The Demand for Food in Ireland 1947-1973

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Précis: This paper attempts to extend the work of Casey on the demand for food in Ireland by investigating the validity of his method and by using more refined techniques of computation and the more extensive data now available. It is found that Casey's method introduces some (but not much) avoidable inaccuracy. The pattern of the income elasticities calculated here is similar to the earlier results but it would seem that the more modern maximum likelihood technique produces values with a wider spread. The price elasticities are also quite similar; in particular the same five goods have positive elasticities. This, however, may be induced by the form of the system used.

I. *Introduction*

SOME time ago, Dr Michael Casey (1973) published an article in this Review entitled "Food Consumption in Ireland". It represented an important contribution for several reasons. It was th first attempt to estimate a complete system of demand equations using Irish data. Elasticities were estimated for a large number of commodities rather than the more usual commodity-groups used in demand systems. The demand for food is a particularly interesting subject as it concerns many of our most important industries. Finally, the demand system used—the linear expenditure system (LES)—is a good one; recent results (O'Riordan, 1976) suggest that it is the most generally satisfactory method of estimating demand elasticities even when the underlying demand system does not conform to the LES equations. It must be made clear that what follows is not meant as a criticism of Casey's work; the intention is rather to complement it.

Three changes which have come about in the intervening years suggest that it is worth having a second look at food elasticities. In the first place, longer data-series are now available. Indeed, the extraction and tabulation of consistent series of expenditure and price for 17 consumption categories over the period 1947–1973 may well prove a useful exercise in itself. Secondly, Casey used the Stone iterative procedure, which was the best estimating method available at the time. In the

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interim, however, a maximum likelihood estimator has been derived (Parks, 1971) and at least one programme has been written to implement it (Carlevaro et Rossier, 1970).

The final matter concerns the structure of the demand categories. Casey used 16 categories in all, 14 for food, one for "Other Food" and one for "Other Consumption". Since food forms a third or less of total expenditure, this means that the final category takes up two-thirds or more of the total. One is prompted to ask whether the use of such a large category may not lead to inaccuracies. In particular, the price index used for "Other Consumption" can scarcely give a reliable indication of the effect of price changes on the demand for food since a single price index can only allow for the effect of a number of different cross-price elasticities in rather special circumstances. Better results may well be obtained by using a number of sub-categories instead of a single large one called "Other Consumption". Once again, Casey cannot be blamed for proceeding as he did; with the number of degrees of freedom available to him no other course was possible. However, the real point here is that with the more rapid computing techniques now available, it is possible to carry out some Monte Carlo experiments to see whether the process used is a reliable one or not.

Thus, two questions are being asked here—

(1) Does the LES provide accurate estimates of income and price elasticities when the system contains a single very big category and a number of small ones? Is some other method more reliable?

(2) Using the process which (1) above indicates as being the most dependable, what are the best estimates of the income and price elasticities of food which can be found from all the data now available with the estimating methods recently discovered?

II. *Simulation*

It is clearly logical to tackle the first question first. The following experiment was, accordingly, devised. Three demand systems were chosen, each of which expresses the quantity of each of a number of consumption categories as a function of total expenditure and all prices. These were the linear expenditure system, the indirect addilog system and a modified direct addilog system. (More details of these systems and of the disturbance vectors described below are given in the Appendices.) Appropriate series of 27 observations for total expenditure and 18 different prices were then constructed. These series can of course be arbitrarily chosen without affecting the validity of the experiment, but to make it as relevant as possible, the expenditure and prices were made to follow fairly closely the behaviour of data from the Irish economy. A set of coefficients for each demand system was then found such that when used in the demand system in combination with the total expenditure and price series, they would give 14 "small" categories and four "big" ones. The coefficients were arranged so that the sum of the expenditures on the 14 "small" categories was about one half of the sum of the expenditures on the four "big" ones or one-third of the total, thus giving a ratio similar to that of food *vis-à-vis* other consumption. Each expenditure series was made stochastic by the addition of a vector of random disturbances and its elasticities were estimated by the LINEX programme which is the maximum likelihood estimator of the linear expenditure system. A new set of stochastic vectors was then added and the estimation process carried out again. This was repeated 20 times.

