each country, are of little significance.* In a report recently published, the costs and returns from pig production in England and Denmark were compared† and they are reproduced in Table 15, together with similar results obtained from a sample of approximately 30 breeding herds in the counties of Cornwall, Devon, and Dorset.

It is always very difficult in such studies to make sure that the results are presented in as comparable a form as possible. The Cambridge report is not explicit enough on details of a background nature to enable an assessment of the uniformity of the presentation of the data to be made. The South Western results (referred to in Table 15 as "Exeter") specifically relate to breeding and fattening herds with an average herd size of approximately 7 to 8 sows. The progeny is fattened to bacon weight, at an average deadweight of 7 score 4 lb. Between one-half and two-thirds of all the food fed was, in value terms, in the form of purchased compounds. Where milling and mixing is practised on the farm, an estimate of the cost involved in the process is added to the cost of the ingredients and included under the heading "food costs". In Denmark, milling and mixing on the farm is relatively unimportant. In the Cambridge sample it is probably more extensively practised than in Denmark or South West England, but the actual costings procedure employed in the former is not stated and the milling and mixing charges might well have been absorbed in "labour and other costs".

In terms of profits, there is little to choose between any of the three limited samples. In fact, the range in profits within the Exeter sample is so marked—an observation which can hardly come as a great surprise to anyone acquainted with the financial results from farming enterprises—that the average profit shown is little more than a statistical convenience. Since the profits obtained from each of the three samples are in such proximity, all that can reasonably be said is that

* It can moreover be argued, with a great deal of justification, that a mere conversion of the costs, returns and profits from one country's currency into that of another country, does not take account of the *real* differences which exist, or in other words the purchasing power of money in each country.

† A comparison of pig production in England, Denmark, and Holland. Occasional Papers No. 11. Farm Economics Branch, School of Agriculture, Cambridge University. December 1966.

TABLE 15

**RETURNS, COSTS AND MARGINS FROM PIG PRODUCTION IN DENMARK AND GREAT BRITAIN.
THREE-YEAR AVERAGES, 1963 TO 1965**

	Denmark	Great Britain	
		Cambridge	Exeter
	s. d.	s. d.	s. d.
Returns per score deadweight	39 2	42 10	43 4
Costs: Food	26 11	30 4	31 3
Labour	3 6	3 10	3 8
Other	2 10	3 5	2 2
Total	33 3	37 7	37 1
Margin	5 11	5 3	6 3
Feed cost per cwt.	27s. 1d.	27s. 10d.	29s. 4d.
Ratio of pig prices to feed cost per cwt.	8·12	8·62	8·27
Weaners per litter	8·32	8·27	8·0
Weaners per sow per year	15·93	14·73	14·0
Food conversion rate (breeding and fattening)	4·15	4·42	4·42

the Danish farms overcome a slightly more adverse pig/feed ratio by what appears to be a slightly better productivity per breeding animal.

It would be interesting to examine further why the Danish rearing results should be so significantly better. No figures are given of deaths during the pre-weaning period. Could the difference be attributed to the fact that rearing is mostly an indoor activity in Denmark while in the South West of England it is commonly carried on out of doors? Here again, it may be interesting to point out that a high rate of physical productivity in a rearing herd is not necessarily the most economic. This situation can be appreciated by the fact that data from the Cambridge sample show an average food consumption per weaner of 2.2 cwt. while, in the Exeter sample, average quantity of food consumed per breeding sow (including creep feed and the boar's ration) was 28.3 cwt. per year. Each sow produced on average 14.0 weaned pigs per year, which likewise gives 2.2 cwt.

Recorded data on fattening efficiency are unfortunately much more limited. The report referred to earlier contains a table which compares Danish and English fattening results which can in turn be compared with results obtained in the South West of England. These can be seen in Table 16.

TABLE 16

A COMPARISON OF FATTENING CONVERSION RATES,
DENMARK AND GREAT BRITAIN, 1961-62

	Denmark		Great Britain			
			Cambridge		Exeter	
Average liveweight at slaughter	180 lb.		204 lb.		186 lb.	
Average conversion rate	3.80		3.72		3.70	
	No.	%	No.	%	No.	%
Range:						
3.0 to 3.49	1	4	3	15	8	38
3.5 to 3.99	17	74	14	70	10	48
4.0 to 4.49	2	9	3	15	2	10
4.5 and over	3	13	—	—	1	4
Total	23	100	20	100	21	100

The most important feature of Table 16 is not the average level of food conversion achieved in each country because reading them too literally would be to ignore all the problems relating to small samples. It is, rather, the range of results in the lower part of the table.

It is reasonable to suppose that the slaughter weight of the pigs in the Danish sample was much closer to the average result than was the case in the other two samples. The very fact that nearly 40% of all the herds in the Exeter sample obtained fattening conversion ratios of under

3.5 : 1 would seem to indicate that a fair number of pigs were sold as relatively lightweight porkers. However, if the assumption concerning the uniformity of product of the Danish sample is correct, it may come as some surprise to discover that between one-fifth and one-quarter of the Danish herds had fattening conversion ratios of 4.0 : 1 and over. How far this particular result in 1961-62 was due to the size of the sample will never be known, but it does confirm the rather less scientifically observed impression that the Danish pig industry has a "tail" of less efficient producers which is as large as that of Great Britain.

What conclusions can be drawn from such a comparison of the results obtained by small samples of pig enterprises in different countries? Whatever criticisms may be levelled against the samples, it should be pointed out that they represent all the data available and they can be of use provided their limitations are recognised.

Whatever the position may have been fifteen years ago,* it is difficult to escape the conclusion that the profitability of pig keeping shows little difference nowadays between Denmark and the United Kingdom. Indeed, the view might even be advanced with some justification that the effect of the very considerable effort in research and advisory services will shortly result in comparable levels of efficiency in pig production in all developed countries. There is little doubt that the Danes have tried in the past to withhold the benefits of their research into selective breeding by prohibiting the export of breeding-stock. Denied this source, European countries have developed their own breeds and strains according to their own requirements. The principal criterion in Danish pig breeding was for many years the development of carcass quality and uniformity—not unreasonable in the days when the Danes held a dominant position in a free and competitive British bacon market. It so happened that efficiency in food conversion was a secondary consideration but was, to a considerable extent, correlated with carcass quality. Other countries have scientifically developed their breeds of pig along complementary lines of carcass quality and efficiency in food conversion. The time has now arrived when the performance of the Danish pig industry is being progressively matched and it cannot expect to enjoy for much longer the competitive superiority which it undisputedly held a decade ago. And so the Danish pig farmer, albeit reluctantly, finds himself subsidised like everyone else and his profits likewise depend on the extent to which his government is prepared to support him. The greater that government support is, the more the Danish farmer finds himself retaliated against in the countries to which he exports, and which are themselves desirous of protecting their agriculture.

Information relating to the returns, costs, and margins from pig production in Northern Ireland is not published on a basis which is strictly comparable with that which has been shown to exist in Denmark and Great Britain. However, information is available in a form to which the Exeter Province data can be converted. The Northern Ireland data are not as comprehensive as that relating to the other two countries. It is on a gross margin basis—gross output less the variable costs of

* Costs and Efficiency in Pig Production. A comparison between England and Denmark. H.M.S.O., 1954.

feedingstuffs, veterinary fees, medicines, and other expenses which vary as a function of output. Gross margin is, in short, the fund out of which the farmer must meet all the costs which are not directly attributable to the enterprise and leave him with a profit.

A comparison of the results obtained in Northern Ireland and in South West England is given in Table 17. The usual qualifications have, of course, to be made concerning the size of the samples involved and the variations which are known to exist within such samples. No significant differences between the results would appear to exist, except for the fact that feedingstuffs are more expensive in Northern Ireland. Where an increased profit does accrue to pig producers in the South West of England, it can be attributed to cheaper feedingstuffs. It is not possible to give any precise data on the cost of feedingstuffs for pigs in Northern Ireland. However, only a small proportion of the total requirements are produced in the Province and the prices of cereals in general have been much higher than in Great Britain. The following may serve as indicators of the general level of pig feed prices in Northern Ireland:

	1965	1966
	per cwt.	
Pig fattening meal (13% protein ex mill Belfast)	33/7d.	34/8d.
Barley ex farm (barley is normally sold dried to 14% moisture)	23/7d.	24/7d.

The systems of production in Great Britain

It has already been established that diversity of production is a feature which characterises the pig industry in Great Britain. The competitive pull of the different marketing outlets upon pig producers is very much less in Denmark and Northern Ireland with the greatest proportion of their production concentrated upon a single specialised market.

The marketing possibilities confronting the farmer who produces pigs for slaughter can, broadly speaking, be divided into two categories. First, there is a choice of marketing channels for any particular type of pig produced; second, the producer has the choice of marketing his pigs at a wide range of slaughter weights. It is true that for some weights of pig there is only a very restricted market outlet. The heavy pig, for example, can rarely be disposed of outside the factories specialising in this type of animal. Pigs of bacon weight, on the other hand, can be marketed in several different ways—grade and deadweight sale to bacon factories; deadweight sale at a flat rate to bacon factories or to abattoirs; liveweight certification centres (auction markets); and finally private-treaty sales to dealers or organisations.

The extent to which pig producers do respond to certain market stimuli by fattening pigs to lighter or heavier weights has not been resolved. In some respects, producers are responsive to price differen-

TABLE 17

**A COMPARISON OF GROSS OUTPUTS, VARIABLE COSTS AND GROSS MARGINS FROM PIG PRODUCTION
IN NORTHERN IRELAND⁽¹⁾ AND GREAT BRITAIN⁽²⁾, 1965/66**

	<i>Rearing</i>		<i>Fattening</i>		<i>Rearing and Fattening</i>	
	<i>N.I.</i>	<i>G.B.</i>	<i>N.I.</i>	<i>G.B.</i>	<i>N.I.</i>	<i>G.B.</i>
Number of herds	10	16	13	15	3	27
Average number of sows per herd	6.4	22.7	—	—	19.6	22.4
Pigs weaned per sow per year	17.8	15.8	—	—	13.6	13.5
Food conversion	—	—	3.8:1	3.9:1	—	—
Cost of feedingstuffs per cwt.	35/2d.	36/0d.	32/8d.	27/11d.	35/8d.	30/4d.
	<i>Per sow</i> £	<i>Per sow</i> £	<i>Per pig</i> £	<i>Per pig</i> £	<i>Per pig</i> £	<i>Per pig</i> £
Gross output	127.4	99.9	8.0	8.7	15.1	15.1
Variable costs:						
Feedingstuffs	93.0	68.3	6.7	6.7	12.0	11.1
Other	6.4	3.6	0.2	0.1	0.2	0.5
Total	99.4	71.9	6.9	6.8	12.2	11.6
Gross Margin	28.0	28.0	1.1	1.9	2.9	3.5

Notes: (1) "Moderate" results derived from the Farm Management Survey, Northern Ireland.

(2) Exeter Province, P.A.E.S.

tials, but it is also evident that factors other than market returns enter into the process of decision-making. This is especially so when the choice involves producing animals of widely differing weights. There are the considerations of availability of cheap supplies of food, particularly on farms where a substantial acreage of grain, especially barley, is grown. Such enterprises would tend to favour the heavy pig, where the deterioration of the fattening conversion rate during the latter stages of growth can be compensated economically by an inexpensive ration. It follows then that cheap food is an economic corollary to heavy pig production.

At the other end of the weight range there are the lightweight pork pigs. Here, the main factor contributing to success is the speed of turnover, even if it means a slight reduction in the profit margin per pig fattened.

Some years ago it was the fashion for contributors to the farming press and speakers to farming audiences to pronounce on the greater profits to be obtained from a particular system of production—porkers, baconers, or heavy pigs. Nowadays, much less is heard of this kind of argument and a more responsible attitude has led to a recognition of the fact that each type of production has its own characteristics and it is apparent that the mechanism of the market has functioned in such a way as to bring into equilibrium the relative strengths of the supply of, and demand for, each product. Moreover, it has become more and more widely accepted that a wide range of results does occur in cost investigations and that these variations are greater than the differences between types of production. This is not to say, however, that the earlier exercises into comparative budgets have been entirely futile. They have had an important indirect effect. They have played a valuable educational role in communicating to pig producers the techniques involved in partial budgeting and have taught producers to recognise the factors which should be taken into account when assessing the merits and demerits of alternative opportunities.