Thus 20 estimates were obtained for each income and price elasticity in each of the three demand systems. The mean and standard deviation of each of the estimates was then calculated together with the true values which are found from the known values of the coefficients. All the elasticities are evaluated at the final values of the observations. The four "big" categories were then combined into a single "very big" one in the following way. The vector of expenditure on each of the four big categories was found by multiplying the quantity vector (generated by the demand system) by the given price vector. These are added to give a vector of expenditure for the "very big" category. A vector of constant price expenditure for the "very big" category (a "quantity vector") was produced by multiplying each of the four quantity vectors by the base year price and summing. Finally, the price vector for the "very big" category was found by dividing the expenditure vector by the constant price expenditure vector. This is similar to the process used in practice when a price vector is found by dividing current price expenditure by constant price expenditure.

Price and quantity vectors were then available for the 14 "small" categories and one "very big" category. The system was rendered stochastic as before and the elasticities from the three demand systems were estimated again using 20 runs for each system.

It is now possible to see whether more accurate estimates are given by the system with four "big" categories rather than a single "very big" one.

The results given below refer only to the 14 "small" categories since it is their accuracy that is in question. As the full results are extremely tedious to examine, they are summarised as follows. The statistic D is average ratio of the difference between the mean elasticity over the 20 runs, and the true elasticity, related to the true value (mean proportional error), i.e.,

$$D = \frac{1}{14} \sum^{14} \left| \frac{e^{\star} - e}{e} \right|$$

where e is the true elasticity and $e^{\star}$ the mean of the calculated values.

R is the mean proportional standard deviation of the calculated elasticities expressed as a proportion of the true elasticity

$$R = \frac{1}{14} \sum^{14} \frac{s}{e}$$

where s is the standard deviation of the 20 runs.

Table I below shows *D* and *R* values for elasticities of the linear expenditure system (Col. 1), the indirect addilog system (Col. 2), and the direct addilog system (Col 3), all estimated by the LINEX programme which is an estimating method for the linear expenditure system. The top half of the table shows the results when a system like Casey's with 14 "small" categories and one "very big" one is used. The bottom half shows the results when the "very big" category is separated into four sub-categories.

Table 1: *Simulation results summary*

		Data generator					
		LES		*IAS*		*DAS*	
		Income	*Price*	*Income*	*Price*	*Income*	*Price*
14+	D	·010	·009	·119	·175	·026	·054
1 "Very Big"	R	·070	·070	·072	·082	·038	·040
14+	D	·009	·009	·098	·123	·021	·056
"4 Big"	R	·070	·068	·116	·112	·032	·038

The most obvious inference is that both systems work quite well, the greatest mean error being of the order of 17·5 per cent. An inspection of the *D* values (which are the more important) show that "14+4" gives results which are (with the marginal exception of the DAS price elasticity) more accurate than "14+1". However, the difference between the two is not very great. The *R*-values show no particular pattern; the amount of variation in the results does not seem to be affected by the choice of system. It seems reasonable to conclude that Casey might have improved his results by sub-dividing the "Other Expenditure" category. However, the gain in accuracy would probably not have made an important difference to the reliability of his findings.

Before finishing this section, it is worth mentioning that in the experiments described above, all the true income elasticities are positive and all the price elasticities negative. Since some food items are undoubtedly inferior goods, one would perhaps have preferred to have included both positive and negative income elasticities. However, the difficulties of doing this are very great. An inspection of the mathematical form of both the linear expenditure system and the indirect addilog system will show that negative income elasticities in combination with negative price elasticities can only be generated by ascribing bizarre values to some of the constants which are both unacceptable in themselves and very difficult to run on the LINEX programme. The direct addilog system was found so difficult to run that no choice of coefficients was available.

However, what is being tested in this section is the loss of accuracy of estimation caused by using one "Other Expenditure" category rather than a number of sub-categories. There is no reason to think that the sign of the elasticities would make any real difference to the results.

III. *Estimates from Real Data*

This section provides estimates of price and income elasticities for 12 food items. The data cover the period 1947 to 1973. The estimating method used is the LINEX programme which provides maximum likelihood estimates of the coefficients of the linear expenditure system. It has been modified a little to run on the IBM computer at UCD. The data consist of 27 observations on 12 food items, "Other Food" and four other consumption categories.

The basic data for the exercise are of course the series for price and quantity of the individual foodstuffs consumed per head per year for the period 1947–1973. This information is available in the Irish Statistical Survey, 1947 to 1958 and the Irish Statistical Bulletin, 1959 to 1973. Prices are given each quarter and quantities appear in the June and December issues. The series for the years 1947 to 1964 appear in a more convenient form in Hart (1965).

Casey used 14 series, namely, milk, creamery butter, farmers' butter, margarine, cheese, eggs, beef, mutton, pigmeat, poultry, sugar, bread, flour and potatoes. It was found necessary to drop two of these series. The price series for farmers' butter was discontinued in 1968. No official price series for poultry is available, nor does Casey publish the one which he used, so it was felt wiser to drop this commodity too. Thus the 12 series used here are those which are available throughout the period from official sources.

To avoid ambiguity it is perhaps worth mentioning that in the price series "Cheese" is natural cheese, "Eggs" are standard eggs, "Bread" is the unsliced 2 lb loaf, and "Flour" is plain household flour. "Butter" is, of course, creamery butter. For consistency, the method used for calculating the price indices for meat is the same as that used by Casey; the price of mutton is taken as that of the leg of mutton, and that of streaky bacon is used for pigmeat. For beef, Casey (and Hart) used the unweighted average of the prices of sirloin and shoulder beef. As the latter was discontinued in 1968 the average of sirloin and ribsteak was used here instead because the price of ribsteak is very close to that of shoulder beef. In all the price series, the yearly price is taken as the arithmetic average of the four quarterly figures.

A series for "Other Food" was calculated by multiplying each of the 12 quantity vectors by the appropriate price vector, summing the 12 resulting series and subtracting the result from the total "Food" expenditure series. The "Food" price index was used as an index for the "Other Food" category. The derivation of the expenditure and price series for the Food category is described below. An attempt was made to construct a price index for this category by calculating constant price series for the 12 categories, summing and subtracting the result from "Total Food" at constant prices, to get an estimate of "Other Food" at constant prices. This was then divided into "Other Food" at current prices to give a price index. However, the result appeared to be unreliable and the attempt was abandoned. Such manipulations of residuals are usually unsatisfactory.

The simulation results already described indicate that it is desirable to sub-divide "Other Expenditure". Oddly enough the task of dividing total consumption expenditure into "Food" and four other categories over the period 1947–1973 proved rather difficult. It is possible to find expenditure and price series for the full period 1947–1973 for five categories, namely, "Food", "Alcohol and Tobacco", "Clothing", "Fuel and Light", and "Other Expenditure". As the remainder of the Food category—which will be called "Other Food"—counts as one of the food items, this leaves four "big" categories corresponding to the number used in the simulations above.

The principal difficulty arose from the lack of consistency in the expenditure series. Data for the entire period are given in the National Income and Expenditure booklets 1949–1973, but no issue gives data for the entire period, and it is possible to find as many as four different estimates of expenditure for a single year. The discrepancies continue even into the 1970s. In forming the series shown in the Appendix, it was assumed that (i) the most recent figures are always the most reliable; (ii) percentage variations are reasonably accurate even when the numerical values are not consistent.