In short, it is not possible to produce empirical evidence to substantiate a claim that one type of production is more profitable than another. Even if this were possible, experience of the behaviour of the market with one batch of pigs could not support an assumption that the situation would be duplicated in the next production cycle. Such being the case, it can hardly be denied that the types of production are competitive. When seeking the cause for a poor financial reward from a particular pig enterprise, the solution rarely involves the choice of type of production merely on the basis of a comparison of the returns from the relative markets. The diagnosis more frequently lies among the factors of production—the productivity of the rearing herd, and the feed efficiency of the rearing and fattening enterprises. These are the factors which really influence the profitability of pig production and, in such analyses, the choice of marketing system is a later and sophisticated refinement.

In its broad pattern, such is the competitive nature of the bacon market. However, within the range of the animals demanded by the British bacon industry there are some imperfections but they embody so many different aspects that they can hardly be described as competitive. Their effect has been unsettling in the minds of pig producers who

tend to fail to appreciate the reasons why such and such a situation occurs and why it is desirable that the situation should continue.

One of the most frequently voiced complaints on the part of pig producers concerns the relative pricing of the pigs sold through the liveweight auction markets and those contracted by grade and deadweight to bacon factories. The prices shown in Figure 3 illustrate the fact that the liveweight auction market prices for baconers tend to be above, and at times substantially above, the prices received for grade A bacon pigs sold on contract. Producers regard this situation as bad and frequently proclaim that the quality producer is not being adequately recompensed for the care he has taken to supply the market with the product it apparently needs. Moreover, these arguments are at their strongest at times when the pig industry needs more confidence.

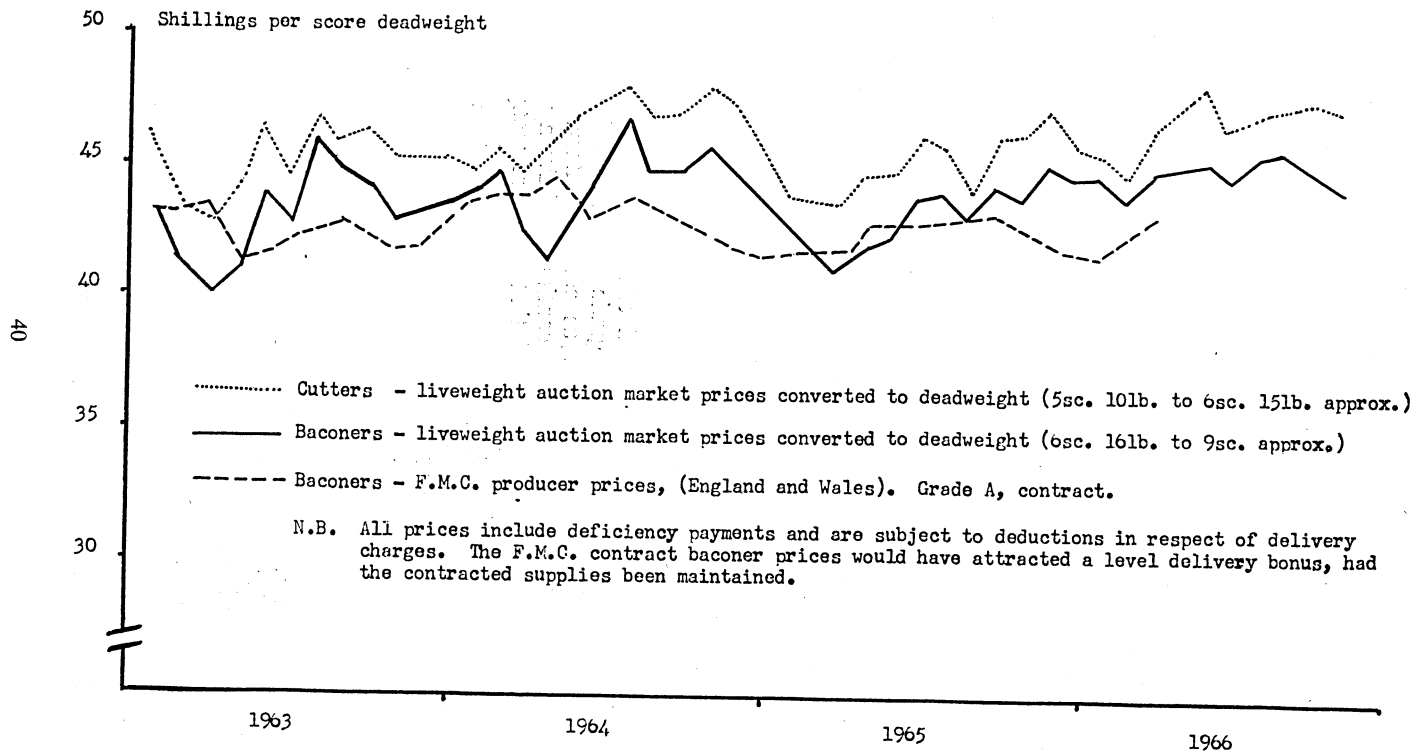
Arguments such as these are incorrectly based. The liveweight auction market receives only a very small proportion of the supplies of pigs of bacon weight when compared with the number of animals supplied to bacon factories by grade and deadweight. The auction market serves as the safety-valve of the industry. It is a residual market which buyers and sellers are using as an elastic marginal route for supply and disposal. As such it performs a valuable service to the British pig industry which would be missed if the selling of all pigs by grade and deadweight were compulsorily introduced. Unlike the pig industries of Denmark and Northern Ireland, where the entire production is orientated towards a specific market, the British pig producer is faced with a diversity of outlets, and the systems of procurement which apparently work satisfactorily in the two former countries but are not necessarily likely to succeed in Great Britain. What would appear to be competitive markets for bacon pigs are not in reality competitive. As was stated earlier, the liveweight auction markets are essentially marginal areas of supply and demand, and any significant diversion of supplies into those markets would have a very marked effect on prices. Far from being competitive, therefore, with the grade and deadweight methods of supply, they should be regarded as complementary. The liveweight auction markets are thus likely to continue to have a valuable role to play, although it must be admitted that there are many whose future existence is very much in doubt.

The support of producer prices

Whenever the prices received by agricultural producers are discussed, the question of government support—be it tariff, quantitative control, subsidy, or deficiency payment—soon arises. It has become a permanent part of the agricultural scene. Its existence in an exporting country gives rise to protective barriers in the importing country. As increases, under domestic political pressure, occur in the one country, demands are heard for more support in the other country; and so the process takes on the characteristics of a vicious circle, as a result of which consumers in both countries have to pay directly or indirectly more for their food. A distressing feature of the situation is that the efficient supplier is frequently wrongly accused of receiving a hidden subsidy or of being supported by subterfuge. The result is that such a supplier finds himself discriminated against just as much as the in-

FIGURE 3

A comparison of grade and deadweight baconer prices with auction market
baconer and cutter prices, England and Wales, 1963 to 1966



efficient producer who does rely on considerable support from his government.

It is a well-known fact that the system of price support basically employed in the United Kingdom for pigmeat is the deficiency payment, with additional support for pigmeat preparations being derived from Customs duties. The deficiency payment system has many advantages for the situation which exists in the United Kingdom—a country which imports a major share of its food and in which only approximately 4% of the working population is engaged in agriculture. However, the principal advantage of the system is that it allows imports to enter the country at a relatively low price while at the same time permitting the prices received by domestic producers to be maintained at a politically desirable level. It is because of its advantages *vis-à-vis* the balance of payments that the United Kingdom system of agricultural price support finds ready acceptance. It is significant, moreover, that alternative methods of support—levies, for example—are examined primarily as they affect the balance of payments.

The price support system practised in Denmark is far more recent in origin. Prior to 1962, direct price or income support was almost unknown and the Danish farmer prided himself on the fact that his industry was unique in being unsubsidised, at a time when the agricultural support accorded in most developed countries was a source of political embarrassment.

The Danish home market regulations for pigmeat, beef and veal, poultry meat and eggs were established by law from 1st October 1962. The legal basis expired on 1st July 1963 but it was extended to 1st July 1965 and again for a further two years.

The price which forms the starting-point for the home market regulations for pigmeat is the approved home market price. Agriculture being in a *de facto* monopoly position, prices have to be approved by the Monopolies Board. The other key price in the system is the Co-operative Bacon Factories' national price for pigs of grade A category. The difference between the approved home market price at any time and the price quotation as described above is collected as a tax on the sale of pigmeat to the domestic market. The total amount collected from this levy is then distributed to producers in the form of a settling supplement paid on all pigs sold, both for export and for consumption in Denmark. Under normal conditions the settling supplement should amount to roughly 20% of the home market levy because that proportion of all production is destined for domestic consumption while the remainder is exported. However, should the price received for exports exceed the approved home market price, the export price applies to the home market as well. In other words, the regulation is suspended if the export price exceeds the approved home market price.

In addition to the levy described above, an additional slaughter tax of a fixed amount (50 öre per kilogramme, or roughly 6d. per lb.) is imposed on the home market sales of pigmeat. This slaughter tax is not distributed to producers but is used for research, sales promotion, and quality control generally. For example, the proceeds help to meet the administrative costs of the Bacon Factories Export Association, the Bacon Quality Control Service and the Meat Research Institute at

Roskilde. In total, the proceeds from the tax amount to about 70 million kroner per annum, or about £3½ million.

The method by which the final producer price is determined may be seen from Table 18, which summarises the position in four periods since the start of the home market price regulations in October 1962. It should be noted that the 50 öre per kilogramme slaughter tax is not included in the home market price.

TABLE 18

PIG PRICES IN DENMARK, 1962 TO 1966
(Per score deadweight)

	October, 1962 to June, 1963	July, 1963 to June, 1964	July, 1964 to June, 1965	July, 1965 to June, 1966
Approved home market price (1)	44/9d.	45/9d.	46/5d.	49/0d.
Average quoted price (2)	36/6d.	41/10d.	40/2d.(6)	41/0d.
Home market tax (3)	8/3d.	3/11d.	6/10d.	8/0d.
Supplementary payment (4)	1/8d.	10d.	9d.	11d.
Final producer price (4)	38/2d.	42/8d.	40/11d.	41/11d.

Notes: (1) Excluding the 50 öre per kg.

(2) Co-operative Bacon Factories Association price quotation for first grade pigs.

(3) Approved home market price *less* average quoted price.

(4) Average quoted price *plus* supplementary payment.

(5) The advance distribution of an additional payment of 7d. per score is not taken into account in arriving at the home market tax.

The figures quoted in Table 18 are annual averages and thus conceal a considerable variation which occurs from week to week. The trend over the period from October 1962 is shown in Figure 4, which again does not include the 50 öre per kilogramme slaughter tax. Except for a brief period at the beginning of 1964, the national price quotation has been well below the approved home market price. The difference between the two lines is, of course, the home market levy. The settling supplement is the shaded area in the graph and, even when it is included, the final producer price shows considerable fluctuation from week to week.