The longest series available is in the 1971 booklet which gives figures for the years 1958–1971. This overlaps for four years (1968–1971) with the 1973 issue, the latest available at the time of writing. While there are fairly big discrepancies in the later years, the figures from the two sources for 1968 are very close so no adjustments were made. Thus the data for 1973 to 1968 and 1967 to 1958 are as shown in the 1973 and 1971 booklets respectively.

The 1962 issue gives data for the period 1953–1962 making it possible to extend the series to 1953. Small but consistent differences appeared in the overlapping period 1958–1962. A study of the pattern of these led to the following adjustments of the figures in the 1962 issue:—

	1953	1954	1955	1956	1957
Food	−2	−2	−3	−3	−3
Alcohol	+2	+2	+2	+2	+2
Clothing	0	0	0	0	0
Fuel	0	0	0	0	0
Other	+2	+2	+2	+2	+2

The series published in the earlier issues are short and show many discrepancies. Information on 1947 came from the 1949 issue, the next two years from the 1952 issue, while 1950–1952 was derived from the 1954 issue.

The percentage variations were calculated and applied to the 1953 figure. In general, the data for 1953 to 1973 are likely to be fairly dependable but the earlier figures have probably a wide margin of error.

Official price series are available from 1953–73 for Food, Alcohol and Tobacco, Clothing and Fuel and Power. These are to be found in the Statistical Bulletin (1959–73). The earlier figures are found by calculating the implicit index in the ratio of current-price expenditure to constant-price expenditure and applying the percentage variations in this to the 1953 figure. The sources of information are the same as for the expenditure series 1947–52. The Bulletin mentions that linking to the earlier years is not possible for "technical reasons", presumably because of a change in the weighting of the commodities. Hence, the figures calculated here must be subject to some error. However, experience suggests that inaccuracies caused by such problems are usually not very serious.

An index for "Other Expenditure" was not available. It was obtained by calculating the index implicit in the current-price and constant-price expenditure series in National Income and Expenditure. Figures were linked on a percentage basis. The sources are the same as for the expenditure series.

All data are given to three significant figures only, because any greater accuracy would probably be spurious. In the calculations, "Other Food" and the four "large" expenditure categories are divided by population to give expenditure per head.

Thus, 17 data series are used (all on a *per capita* basis) for the period 1947–73. They are

Food items			*Other categories*
1 Milk	6 Beef	10 Bread	14 Alcohol and Tobacco
2 Butter	7 Mutton	11 Household Flour	15 Clothing
3 Margarine	8 Pigmeat	12 Potatoes	16 Fuel and Power
4 Cheese	9 Sugar	13 Other Food	17 Other Expenditure
5 Eggs			

These data were run on the LINEX programme (which was referred to in Section 1) to obtain estimates of the b_i and c_i of the linear expenditure system (see Appendix 1). The programme can calculate both least-squares and maximum likelihood estimates of the coefficients. There were no difficulties with the former, but the latter (which are the more interesting) presented a problem. It was found impossible to obtain convergent estimates of the coefficients with the 17 data series. The problem seemed to be caused by severe multicollinearity between expenditures on certain of the meats and dairy products. This led to excessively large values of the determinant of the variance-covariance matrix of expenditures which the programme inverts as at one stage of its operation.

The difficulty was overcome by a slight reduction in the number of series used. Three food items were combined into a single expenditure series (beef+ mutton + pigmeat = meat), and a composite price index was calculated. The programme was then run. The three series were then separated, and three others combined (butter+ margarine+ cheese = "dairy products"), and the programme was run again to obtain estimates of the elasticities for the meat items. As the results for the

11 items which are common to the two runs show very little variation, this process is felt to be reliable.