By way of comparison, the price support accorded in recent years to pig producers in Northern Ireland and Great Britain may be seen in Table 19. As far as pig production is directly concerned, a comparison between Tables 18 and 19 reveals two fairly distinct points. First, there is higher average level of quality premium earned by producers in Northern

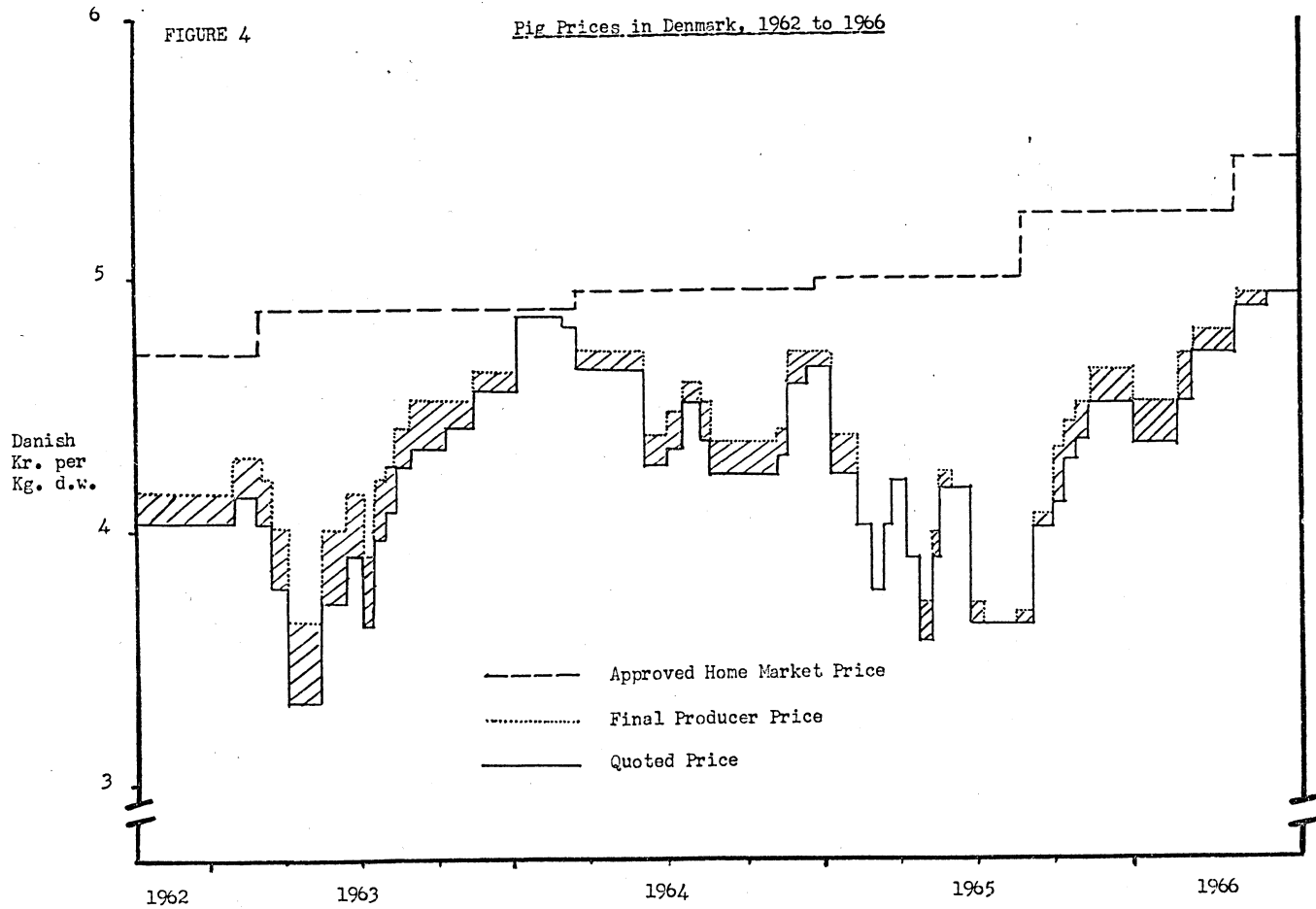


TABLE 19

**PRICES, GUARANTEE PAYMENTS AND QUALITY PREMIUMS FOR PIGS CERTIFIED
IN NORTHERN IRELAND AND GREAT BRITAIN**

<i>F.G.S. (1) year</i>	<i>Country</i>	<i>Type of pig</i>	<i>Average market price</i>	<i>Average guarantee payment</i>	<i>Average quality premium</i>	<i>Average return to producers</i>	<i>Quality premium as per cent of total guarantee</i>
			s. d.	Per score deadweight		s. d.	%
				s. d.	s. d.		
1963/64	Northern Ireland	All pigs	36 4	5 8	1 8	43 8	21.5
	Great Britain	Bacon pigs	35 4	5 9	1 1	42 2	—
		Other pigs	38 10	5 4	—	44 2	—
		All pigs	37 6	5 6	5	43 5	7.0
1964/65	Northern Ireland	All pigs	36 3	7 1	1 8	44 11	18.9
	Great Britain	Bacon pigs	34 5	7 1	1 2	42 8	—
		Other pigs	38 6	6 8	—	45 2	—
		All pigs	37 0	6 10	5	44 3	6.2
1965/66	Northern Ireland	All pigs	35 11	8 0	1 1	45 0	11.5
	Great Britain	Bacon pigs (2)	33 4	8 0	7	41 11	—
		Other pigs	37 11	7 10	—	45 9	—
		All pigs	35 8	7 11	4	43 11	3.7

Notes: (1) Fatstock Guarantee Year—April to March.

(2) Due to a change in the Fatstock Guarantee Scheme, the division in 1965/66 is between "Bacon Factory Pigs" and "Other Pigs".

Ireland which, in view of their concentration on the British bacon market, is hardly surprising. However, the withdrawal of the second remaining part of the quality premium at the recent 1967 Price Review must have some severe implications for the industry in that part of the United Kingdom—a subject which will be discussed shortly in greater detail. A second feature is the comparatively greater level of support enjoyed in recent years by British pig producers.

Broadly speaking, agriculture in Northern Ireland enjoys the same financial benefits as does that in Great Britain. Farmers in Northern Ireland, however, do enjoy certain benefits which do not apply in Great Britain. Because of the cost of transport to the British market, its producers, especially producers of fat cattle and sheep, receive a lower market price than producers in Great Britain. Since the market price is averaged over the whole of Great Britain, they receive the same deficiency payment as producers in Great Britain, but to compensate them in part for this disadvantage, a Remoteness Grant is now being paid to them.

Before 1965–66, none of this Grant was specifically allocated to pig producers, but a sum of up to £250,000 was given to the Pigs Marketing Board (Northern Ireland) in the year ended 31st March 1966 and a similar amount allocated for the following year. In official words, the Grant is “towards expenditure which, in the opinion of the Ministry, had been reasonably incurred by the Board in the two years referred to in the carrying out of measures designed to increase efficiency in the production, processing, handling, transporting, storage, presentation, and marketing of Northern Ireland pigs and pig products, and in maintaining the level of prices to farmers producing pigs having regard to the cost of transporting pigs and pig products”. It is generally understood that this money was paid to Northern Ireland pig producers to help compensate them for the reduction in quality premiums on bacon pigs made at the 1966 Annual Review and their complete abolition at the 1967 Review—a burden which falls much more heavily on Northern Ireland producers whose output is almost entirely in the form of bacon pigs.

Comparisons of the levels of support received in different countries are always interesting. It is equally true that they are notoriously difficult—hence the very few attempts which have been made to evaluate the incidence of agricultural support in the countries of Europe.

The difficulty of making the comparison arises from the fact that subsidies actually paid from Government expenditure are by no means the whole story of agricultural support, although on account of the system adopted in the United Kingdom they do form a large part of it, but not, however, all. In addition to tariffs and subsidies, support can be given to agriculture by instituting monopoly selling agencies such as marketing boards. In the United Kingdom, for example, the Milk Marketing Board enables the price of milk to be kept above what it would be under free market conditions, but the extent of the support does not appear as an item of Exchequer support. Similarly, in Denmark the physical control of imports and the direction of the marketing of most agricultural products by producer organisations tend to keep prices above what might be considered hypothetically as free import prices.

Probably the best way of unravelling this problem is to value the agricultural production of the countries under consideration at prices applicable to the equivalent imported goods. This would provide a very rough approximation of the comparative levels of support, but there are a number of difficulties in such an exercise. In the first place, the differences between prices received by farmers and selected imported prices do not include production grants, and the fertiliser subsidy is merely a form of income support thinly veiled as a production grant. Second, exports of most agricultural products tend to be supported by some form of export subsidy, either directly or indirectly. Third, some agricultural commodities are difficult to transport and therefore enjoy a natural protection. Fourth, market prices after the lifting of restrictions on imports would depend on the appropriate elasticities of supply, and the calculation of these hypothetical future elasticities is fraught with so many problems as to be well nigh impossible. Therefore, the best method that can be theoretically applied has to be so heavily qualified that the resultant figures have very little advantage over those derived by less refined methods.

Such calculations as are possible within the scope of this particular study tentatively suggest that the Danish farmer is supported to a slightly lesser extent than his counterpart in the United Kingdom. The method and arguments by which this conclusion is reached are as follows:

1965-66	<i>Denmark</i>	<i>United Kingdom</i>
Total value of agricultural production	£475 m.	£1,927.5 m.
Total price and income support	£56.26 m.*	£206.2 m.†
Price and income support as a percentage of the total value of agricultural production	12.5%	10.7%
Total agricultural support	£60.4 m.	£236.6 m.
Agricultural support as a percentage of the total value of agricultural production	12.7%	12.3%

* Includes cash grants (refund of property taxes, milk subsidy which has replaced the former cow and holding subsidies, and the State contribution to the feed grain levy fund) and funds accruing from the price maintenance regulations (including the fertiliser subsidy).

† Implementation of price guarantees plus some production grants (fertiliser lime and ploughing subsidies; calf, hill cow, hill sheep and winter keep subsidies).

However, it would indeed be naïve to assume that the argument ends at this particular point. As far as the United Kingdom is concerned, the figures do not include the protection accorded by the operation of the marketing boards or an evaluation of the de-rating of agricultural

land on which the Danish figures are explicit. The United Kingdom figures do not include the considerable public expenditure on the advisory services.

The estimates of Danish agricultural support take no account of the effect of the physical restriction on imports accorded to producers. It is also known that low interest credit is available for the structural improvement of Danish agriculture. The co-operatives which dominate the production and marketing of agricultural commodities enjoy favourable fiscal treatment. However, collated figures on such forms of support are apparently unobtainable.

It has already been stressed that the figures shown above must be regarded as giving only an indication of comparative levels of support.

TABLE 20

EXPORT LEVIES, DENMARK, 1966
(Pence per pound)

<i>Period commencing</i>	<i>Hams</i> ⁽¹⁾	<i>Carcases</i> ⁽²⁾ <i>or sides</i>	<i>Sow</i> ⁽³⁾ <i>carcasses,</i> <i>sides or parts</i>
18th January	4¾d.	Nil	Nil
24th January	5½d.	2¼d.	Nil
31st January	4¾d.	2¾d.	Nil
28th February	3d.	2¼d.	Nil
7th March	1½d.	1¼d.	Nil
14th March	¾d.	1¼d.	1d.
21st March	1½d.	1¼d.	1d.
4th April	Nil	1¼d.	1d.
11th April	Nil	Nil	Nil
9th May	Nil	Nil	3d.
16th May	Nil	Nil	1d.
24th May	Nil	Nil	Nil
16th August	1¼d.	Nil	Nil
6th September	1¾d.	Nil	Nil
13th September	1¾d.	Nil	Nil
27th September	Nil	Nil	Nil

Notes: (1) Fresh, frozen or salted.

(2) Fresh or frozen.

(3) Fresh or frozen.

Moreover, one can only make a balancing assessment of the intangibles, of which a few, but not all, have been mentioned. The trouble with this type of calculation is that everyone who attempts it is likely to get a different answer since the possible interpretations vary so widely. However, it is difficult to avoid the conclusion that the Danish agricultural population can only be maintained by a degree of support from the rest of the economy which does not fall far short of that which we find in the United Kingdom.

Theoretical considerations apart, commercial considerations of a more practical nature would tend to support the view that the importance of the United Kingdom bacon market would make the Danes reluctant to jeopardise its security by indiscriminate price support of pig production. The other party to the bacon understanding—the British Government—with its commitment to its own producers in the form of a deficiency payments system, is not anxious to see too great a gap emerge between the price of Danish bacon on the British market and the return the Danish producer receives for his pigs.

It is easy to under-estimate the traditional attitude of many Danes towards the British bacon market. Some of the more conservative yet still influential leaders of the Danish pig industry have on more than one occasion expressed the view that the security of the known British bacon market would still be preferable to the superficial attractions of the E.E.C. market. As Table 20 shows, levies were imposed on Danish exports, mainly to the E.E.C. countries, so that supplies of bacon to the United Kingdom would reach the quantities undertaken in the market sharing agreement. This happened at a time when the shortage of pigs made it unlikely that Denmark could both fulfil her United Kingdom commitments and supply the deficiencies of some other European countries.

III THE PRODUCTION OF BACON

An important part of the study was an attempt to assess the profitability of curing Wiltshire-type bacon or, more precisely, to attempt to assess the profits or otherwise obtained from curing Wiltshire-type bacon, green, and selling it first hand. This involved getting a sample of factories willing to supply detailed physical and financial information in order to build up a complete picture of their entire trading operations. From this record, the results of the Wiltshire bacon operations could be derived. The information was almost entirely recorded by the factories' own auditors, collated by Messrs. Price Waterhouse & Co., who, in collaboration with the University of Exeter, prepared the final results as published in this report.

The Sample

Usable returns were received from 17 factories, although nearly three times that number were approached with a view to participating in the study. The reason given for the inability of factories to supply the required information was almost the same in every instance—the records available would not permit analysis to be carried out in anything like the detail requested. It would have been possible to increase the size of the sample by drawing additional factories from one of the large organisations, but this would undoubtedly have detracted from the representative character of the results.

The availability of records inevitably leads to a bias towards the larger businesses, but even so a considerable range in size of business was obtained. Using total net sales in 1965 as the criterion, the factories ranged from £141,000 to just over £3½ million. Almost exactly half the factories lay below the £1 million mark, and half above.

TABLE 21

PERCENTAGE DISTRIBUTION OF PRODUCTION BY VALUE, 1965

<i>Type of Product</i>	<i>Percentage</i>
Bacon ⁽¹⁾ and hams	54
Pork	21
Small goods ⁽²⁾	24
By-products and offal	
Trading in livestock other than pigs	1
Total	100

Notes: ⁽¹⁾ All processes.

⁽²⁾ A small number of factories were unable to split these two items.

A prominent feature of the business conducted by the factories in the sample was the diversity in the type of product sold. The overall pattern of production from 16* of the sample factories was as follows:

Although bacon and hams accounted for just over a half of the value of total sales, considerable differences existed within the sample. The variations in importance of (a) all bacon and hams and (b) Wiltshire bacon, in relation to the total production from each factory are shown in Table 22.

TABLE 22

**DISTRIBUTION OF FACTORIES ACCORDING TO
THE RELATIVE IMPORTANCE OF
(a) BACON AND HAMS AND (b) WILTSHIRE BACON, 1965**

<i>Percentage of total factory production by value</i>	<i>Bacon and hams (1)</i>	<i>Wiltshire bacon (2)</i>
	<i>Number of factories</i>	
Under 20	1	2
20 to 39.9	2	3
40 to 49.9	3	3
50 to 59.9	3	5
60 to 69.9	6	2
70 and over	1	1
Total	16	16

Notes: (1) All processes.

(2) Green and smoked, sold as sides, cuts or pre-packed.

The variation from factory to factory in the value of bacon produced may be seen from Table 23. It may be of interest to note that the degree of concentration on bacon production was not related to the size of business. For example, in one of the smallest factories in the sample, Wiltshire bacon accounted for three-quarters of the value of total production; at the other end of the scale, there were very large factories in which the corresponding proportion was 70%.

The following table indicates the relative importance of the production and sale of green bacon which was sold either first hand or to multiple stores. In fact, first hand sales, including those to multiples, of green bacon amounted to almost 50% of total Wiltshire bacon sales, it probably amounts to no more than 10% of the bacon produced in the country. Since one of the terms of reference provided for in the main

* It will be noted that the sample has apparently decreased by one, due to the fact that one factory—one of the largest—was unable to supply an analysis of sales by product. In other respects, costs for example, the return was satisfactory.

study (and a special objective of the financial investigation) was to determine the profitability of producing green bacon for sale through first hand outlets, this bias is not considered to be of any great disadvantage. However, the preponderance of green bacon first hand is a factor which should be considered in any assessment of the profits obtained from bacon production or of the overall trading results of the sample chosen.

TABLE 23

DISTRIBUTION OF FACTORIES ACCORDING TO PRODUCTION BY VALUE OF (a) BACON AND HAM, (b) WILTSHIRE BACON AND (c) WILTSHIRE BACON—GREEN, 1965

<i>Production</i>	<i>Bacon ⁽¹⁾ and ham</i>	<i>Wiltshire ⁽²⁾ bacon</i>	<i>Wiltshire ⁽³⁾ bacon—green</i>
£ 000's			
Under 100	1	1	3
100 to 249.9	5	5	3
250 to 499.9	4	5	7
500 to 749.9	3	2	2
750 and over	3	3	1
Total	16	16	16

Notes: ⁽¹⁾ All processes.

⁽²⁾ Green and smoked, sold as sides, cuts or pre-packed.

⁽³⁾ Sold as sides, cuts or pre-packed.

The overall trading results

Before proceeding to an examination of the financial results obtained by the sample of factories, attention should be drawn to the definition of terms and costings procedure used which are described in the Appendix.

A summary of the overall financial results of the sample is given in Table 24. In addition to the description of terms and definitions used, there are several general points which have an important bearing directly or indirectly on any interpretation of the results.

First, attention should be drawn to "other income", which can be seen to contribute substantially to profits. Other income includes profits derived from the operation of company-owned shops; it also includes items of a capital nature and also any non-trading income. Any charges deemed to have been incurred in the receipt of this other income have been withdrawn from factory costs and set against other income. Interest charges, totalling £30,256, of which the greatest proportion came from six factories, are considered to be financing charges and have also been netted against other income.

Second, all the factories in the sample were owned freehold and only five of the 16 had been revalued in recent years. In six instances,

TABLE 24

SUMMARY OF RESULTS, 1965
(16 Factories)

	<i>Bacon</i>		<i>Pork</i>		<i>Small goods*</i>		<i>Trading in livestock other than pigs</i>		<i>TOTAL</i>	
	£	%	£	%	£	%	£	%	£	%
Net sales	8,198,297	100.0	3,050,162	100.0	3,673,601	100.0	170,836	100.0	15,092,896	100.0
Less Direct factory costs	7,124,380	86.9	2,874,569	94.2	2,958,028	80.5	175,774	102.9	13,132,751	87.0
Contribution	1,073,917	13.1	175,593	5.8	715,573	19.5	(4,938)	(2.9)	1,960,145	13.0
Less Factory overheads and depreciation									565,855	3.7
Gross profit									1,394,290	9.3
Less Selling and distribution expenses							724,100	4.8		
Administration expenses							452,259	3.0	1,176,359	7.8
Net factory profit									217,931	1.5
Add Other income									116,774	0.7
Net profit before tax									334,705	2.2

* Including by-products and offal.

no depreciation or rental charge had been debited through the profit and loss account. Where it had been provided for, a very low rate had been used. Thus the charges actually made for the factory premises would appear to be considerably less than an economic rent. For such reasons it is impossible to provide any useful summarised information relating to the return on capital employed in the businesses.

It is possible to arrive at an approximation of the effect of a more realistic rental charge on the trading results. The assessment can be arrived at in the following ways:—

1. A notional depreciation at 2% book cost for those factories which made no rental charge would result in an addition to factory overheads and depreciation of £10,000 in Table 24. This would have reduced the net factory profit from 1.5% of total net sales to 1.4%.
2. By increasing the rental charge for the factories, which had not been recently revalued but which did have such a charge, to double the book cost would have meant an increase of £42,000. Net factory profit would then have been reduced by 0.3% of total net sales. If the book cost had been trebled, the ultimate effect would have been to reduce the net factory profit by 0.4% of total net sales.
3. By including a rental charge for all factory buildings (as in 1, above) together with a doubling of the under-valued factories, net factory profit would have fallen to 1.1% of total net sales instead of 1.5% in Table 24. A trebling of the under-valued factories would have reduced net factory profit by a third.

Third, variations in the overall level of profits from the entire trading operations of the factories are shown in Table 25. A similar distribution of the contribution (net sales *less* direct factory costs) from the different factory enterprises is given in Table 26. A feature of the latter table, which will be the subject of further comment later, is the wide range in the contributions arising from the production of fresh pork when compared with the corresponding narrower range obtained from bacon production.

The trend in profits from 1963 to 1965

Before analysing the 1965 results in greater detail, it would be of value to endeavour to make some assessment of how the profits gained in that year compared with those in earlier years; was it a good year, or bad?

It was originally intended that each of the factories included in the sample would be invited to submit returns also for the two previous years. It is perhaps of significance that only seven factories were able to complete the schedules in anything like the detail required. Even the schedules which were received were not sufficiently detailed to enable any analysis to be made beyond a summary of the financial results for each process. Physical information relating to weights of pigmeat were conspicuously lacking in all but very few factories.

The trend in the results achieved by an identical sample of seven factories, which in terms of turnover account for roughly half the total sample, indicate the movement in profits during the years from 1963

TABLE 25

**DISTRIBUTION OF FACTORIES ACCORDING TO
LEVEL OF OVERALL PROFITABILITY, 1965**

<i>Level of overall profitability*</i>		<i>Number of factories</i>
↑	3.0 and over	1
Loss	2.0 to 2.9	—
↓	1.0 to 1.9	—
↓	0 to 0.9	2
↓	Nil	2
↑	0 to 0.9	1
↑	1.0 to 1.9	2
↑	2.0 to 2.9	3
Profit	3.0 to 3.9	2
↓	4.0 to 4.9	—
↓	5.0 to 5.9	2
↓	6.0 and over	1
Total		16

* Net factory profit (before addition of other income) expressed as a percentage of total net sales.

TABLE 26

**DISTRIBUTION OF FACTORIES ACCORDING TO
CONTRIBUTION* FROM BACON, PORK AND SMALL GOODS, 1965
(16 factories)**

<i>Contribution†</i>		<i>Bacon</i>	<i>Pork</i>	<i>Small goods</i>	<i>Total contribution</i>
		Number of factories			
↑	5.0 and over	—	2	—	—
Loss	4.0 to 4.9	—	—	—	—
↓	3.0 to 3.9	—	—	—	—
↓	2.0 to 2.9	—	1	—	—
↓	1.0 to 1.9	—	—	—	—
↓	0 to 0.9	—	—	1	—
↓	Nil	—	—	—	—
↑	0 to 0.9	—	2	—	—
↑	1.0 to 1.9	—	—	—	—
↑	2.0 to 2.9	—	—	—	—
Profit	3.0 to 3.9	—	—	—	—
↓	4.0 to 4.9	—	1	1	1
↓	5.0 to 9.9	1	4	3	4
↓	10.0 to 14.9	10	3	3	4
↓	15.0 to 19.9	3	—	2	4
↓	20.0 to 24.9	2	3	4	3
↓	25.0 and over	—	—	2	—
Total		16	16	16	16

* Nets sales less direct factory costs.

† Contribution expressed as a percentage of net sales.

to 1965. The aggregated results are given in Tables 27, 28, and 29. They are summarised in Table 30, and these results are expressed in index form in Table 31.

When dealing with a sample of factories over a period of time a certain degree of blurring is unavoidable, due to the differences in the financial years adopted by individual factories.

However, the trends shown in the tables show that 1965 was a relatively profitable year as far as net factory profits are concerned. Tables 30 and 31 give a clear indication of the comparative levels of profit. In 1965, net factory profits were nearly twice as high as they were in 1963 and nearly three times as high as in 1964.

Two features of the trend in profitability deserve special mention. First, the higher average level of net trading profit in 1965 was not due to the possible influence of exceptional performances on the part of one or two factories, which might be expected when dealing with samples of this size. All factories shared in the upward trend and, according to Table 32, a broadly similar pattern existed for bacon, pork, and small goods production.

Second, it is interesting to comment on the reasons for the increased profits obtained in 1965. It would appear from Table 31 that the increase in total net sales was largely matched by a corresponding increase in direct factory costs. On the other hand, factory overheads and depreciation, selling and distribution expenses, and administration expenses, did not rise by anything like the same extent. These latter costs contain a fairly high fixed element in addition to some items which are truly direct in that they vary according to the volume of production. In other words, the rate of throughput over all operations would appear to have been the main reason for the substantial improvement in profits in 1965 compared with the results obtained in the previous two years.

The profitability of Wiltshire bacon production

Proceeding from the overall results relating to bacon production illustrated in Table 24, an attempt is now made to establish the profitability of the production of Wiltshire bacon generally—all types of Wiltshire processed bacon disposed of through the various market outlets comprising some 460,000 cwt. of bacon valued at approximately £6½ million. The results are summarised in Table 33. Attention is particularly drawn to the method of allocating the non-direct costs which has been described in the Appendix.

There are some further qualifications which should be added to the statement of profitability contained in the table. They are:—

1. One factory distributed its bacon through its own retail outlets, and no agents' commission was therefore charged on its sale of green bacon. An imputation of the usual rate of agents' commission would have increased the selling and distribution expenses by sixpence per cwt.
2. Mention has already been made of the failure of some factories to make provision for a rental charge in respect of their premises. The inclusion of a realistic rental charge would have added between one and two shillings per cwt. to the factory overheads and depreciation,

TABLE 27

SUMMARY OF RESULTS, 1963
(7 Factories)

	<i>Bacon</i>		<i>Pork</i>		<i>Small goods*</i>		<i>TOTAL</i>	
	£	%	£	%	£	%	£	%
Net sales	3,626,039	100·0	1,612,770	100·0	1,519,351	100·0	6,758,160	100·0
<i>Less</i> Direct factory costs	3,083,370	85·0	1,482,516	91·9	1,295,060	85·2	5,860,946	86·7
Contribution	542,669	15·0	130,254	8·1	224,291	14·8	897,214	13·3
<i>Less</i> Factory overheads and depreciation							250,935	3·7
Gross profit							646,279	9·6
<i>Less</i> Selling and distribution expenses					352,780	5·2		
Administration expenses					229,235	3·4	582,015	8·6
Net factory profit							64,264	1·0
<i>Add</i> Other income							69,911	1·0
Net profit before tax							134,175	2·0

* Including by-products and offal.

TABLE 28

SUMMARY OF RESULTS, 1964
(7 Factories)

	<i>Bacon</i>		<i>Pork</i>		<i>Small goods*</i>		<i>TOTAL</i>	
	£	%	£	%	£	%	£	%
Net sales	4,531,011	100·0	1,477,692	100·0	1,650,007	100·0	7,658,710	100·0
<i>Less</i> Direct factory costs	3,868,680	85·4	1,362,088	92·2	1,509,241	91·5	6,740,009	88·0
Contribution	662,331	14·6	115,604	7·8	140,766	8·5	918,701	12·0
<i>Less</i> Factory overheads and depreciation							259,120	3·4
Gross profit							659,581	8·6
<i>Less</i> Selling and distribution expenses					360,087	4·7		
Administration expenses					240,663	3·1	600,750	7·8
Net factory profit							58,831	0·8
<i>Add</i> Other income							83,384	1·1
Net profit before tax							142,215	1·9

* Including by-products and offal.

TABLE 29

SUMMARY OF RESULTS, 1965
(7 Factories)

	<i>Bacon</i>		<i>Pork</i>		<i>Small goods*</i>		<i>TOTAL</i>	
	£	%	£	%	£	%	£	%
Net sales	4,758,618	100·0	1,681,049	100·0	1,873,899	100·0	8,313,566	100·0
<i>Less</i> Direct factory costs	3,991,358	83·9	1,536,451	91·4	1,661,323	88·7	7,189,132	86·5
Contribution	767,260	16·1	144,598	8·6	212,576	11·3	1,124,434	13·5
<i>Less</i> Factory overheads and depreciation							297,596	3·6
Gross profit							826,838	9·9
<i>Less</i> Selling and distribution expenses					404,323	4·9		
Administration expenses					238,616	2·8	642,939	7·7
Net factory profit							183,899	2·2
<i>Add</i> Other income							65,102	0·8
Net profit before tax							249,001	3·0

* Including by-products and offal.

TABLE 30

**TREND IN OVERALL PROFITABILITY OF AN
IDENTICAL SAMPLE OF 7 FACTORIES, 1963 TO 1965**
(Percentages of total net sales)

	1963	1964	1965
	%	%	%
Net sales	100.0	100.0	100.0
Direct factory costs	86.7	88.0	86.5
Contribution	13.3	12.0	13.5
Factory overheads and depreciation	3.7	3.4	3.6
Gross profit	9.6	8.6	9.9
Selling and distribution expenses	5.2	4.7	4.9
Administration expenses	3.4	3.1	2.8
Net trading profit	1.0	0.8	2.2

TABLE 31

**TREND IN OVERALL PROFITABILITY OF AN
IDENTICAL SAMPLE OF 7 FACTORIES, 1963 TO 1965, EXPRESSED AS INDICES**
(1963 = 100)

	1963	1964	1965
Net sales	100	113	123
Direct factory costs	100	115	123
Contribution	100	102	125
Factory overheads and depreciation	100	103	119
Gross profit	100	102	128
Selling and distribution expenses	100	102	115
Administration expenses	100	105	104
Net trading profit	100	92	286

TABLE 32

**TREND IN PROFITABILITY 1963 TO 1965. DISTRIBUTION OF FACTORIES ACCORDING TO CONTRIBUTION*
FROM BACON, PORK AND SMALL GOODS, AND ACCORDING TO NET TRADING PROFIT
(Identical sample of 7 Factories)**

Percentage of net sales			Bacon			Pork			Small goods			Total contribution			Net trading profit		
			1963	1964	1965	1963	1964	1965	1963	1964	1965	1963	1964	1965	1963	1964	1965
↑ Loss ↓	5.0 and over	.....	-	-	-	-	-	-	1	2	-	-	-	-	-	-
	4.0 to 4.9	.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.0 to 3.9	.....	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	2.0 to 2.9	.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.0 to 1.9	.....	-	-	-	1	1	-	-	-	-	-	-	3	1	-
↑ Profit ↓	0 to 0.9	.....	-	-	-	-	-	-	-	-	-	-	-	-	1	1
	Nil	.....	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	0 to 0.9	.....	-	-	-	-	1	2	-	-	-	-	-	-	3	1
	1.0 to 1.9	.....	-	1	-	1	1	-	-	-	-	-	-	1	-	2
	2.0 to 2.9	.....	1	-	-	1	-	-	-	-	-	-	-	-	1	-
	3.0 to 3.9	.....	-	-	-	-	-	-	-	-	-	-	-	-	1	1
	4.0 to 4.9	.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.0 to 9.9	.....	-	1	-	1	-	1	2	1	2	1	1	2	-	-
	10.0 to 14.9	.....	3	2	4	2	3	1	1	1	2	5	4	2	-	-
	15.0 to 19.9	.....	3	2	2	-	-	-	-	-	-	-	1	2	-	-
20.0 and over	.....	-	1	1	1	1	2	2	2	2	1	1	1	-	-	
Total			7	7	7	7	7	7	7	7	7	7	7	7	7	7	

* Net sales less direct factory costs.

TABLE 33

**THE PROFITABILITY OF PRODUCING ALL TYPES
OF WILTSHIRE BACON FOR SALE THROUGH ALL
TYPES OF SALES OUTLETS, 1965**

	<i>Per cwt.</i>		<i>Per cent.</i>
	s.	d.	%
Net selling price	286	5	100.0
Costs:			
Pigs and materials	233	10	81.6
Direct labour	14	2	5.0
Weight loss	3	0	1.0
Total direct costs	251	0	87.6
Factory overheads and depreciation	7	0	2.5
Selling and distribution expenses	12	0	4.2
Administration expenses	8	0	2.8
Total costs	278	0	97.1
Net factory profit	8	5	2.9

- and the best estimate would probably be very close to two shillings.
3. It was also stated earlier that interest payments had been excluded from factory costs on the grounds that they, the former, are financing charges. However, should they be considered attributable to the factory trading account, their allocation to bacon production would amount to just under sixpence per cwt.
 4. The combined effect of items 1 to 3 above would have increased the costs, and reduced the profit, by 3 shillings per cwt.

It must also be acknowledged that the allocation of factory overheads, selling and distribution expenses, and administration expenses has been made according to the method described in the Appendix and that other methods would have given different results. If the proportion of net sales value had been used (i.e. if these costs had been allocated to bacon, pork, and small goods in the ratio of the sales of each to total factory sales), total costs would have been increased by 6 shillings per cwt.

One of the terms of reference of this investigation was specifically to inquire into the profitability of producing green Wiltshire bacon for sale through first hand outlets. This particular request arises fundamentally from the separation of the curing and wholesaling functions of the British bacon industry. It is at this point that the British bacon curing industry finds itself in competition with the imported product from Denmark. The financial results are presented in Table 34.

The reservations attaching to the previous table apply here also.

1. The addition of agents' commission in respect of the one factory which disposed of its production through its own retail outlets

TABLE 34

**THE PROFITABILITY OF PRODUCING GREEN
WILTSHIRE BACON FOR SALE THROUGH
FIRST HAND OUTLETS, 1965**

	<i>Per cwt.</i>		<i>Per cent.</i>
	s.	d.	%
Net selling price	263	0	100·0
Costs:			
Pigs and materials	229	0	87·1
Direct labour	10	0	3·8
Total direct costs	239	0	90·9
Factory overheads and depreciation	7	0	2·6
Selling and distribution expenses	9	7	3·7
Administration expenses	4	7	1·7
Total costs	260	2	98·9
Net factory profit	2	10	1·1

would have added one shilling per cwt. to sales and distribution expenses.

2. A more realistic rental charge would have added an extra shilling per cwt.
3. Interest charges would have increased expenses by approximately sixpence per cwt.
4. The combined effect of all three would have resulted in an addition to costs of approximately two shillings and sixpence per cwt. and would have nullified the profit shown in Table 34.

The production of green bacon for disposal through first hand outlets was not, however, widely practised in the sample of 16 factories. The results shown in Table 34 are therefore very largely derived results. Confirmation may be obtained from a summary of the factory costs and returns from four factories which concentrated their bacon production predominantly on green bacon. For these factories, green bacon sold first hand accounted for nearly 60% of total bacon production by value in 1965. Their overall trading results, which on average show a trading loss, are summarised in Table 35.

Apart from the fact that profits are demonstrably absent from the production of green bacon for sale at first hand—a situation which is very largely retrieved by the fact that most bacon curers perform their own wholesale function—an examination of the returns does lead to some observations which may perhaps be of interest.

Probably most important of all, it is extremely difficult to attribute the level of profitability to any particular factors. The level of profits

TABLE 35

**SUMMARY OF RESULTS FROM FOUR FACTORIES ENGAGED
IN SELLING GREEN BACON PREDOMINANTLY TO
FIRST HAND OUTLETS, 1965**

	£	%
Net sales	5,470,434	100·0
Less Direct factory costs	5,063,074	92·5
Contribution	407,360	7·5
Less Factory overheads and depreciation	148,055	2·7
Gross profit	259,305	4·8
Less Selling and distribution expenses	157,873	2·9
Administration expenses	113,363	2·1
Net factory profit (loss)	(11,931)	(0·2)
Add Other income	(10,257)	(0·2)
Net profit (loss) before tax	(22,188)	(0·4)

was not found to be any higher in the large factories than it was in the smaller ones.

The extent to which the activities of all factories were diversified was considerable. The range of diversification was not large enough to enable any observations to be made on the effect of diversification on profits. However, it did seem fairly evident that the factories which were successful in one activity were similarly placed in other activities. Thus a fairly high contribution from bacon production was frequently accompanied by better-than-average performances in fresh pork and small goods. This fact, together with the expected range in overall results from individual factories, points to the very important factor of managerial ability.

When referring to the results obtained in 1965, it was averred that an increased volume of business was probably the major cause of increased profits during that year. This hints at the well-known capacity argument, and it may be of interest to re-examine this aspect in the light of changing conditions in the industry.

It seems evident that the increased diversification of activities in the bacon factories has tended to absorb a major part of the fixed costs which otherwise would probably have remained unabsorbed. The growth of activities other than bacon curing has therefore removed much of the contention that a considerable part of the bacon curers' difficulties stem from an under-utilisation of capacity. The economic concept of opportunity cost enters into the sphere of management accounting, and there is evidence that many accounting departments are not adequately

prepared to cope with the new arrival. With the new organisation of many factories, the extension of any one activity such as bacon production cannot be achieved without the withdrawal of resources from some other process such as the production of fresh pork. It would therefore appear that the contention that bacon curing costs may be unnecessarily high on account of an under-utilisation of capacity has lost much of its cogency and that the curing activities of a factory cannot be taken out of the context of the operation of the factory as an integrated whole.

A far more disquieting aspect of the investigation is the general level of accounting standards and the difficulties which were encountered in obtaining the information. Many factories, indeed, had to refuse to participate because of the dearth of records, and many of the firms' professional accountants were unable to assist because of the lack of information. Even where forms of cost accounting were practised, it was essentially historic in a majority of cases. The use of detailed records for such management purposes as forward budgeting were on the whole a minority feature. An indication of the general state of accounting may be obtained from the fact that a considerable number of factories owned their factories freehold and yet the property was greatly under-valued. The provisions made in respect of rental charges for factory premises were consequently either unrealistically low or non-existent.

There were, of course, exceptions to this, and it is a pity that, for reasons of anonymity, their names cannot be mentioned. But the fact that such factories do exist, and that they can maintain effective accounting departments, only serves to demonstrate, by contrast, the shortcomings of others.

A further deficiency would appear to be a conspicuous shortage of standards which can be used for the purposes of comparative analysis. As far as the factories which are members of large organisations are concerned, information is available on many subjects from within the group; but for the smaller groups and the independent factories, collated information which can be used to provide criteria of financial efficiency is not available. It is indeed a contrast to the situation prevailing in pig production at the farm level where, free of charge, the producer can obtain comprehensive technical and economic data and managerial advice from several different sources.

The comparative position of the British bacon industry

A comparison of the backfat measurements used in the selection of sides of bacon for the United Kingdom market is made in Table 36. Since 97% of the Danish sides of bacon are A selection and about 80% of the Great Britain sides are No. 1 selection, the readily acceptable conclusion seems to point to the fact that Danish bacon more fully satisfies the recognised standards than does bacon from Great Britain.

The trend in prices for certain selections of sides of bacon may be seen in Figure 5. Since the Danish prices are quoted "ex quay" and those for Northern Ireland and Great Britain are quoted "delivered"—a difference which could add roughly three shillings a cwt. to the price difference between Danish and the other bacon—the superiority would again appear to be fairly clear.

It must be admitted that this is the commonly accepted popular

FIGURE 5:

London Provision Exchange Bacon Prices, Denmark, Northern Ireland
and Great Britain, 1963 to 1966

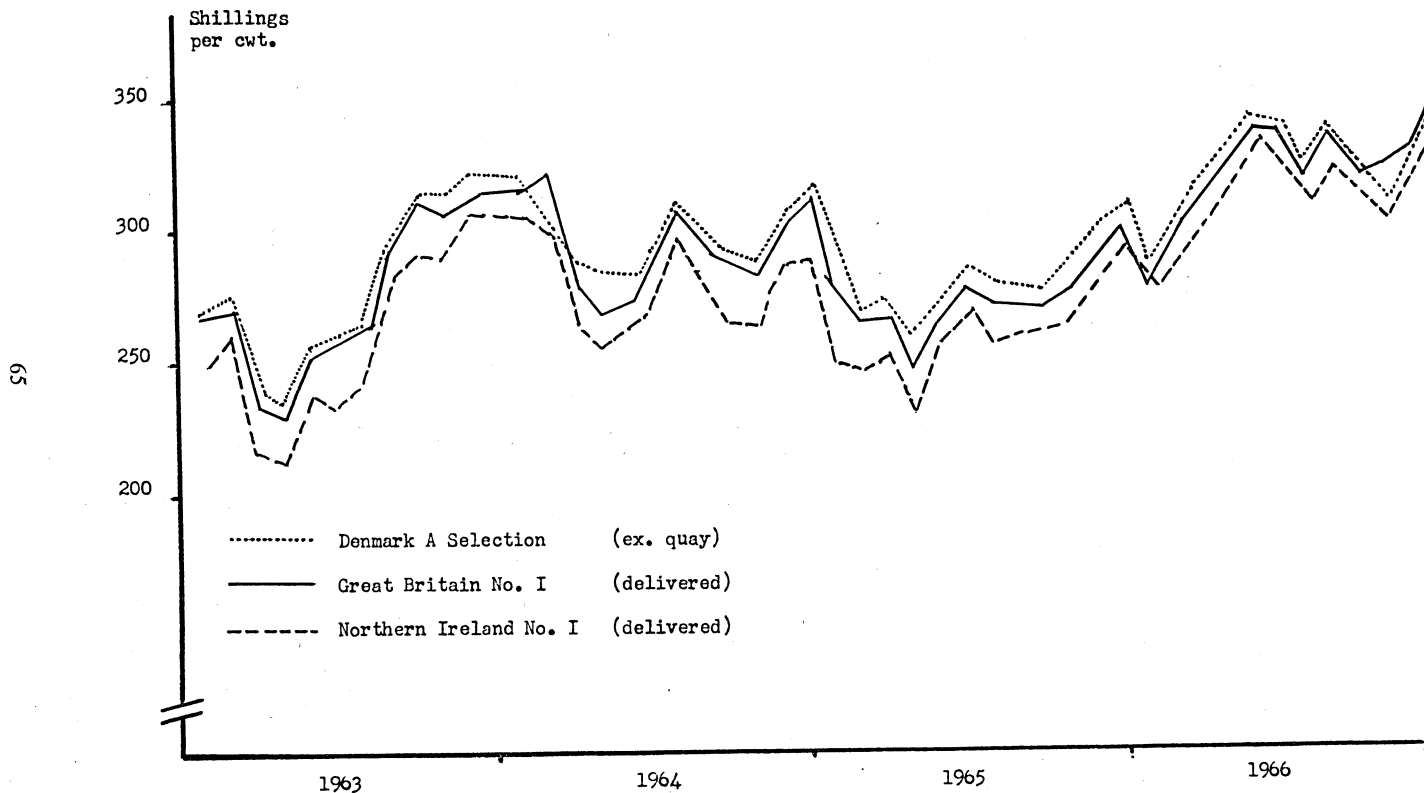


TABLE 36

**BACKFAT MEASUREMENTS FOR SIDES OF BACON
USED BY CERTAIN SUPPLIERS OF THE UNITED
KINGDOM MARKET, 1966**

	<i>Selection</i>	<i>Shoulder maximum millimetres</i>	<i>Midback maximum millimetres</i>	<i>Loin maximum millimetres</i>
Great Britain	No. 1	48	28	28
	No. 2	53	33	33
Northern Ireland	No. 1	48	28	28
	No. 2	53	33	33
Denmark	A	46	28	26
	B	52	34	32

view, but there are certain factors, some of them admittedly conjectural, which could result in some reservations having to be made.

In the first place, the use of the London Provision Exchange price, particularly for British bacon, is not wholly satisfactory. As far as British bacon is concerned, only a small proportion of it is negotiated on a green, first hand basis; most of the dealing in bacon from the other two countries is done outside this price quotation, which cannot in the circumstances be regarded as truly representative of the United Kingdom bacon market. Although the London Provision Exchange price is stated to exclude dealings at exceptional prices, important reservations must be placed on their use, particularly in respect of the British quotations.

Secondly, comparisons of sides of bacon made on the backfat measurements at the shoulder, mid-back, and loin cannot by themselves be regarded as conclusive evidence of the superiority of bacon of any particular origin. However, bacon sides are bought and sold on the amount of visible fat, and it would be difficult to improve on these points as indicators of the amount of visible fat on the side. Although the total amount of fat and, by inference, the amount of lean on the side are believed to be correlated to the backfat measurements, it would appear that there is little detailed information currently available on the comparative quality of bacon in its cutting yield and consumer acceptability. Moreover, there seems to be a particular scarcity of work on Danish bacon both in Denmark and in this country.

It should be pointed out that, in the process of grading, the measurements of visible fat are supplemented by an optical probe or C measurement of the fat at 8 cm. (Danish) and 6½ cm. (British) from the centre line at the head of the last rib. The C measurement is used

somewhat differently in the Danish and British methods of grading. With the latter, No. 1 carcasses must have a C measurement of less than 25 mm. In Denmark, the measurement is used, together with tighter shoulder and loin standards, as a final means to eliminate carcasses with a badly shaped eye-muscle. Moreover, the standard used is not particularly exacting. For such reasons the C measurement does not provide a method of comparing Danish and British bacon.

In spite of the absence of any precise information, the impression does exist that Danish bacon is superior, but scientific evidence to support this contention is not available. One of the main disadvantages of British bacon seems to be its "variability", but this is itself a very imprecise definition which can be interpreted in several different ways. It is probably true that sides of Danish A selection are less variable in weight than Great Britain No. 1 sides. The former are probably more consistently below the maximum standards prescribed for A selection. However, when it comes to a comparison on an identical weight basis, some doubt can reasonably be expressed as to whether Danish bacon is greatly or marginally superior. Here again, the advantage would probably be with Denmark in that a greater proportion of sides would meet specifically defined standards of weight and fatness measurements. This is probably the reason why the retailer would prefer to buy Danish bacon "unseen" because he would stand a better chance of getting a more consistent supply of bacon.

It is, perhaps, significant that most of the studies on the marketing of bacon at the consumer level have concentrated almost wholly on physical aspects. But it should be obvious that greater attention should be paid to price both at the wholesale and retail stages. It would be very interesting, for example, to learn of the comparative financial reward to the retailer for selling Danish compared to British bacon; to what extent is the retailer's apparent preference for Danish bacon affected by the margin which he can obtain and what financial incentive would tempt him to run the risk of stocking bacon of an origin which is thought to be much less "consistent" in quality. Considerations of price are conspicuously absent from deliberations concerning the quality aspects of bacon. It is as if the researchers, with a few commendable exceptions, have forgotten the function of price. If such investigations have been carried out, they have usually been commissioned privately and the results have not been published.

Short of carrying out an investigation similar to that undertaken with the factories in Great Britain, it is very much to be regretted that no information is likely to be forthcoming on the costs of bacon curing in either Denmark or Northern Ireland. However, a discussion in general terms might be of interest in bringing to the fore some of the issues which are prevalent at the present time.

It is true that the situation has been aggravated by the general shortage of pigs in Europe. The prices the market has recently been prepared to pay for fresh carcasses of a quality which is still beyond the effective capability of many European producers has surprised many Danish farmers. It is, perhaps, significant that the Danish pig has been found suitable for market outlets other than Wiltshire bacon; it is even more significant that it is no longer heretical for the view to be publicly and responsibly expressed that the bacon pig is gradually losing ground

to the processed pig products, and it might be better for Denmark to follow the example of Holland and become a breeding-centre for pig farmers in other countries who might be willing, among other things, to produce bacon pigs. This would involve opening up the Danish pig industry for exports of breeding stock—a policy which has hitherto been firmly and invariably resisted. It is therefore not uncommon to find responsible opinions which forecast the foreseeable end of the dominance of the Wiltshire pig in Denmark.

A further subject for controversy relates to the curing industry. It is popularly supposed that the Danish bacon factories form part of a highly efficient and united industry. Apart from the allegations, which might be expected, of dissension between the private and co-operative sectors of the curing industry, there is no evidence to suggest that the situation in Denmark is at all impregnable. There is, moreover, no evidence that the Danish curer is significantly more or less efficient in financial terms than his counterpart in Northern Ireland or Great Britain. Neither are the Danish factories as wholly specialised as they are often thought to be. It is true that some are, but there are also many which are very diversified and produce fresh pork for domestic consumption. Neither are they are technically up-to-date as is thought in the United Kingdom.

A very significant aspect of the Danish curing industry is its structure—a subject which continues to command attention. At the present time there are nearly 80 bacon factories in Denmark, but there is a considerable variation in size of business. Their annual throughput varies from half a million to 35,000 pigs. Some of the critics of the structure of the Danish curing industry have argued, with a considerable degree of justification, that a drastic reduction in the number of factories and a stream-lining of their activities is long overdue.

The agricultural organisations in Denmark have long been advocating a considerable increase in the funds available for promoting the rationalisation of the structure of the processing industries. In 1963, a total of 20 million kroner (roughly £1 million) was used to establish a fund for the rationalisation of the dairy industry. This amount has also been provided for in 1964 and 1965. The agricultural organisations had asked for 60 million kroner per year, i.e. three times the amount currently allocated, and it was to be used in the meat processing as well as the dairy sector.

The problems of the dairy industry are undoubtedly more pressing than the problems confronting the pig industry. The introduction of the E.E.C. dairy regulations has resulted in a disruption in the pattern of Danish exports; moreover, there are clearly far too many small dairies. However, both the dairy and the bacon industries share certain problems. Both find their roots in the nineteenth century, when the great impetus of cheap American grain was felt in Europe, and both were built up largely on the basis of co-operative enterprise—the two industries together became probably the most successful embodiments of the principle of producer co-operation in the agricultural sector. It is not unreasonable to suppose that whatever success attends the reorganisation of the dairy industry will give an impetus to a similar, though probably not quite as drastic, overhaul of the pig and bacon industry in Denmark.

Finally, it is interesting to note that the way in which the industry

is organised and managed has become the subject of disagreement, although it must be admitted that much of the argument takes place in the arena of party politics.

The pig "hump" in the autumn of 1965 did produce quite severe attacks on the efficiency and motives of the leaders of the Danish pig industry. It is true that most of the argument arose because of the points for and against the restraint of pig production, and most of the adverse comment came from the Smallholders' Association, which feared that the restriction of pig production would further endanger the survival of the small farmer. The position of the latter was not made any easier by the action eventually adopted to counter the threatened over-production of pigs which was a moderate increase in grain prices.

In the event, of course, the predicted catastrophe did not materialise. Although the immediate reaction was one of temporary relief, a renewed criticism was directed towards the leaders of the bacon industry for having misunderstood the situation. Since then, it appears that there exists a growing dissatisfaction with the managerial attitudes existing in the Danish bacon industry. The parochial aspect of the co-operative movement in that country has traditionally been a source of strength, but now tends to constitute a reactionary element. The younger and more progressive farmers see the existing organisations as being too inflexible in a changing environment, and they even point to a process of managerial ossification which they allege has set it. In some respects the traditional bacon pig epitomises the *status quo* and so has become the target of criticism which is in reality directed towards policies and people.

It would, therefore, be a mistake to see the Danish competitor as a securely based, specialised and hyper-efficient producer of bacon. It is true that in the past the pig producer has been efficient and has commanded the awe, almost, of all its competitors. But recent years have seen the gradual overhauling of the Dane by the British producer and the superiority of the former is very much open to challenge. In fact, if any does remain, it is little more than a reflection of past glory. As regards the British processing industry, some of the conflicts which exist in Denmark are also present; but it does possess a developing flexibility which is not so evident in Denmark.

IV CONCLUSIONS

Returning to the brief issued by the Pig Industry Development Authority, an attempt will now be made to reply to the questions which were posed in the memorandum of the Distribution, Marketing, and Economic Committee.

“DOES G.B. FARMING NOW PRODUCE PIGS (CARCASES) THAT ARE COMPETITIVE IN TERMS OF SUITABILITY, REGULARITY, AND COST OF PRODUCTION?”

Any comparison of the pig industries of Denmark, Northern Ireland, and Great Britain cannot ignore the orientation of pig production in the former two countries towards a highly specialised market. It means that virtually all the pigs produced in Denmark and Northern Ireland are sold deadweight and graded. In Great Britain, on the other hand, only roughly a quarter of all the pigs certified are graded according to nationally determined carcase standards. However, it should be obvious that this is not the same thing as saying that three-quarters of the pigs produced in Great Britain are of too poor a quality and would not measure up to the carcase standards which have been laid down. It is rather that the pigs are effectively in demand from markets which impose different methods of procurement.

Comparisons between Northern Ireland and Great Britain are relatively easier to make and the grading results are not materially different. The very great difference in the pattern of marketing introduces a somewhat speculative note into this conclusion, but it is patently clear that the British producer of bacon pigs is capable of matching the performance of his competitor in Northern Ireland.

The Danish competitive position is difficult to evaluate because of the more precise weight and more exacting carcase measurements which are demanded. Since such a large proportion of the Danish pigs are to be found within these narrowly defined limits, it is difficult to avoid the conclusion that the Danish producer has a clear advantage. The existence of these narrow limits, particularly that regarding weight, is the determining factor in explaining the preference for Danish sides which is evident at the retail level on the grounds of consistency and “repeatability”. The establishment of these standards is clearly a prerequisite of the maintenance of a high standard of quality.

Any comparison of costs of production, as far as the farmer is concerned at any rate, is irrelevant unless seen as part of return/cost relationship; in other words, profit. It is a pity that the Cambridge report* was not more explicit in describing the methods employed in collating the data and that little indication of the range in results achieved by both samples was given. However, after adding suitable reservations concerning the data available, the differences between the profitability of pig keeping in Denmark and Great Britain are so marginal as to be attributable to the vagaries, both in constitution and variability, of the sample. Whatever the position may have been fifteen years ago, when the Ministry of Agriculture, assisted by Knud Ras-

* A comparison of pig production in England, Denmark, and Holland. F. G. Sturrock and R. F. Ridgeon. Occasional Papers No. 11. Farm Economics Branch, School of Agriculture, Cambridge University. December, 1966.

mussen, published their much-quoted report,* it is difficult to escape the conclusion that the profitability of pig production nowadays shows little difference between Denmark and the United Kingdom. Moreover, the levels at which the pig industries of the two countries operate vary only fractionally whether the consideration be physical efficiency or financial. The results obtainable from Northern Ireland, in as far as the form in which they are expressed permit, are very little different from those which relate to Great Britain.

“IS THE CURER PRICE, i.e. COST TO CURER, A PRICE WHICH SHOWS A COMPETITIVE RETURN TO THE PRODUCER WHEN ACCOUNT IS TAKEN OF FARM SUBSIDY, DIRECT AND INDIRECT, AT HOME AND ABROAD?”

If attention is focused narrowly on the support of bacon pig prices in the United Kingdom and Denmark, the conclusion must be that the Danish producer is singularly unfavoured. But this situation arises because of the emphasis which agricultural policy in the United Kingdom lays on the support of prices as a means of maintaining farm incomes at the desired level.

The financial support accorded to farmers is universally a very complex question, which is partly due to a desire to keep the extent of state assistance as discreet as possible, and published figures can only throw light on some of the means by which farmers derive their support. The figures which are available, together with a balancing assessment of the known intangibles, lead to the conclusion that the profitability of Danish agriculture, and ultimately, therefore, of the pig farmer, can only be maintained by a degree of support from the rest of the economy which does not fall far short of that which we find in the United Kingdom.

The Danish producers' associations are clearly expecting a considerable increase in the price subsidies and income grants which are currently being negotiated, but the extent of their demands is not known. It has been suggested that information about the demands is being withheld until the new wages agreement with the agricultural workers' unions has been concluded. It is quite likely that grants for the “rationalisation” of the dairy products and pigmeat processing industries will be greatly increased and, moreover, the whole system of Danish agricultural protection could be put on a more permanent basis. The system has largely been of an *ad hoc* nature since 1962, when it was first introduced on any scale as a temporary stop-gap to support farm incomes until Denmark joined the European Economic Community.

“IS THE CURER PRICE OF PIGS (CARCASSES), TAKING INTO ACCOUNT SUITABILITY AND REGULARITY, ITSELF COMPETITIVE?”

In spite of the stresses which are exerted on it from time to time, the mechanism of the market does function in such a way as to bring into equilibrium the relative strengths of the supply of and the demand for each type of pig product. It is also evident that factors other than

* Costs and efficiency of pig production. A comparison between England and Denmark. London. H.M.S.O., 1954.

market returns enter into the process of deciding which type of pig to produce—the availability and price which has to be paid for food, the labour costs involved in any particular system of production and the annual volume of turnover obtained from a given building. It must not be forgotten, also, that the personal preferences of the producer are important in influencing the method of production which is followed. But, in the main, it is profitability which ultimately determines the type of animal to be produced, not merely the return from the market.

It is not possible to produce empirical evidence to substantiate a claim that one type of production is generally more profitable than another. In the very short run, it is true that a batch of pigs fattened to one weight might be more profitable than if it were sold at a different weight, but it is unlikely that the next batch will follow the same pattern. A more relevant consideration is that the circumstances of the individual farm determine to a very large extent the choice of enterprise. The evidence obtained from cost investigations suggests that the rewards from each system of production show little divergence. Such being the case, it can hardly be denied that the types of production are competitive one with another.

"IS THE CURERS' REALISATION FOR WILTSHIRE SIDES COMPETITIVE, TAKING SUITABILITY, REGULARITY, ETC., INTO ACCOUNT?"

It is popularly accepted that much British bacon is fat by Danish standards and that the retailer finds the quality of the former more variable. However, in the absence of any detailed information, it is doubtful whether such claims can be wholly substantiated or whether the difference between the two kinds of bacon is as great as it is often made out to be. There is no reason to refute the statement that Danish sides of bacon are less variable in weight than those from British farmers, and that more of the former would consistently fall within a defined range. However, with sides of identical weight, it is doubtful whether the Danish sides possess any marked degree of superiority.

Such impressions apart, it must be admitted that there is very little published information on the comparative qualities of bacon of different origin, in terms of either measurement, cutting yields or evaluation. Research into the function of price at the wholesale and retail stage appears to be wholly absent.

Differences undoubtedly exist in the relative prices of bacon as they appear in the London Provision Exchange quotation. The fact that Danish bacon generally commands a premium would seem to afford sufficient proof of its superiority. However, since most of the negotiations (for British bacon at least) take place outside this quotation, its reliability is very much open to question.

The competitive position of the bacon industry in Great Britain depends in the last resort on the ability to produce profitably at such prices. The financial investigation has demonstrated the narrowness of its operating margins, but it must be admitted that the process which was the subject of the study was one in which the product underwent no great change of form. Although no concrete evidence is available, indications are that the financial difficulties attributed to bacon curing

are common elsewhere, and Denmark is no exception. The real test of the competitive ability of the British pig industry is how well the whole industry can cope with the changing circumstances, and in this respect the Danish industry has no lead. Given an adequate supply of pigs in the country and the collective adoption of modern managerial techniques, in financial as well as technical matters, the newly found flexibility of the British industry could be turned to real advantage.

"CAN GREAT BRITAIN FARMING DO SO IN THE FUTURE?"

In order to assess the probable role of British pig production in the future, it is first necessary to make some basic assumptions of what the market needs will be; and there is plenty of information available upon which to base these assumptions. Therefore, the following cannot claim to be more than a random selection from the voluminous, if at times excessively repetitive, amount of published reference material.

Econometric predictions of the supply of pigmeat have so far been largely incorrect. They have consistently under-estimated the increase in consumption of pigmeat, mainly fresh pork, and they have likewise mistaken the trend in the production of broiler meat. It would appear that most of the forecasts have been far too optimistic regarding the supplies of beef and veal. They have assumed far too readily that beef would be available at prices competitive with fresh pork and poultry meat.

Forecasts are now appearing which look forward into the 1970's. Probably some of the more impressive are those relating to the E.E.C., with estimates of self-sufficiency in beef by 1970 or the early years of that decade. With our experience of where the forecasts have gone wrong in the past, it is difficult to understand why the same kind of forecast is being made. To anyone with a knowledge of the economics of beef production, it is difficult to escape the conclusion that, unless the milk/beef ratio radically changes in favour of the beef producer, the shortfall in beef supplies is likely to persist. With such a premise, an increase in the consumption of pork, competitively with poultry meat, can be expected to continue. As a converter of food, the pig will find itself in competition with poultry, and both will find beef as a serious competitor only when the latter becomes more profitable *vis-à-vis* milk.

Figures relating to the trend in the consumption of bacon are not likely to engender any ambitious conclusions concerning the future demand for that product. The only expansion which can be envisaged is the increased demand for bacon joints which could find their way on to the luncheon and dinner tables. The situation within the bacon market, however, is not likely to remain static. Changes in the methods of retailing and in consumer preference point to a continuance of the current trend in packing and presentation—a field in which the abilities of the British and Danish industries are closely matched, or at least more closely than would appear to exist in the traditional bacon industry.

The nature of the demands on the British curing industry are likely to continue the pressure for a more diversified industry concentrated into much fewer firms, and to continue the trend which has already been noted. But the flexible nature of the activities of individual firms can only be effective and economic if based on sound managerial decisions.

One of the striking features of the financial investigation was the generally, though not universally, inadequate standard of management accounting. In some respects the cause is probably the lack of cohesion which appears to pervade the industry; and one wonders whether the competitive nature of the business, which is often offered as a reason for the secrecy surrounding their individual operations, does really exist or not. Unless management advice is freely available to all who require it and accounting departments are organised to assist in managerial decisions, then the processing factories can never be viable.

Where the supply of pigs is concerned, the rather cynical conclusion must be that the regular ebb and flow of pig numbers is likely to continue. One cannot envisage any change in a phenomenon which has been defined for so long. Market stabilisation measures are likely to be experimented with, and marketing organisations will continue to point to their own success in evening out seasonal variations in prices. However, this concentration upon short-term fluctuation, which in effect could well be absorbed in the normal marketing channels, is likely to exacerbate the problems associated with the longer-term cyclical movement in pig numbers.

The size of pig herd will probably increase, but the ability to control the large herds could well set a limit to their expansion. There is also evidence that integration in one form or another might play an important part in the more distant future. But, here again, the limiting factor could well be the managerial function, and the best solution might not be a rigid form of integration in the production process but rather a looser form of contractual arrangement which would still maintain as far as possible an entrepreneurial incentive to the pig producer.

On the score of technical efficiency the Danish farmer possibly has a slight edge over his counterpart in Northern Ireland and Great Britain. In view of all the scientific and economic information which has been made available to the British pig producer, including the array of advisory services which are at hand, it would be extremely disappointing to have to admit that the British producer still lags some way behind the Dane. In terms of profits from pig keeping, it is doubtful whether any significant differences exist. In recent years, economic pressure has been on the Danish farmer as well as his competitor in the United Kingdom. Negotiations currently taking place between the Danish Government and its farming industry could well mean a substantial increase in state support, which presumably would be followed by a further reaction from producers in the United Kingdom.

However, any estimate of the future competitive ability of British farmers would be wholly wrong if it assumed that the conditions of demand were to remain unchanged in the years to come. The changing conditions of demand, with their emphasis on a more diversified production process, could be to the advantage of the British producer, who is already acquainted with this development and is aware of its implications for the technical process of pig production.

The real test of the competitive ability of the British pig industry, and that of Northern Ireland, is how well the whole industry can cope with the changing circumstances, and there is certainly no reason why the Danish industry should be more adaptable than its competitors. The major question relates to the European Economic Community. It seems

a fairly safe assumption that the agricultural interests of the United Kingdom and Denmark are coincident and that a simultaneous application for membership is likely to be made. The attraction of the European market could result in a significant distraction to the Danish producer, and it is also likely that the United Kingdom bacon understanding would be incompatible with the E.E.C. pigs and pigmeat regulations. One could expect, therefore, that competition in the European pigmeat market will ultimately be both more extensive and intensive. The recent stepping-up of the sales promotion effort of its bacon industry should be ample proof that Denmark sees the future of the United Kingdom market as competitive. Even if the bacon understanding were to continue to function, there is still a major share of the reserve quantity to establish.

There is considerable justification for the argument that the abandonment of the deficiency payments system need not necessarily be a disadvantage to the United Kingdom pig industry. While the system remains, the effect of the market can never truly be felt, and it is interesting to speculate that a system of price support which has in the past suited our particular balance of payments situation has had the marked disadvantage of isolating the pig industry from some of the more beneficial effects of the market. It is very probable that a change to a system of price support whereby the producer obtains his total return from the market would result in a much better adjustment of our pig industry to contemporary needs. However, it cannot be too strongly emphasised that the relationship between the size of the United Kingdom bacon industry and the national balance of payments position is a crucial one—a circumstance which should always be borne in mind when looking at the ramifications of the bacon market in the United Kingdom. The acceptance of this situation is fundamental to an appreciation of the stabilisation measures recently introduced by the Government to bring “greater long-term stability to bacon curing”.

Although the measures will go some way towards restoring the industry's confidence in its bacon curing activities and may serve to check the process of diversification which has been occurring in the bacon factories, an effective solution can only come from the industry itself.

In so far as the scheme is confined to the stabilisation function, it has much to commend it. However, the statement that the scheme is ultimately intended to be “broadly self balancing, taking one year with another”, could well necessitate considerable modifications and safeguards lest it develop into a permanent underwriting of bacon curing in an industry which derives its profits from a more diversified form of pigmeat processing.

To return to the processing or manufacturing sides of the United Kingdom pig industry—it can hardly be called a bacon industry any more—there is no reason to doubt that it can maintain its share of the market, or even to increase its share. It is a fact that margins are tight and in exceptional circumstances such as those which have occurred recently, have been subjected to severe pressure which meant special consideration. However, it must be admitted that there are no standards available by which the efficiency of the industry can be gauged and, what is more, that there are no standards available for an individual factory to judge its own efficiency to set a target for improve-

ment and to assist its management to plan production policy. It is not intended that this statement should be wholly critical of the individual factories themselves. There are some which are extremely cost conscious and are probably in production at low cost, but profits are not wholly earned on costs alone; returns are just as important, and the absence of budgetary techniques of planning is notable in businesses which are large-scale by most present day commercial standards.

This report would indeed be exceptional if it did not suggest any areas in which further research is needed. There can be no facile solution to which the problems of the industry would yield. However, serious consideration should be given to the introduction and development of both technical and economic research in the entire field of meat processing. The industry should be encouraged to be receptive to such ideas and to share in the finance available for all purposes. Experience of recent years suggests an over-emphasis of research effort and support towards pig production. To a certain extent this kind of work does indirectly benefit the processing industry, but a great deal more interest needs to be shown in the specific problems of the processing industry. A desirable function of the proposed Meat and Livestock Commission would be such an information and advisory service deriving its data from continuing investigations into various aspects of all forms of meat processing. In the process, producers might acquire an understanding of some of the more practical problems which exist at the factory level, with the resultant benefit to all sides of the industry, none of which can effectively survive without the other.

APPENDIX

DEFINITION OF TERMS AND COSTING PROCEDURE USED IN THE FINANCIAL SURVEY

Net Sales

The net sales value is derived from the sales invoices and includes the normal sales allowances such as the shrinkage allowance. Agents' commissions, salesmen's commissions, cash discounts, etc., are included among the selling and distribution expenses.

Direct factory costs

Direct factory costs include:

1. Pigs slaughtered and used.
2. Other livestock used.
3. Procurement expenses where not included in the general cost of pigs purchased.
4. Usage of pigmeat purchased from outside sources.
5. Usage of bacon purchased for immediate re-sale or for further processing.
6. Other meats, ingredients or materials used and any other transfers within the company or group.
7. Direct labour costs. The cost of labour (including National Health Insurance, graduated pension, holiday pay, etc.) employed on: slaughtering, cutting and trimming, curing, smoking, cooking; small goods manufacture; slicing and packing and despatch.

Factory overheads

Included under this heading are:

1. Factory rent and rates.
2. Factory power.
3. Factory light and heat, maintenance and repairs.
4. Factory water.
5. Factory cleaning.
6. Factory labour not charged under any other heading.
7. Factory supervisory salaries.
8. Depreciation of factory buildings and plant.

Selling and distribution expenses

These include the following:

1. Salesmen's salaries and commissions.
2. Agents' commissions.
3. Advertising.
4. Cash discounts allowed.
5. Motor vehicle expenses, including depreciation.

6. Carriage outwards.
7. Any other expenses, including charges relating to the factory which appear in the accounts of a parent organisation or company.

Details of the selling and distribution expenses for the sample of factories are shown in the following Table A1.

TABLE A1

SELLING AND DISTRIBUTION EXPENSES, 1965
(16 factories)

	£	%
Agents' commissions	55,010	7.60
Salesmen's salaries and commissions	197,777	27.31
Motor vehicles, distribution wages and expenses	276,280	38.15
Advertising	43,508	6.01
Cash discounts	52,027	7.19
Carriage	84,189	11.63
Other	15,309	2.11
Total	£724,100	100.0

Administration expenses

These include the following:

1. Salaries.
2. Office rent and rates.
3. Office cleaning.
4. Office repairs and maintenance.
5. Contributions to company pension scheme or the cost of pensions not covered by a pension scheme.
6. Travelling expenses.
7. Canteen expenses.
8. Trade and general expenses.
9. Depreciation of office buildings, furniture, fixtures, etc.
10. Professional fees.
11. Insurance.
12. Postage and stationery.
13. Any other expenses, including charges relating to the factory which appear in the accounts of a parent organisation or company.

Details of the administration expenses for the sample of factories are shown in the following Table A2.

TABLE A2

ADMINISTRATION EXPENSES, 1965
(16 factories)

	£	%	£	%
Salaries	238,533	52.7		
Travelling expenses	16,409	3.6		
Directors' fees	13,305	3.0		
Office rates	4,939	1.1		
Office cleaning	1,331	0.3		
Office repairs and maintenance	1,475	0.3		
Trade and general expenses	17,552	3.9		
Office depreciation, etc.	3,617	0.8		
Professional fees	13,541	3.0		
Insurance	11,356	2.5		
Postage and stationery	49,079	10.9		
Telephone	13,259	2.9		
Head Office	34,433	7.6		
Other	3,146	0.7		
Total			421,975	93.3
Pension scheme	21,411	4.7		
Canteen expenses	6,700	1.5		
Sickness benefit	928	0.2		
Staff welfare	1,245	0.3		
Total			30,284	6.7
Total	—	—	452,259	100.0

Transfer values of offal and meat

Except where offal is processed or in other exceptional circumstances, no profit has been allocated to sales of offal. Straightforward sales of offal are therefore accounted for either at an estimated realisation price or at the actual realisation price where this is recorded; such value is deducted from the cost of the pig.

Transfers of meat out of bacon production to small goods departments are valued on the basis of the estimated buying-in price for similar meat—meat suitable for the particular requirements of the small goods departments of each factory. It should be pointed out, however, that the physical quantities transferred were relatively small and that varying the prices within reasonable limits would have merely an insignificant effect on the cost of bacon production.

The allocation of factory overheads to the different types of production

Ten of the factories in the sample were able to allocate overheads to each type of production. The methods of apportionment used were those considered to be relevant to each particular factory. Floor space, usage of power and depreciation of special machinery were some of the criteria in accordance with accepted cost accounting procedures. The

proportion of overheads allocated to bacon employed in these factories was used as a basis for apportionment in the remaining factories which were unable to allocate their overheads.

The allocation of selling and distribution expenses

The various constituent items were allocated in the following manner:

1. Agents' commissions. A considerable proportion was stated to be specifically attributable to first-hand sales of bacon. The remainder has been allocated to bulk products (bacon and pork) on the basis of the weights of each sold.
2. Salesmen's salaries and commissions, motor-vehicle expenses, distribution wages and expenses, and advertising—these have been allocated to small goods and bulk products in the ratio of 2 : 1, on the assumption that it costs twice as much to sell a given value of small goods as it does an equivalent value of bulk products. The allocation among bulk products (bacon and pork) is on the basis of the weights of each sold.
3. Carriage. This item has been allocated wholly to bulk products and, thus to bacon and pork on a weight of sales basis.
4. Cash discounts and other expenses. These have been allocated to each type of production on the ratio of the sales value of each to total sales.

The allocation of administration expenses

The administration expenses have first of all been divided into two parts, which can be seen in Table A2

The items contained in the lower half of the table are considered to be dependent on the direct labour employed in each production process and are consequently allocated in the ratio of the direct labour costs in each process to total direct labour costs.

The remaining administration expenses (those listed in the upper part of Table A2) have in total been divided into three equal parts and each part has been allocated as follows:

1. One-third according to the sales value of each process to total sales.
2. One-third according to direct labour costs.
3. One-third according to the relative importance of the value of the raw materials used in each process.