The results were converted to elasticities since these are the easiest to interpret and have the most practical significance. The main results are set out in Table 2. Column (1) gives the expenditure elasticities. A few items seem to call for comment. The high elasticities for margarine and cheese are a little surprising but may well reflect an increasing sophistication in dietary habits—margarine becoming desirable for health reasons, and cheese as an alternative to desserts, eggs or fried foods. None of the meat items appears as a luxury good (elasticity greater than unity), but that is hardly surprising given the relatively high level of meat consumption; the Irish consumer is probably near to saturation.

The most outstanding aspect of column (1) is the fact that there are six negative elasticities indicating that half the goods are inferior. It is hardly surprising to find that bread, flour and potatoes are inferior goods. The elasticities of $-3{\cdot}75$ for flour is very high but the data show that the consumption of this commodity per head had by 1973 fallen to less than one-third of its 1947 value. The negative elasticities for butter and sugar are probably caused by the fact that people become more diet-conscious as they become richer. The value of $-0{\cdot}80$ for eggs is perhaps the most unexpected; however, egg-consumption *has* fallen quite substantially since the late 1950s presumably because people are taking advantage of the opportunity to enjoy a more varied diet. The overall picture presented by column (1) is very much what one would expect. People are moving away from traditional foods which are rather high in carbohydrates to those which contain more protein and which lend more variety to the diet.

For purposes of comparison, the elasticities calculated by Casey are given in column (2). On the whole, there is a good deal of similarity in the patterns of columns (1) and (2). The only change in sign is in the case of butter and the difference in value in this case is too small to be taken seriously. However, Casey's values seem to be more concentrated around the zero than those calculated here. It is possible that this may be due to the different calculating methods. The least-squares process used by Casey may have a "flattening" effect and the maximum likelihood method may tend to calculate more extreme values.

The price elasticities are shown in column (3). The incidence of positive signs is remarkable, no fewer than six of the items appearing as Giffen goods, though the values for butter and sugar are too low to be of significance. The elasticities with the expected negative sign call for little comment; it is true that they are rather low but that is normal in the case of food items.

The compensated price elasticities (in which the income-effect of the price change is removed) are shown in column (4). For purposes of comparison these have been evaluated at their 1967 values. The corresponding values from Casey's results are given in column (5). The correspondence between the two columns is quite good—in particular there are no differences in sign apart from the rather marginal case of butter. The "flattening" of Casey's results which was observed in the case of the income elasticities does not seem to occur here.

Table 2: *Demand elasticities for food*

	(1) *Expenditure Elasticity* (1967)	(2) *Expenditure Elasticity* (Casey) (1967)	(3) *Price Elasticity* (1967)	(4) *Compensated Price Elasticity* (1967)	(5) *Compensated Price Elasticity* (*Casey* 1967)	(6) *Compensated Price Elasticity* (1967) *Period* 1953-73	(7) R^2 (*Expenditure*)	(8) R^2 (*Expenditure*) (*Casey*)
Milk	0·25	0·18	−0·10	−0·04	−0·17	−0·08	·976	·961
Butter	−0·02	0·03	0·01	0·00	−0·03	−0·06	·922	·845
Margarine	1·25	0·65	−0·44	−0·23	−0·72	−0·32	·903	·678
Cheese	1·65	0·46	−0·59	−0·35	−0·50	−0·95	·982	·952
Eggs	−0·80	−0·01	0·29	0·16	0·01	0·29	·485	·397
Beef	0·54	0·02	−0·26	−0·20	−0·02	−0·45	·984	·856
Mutton	0·40	0·40	−0·18	−0·13	−0·43	−0·22	·923	·870
Pigmeat	0·75	0·22	−0·35	−0·23	−0·24	−0·32	·987	·934
Sugar	−0·16	−0·08	0·06	0·02	0·09	0·09	·929	·876
Bread	−0·67	−0·27	0·25	0·09	0·27	0·13	·991	·967
Flour	−3·95	−0·40	1·43	0·34	0·40	0·61	·906	·858
Potatoes	−0·78	−0·22	0·29	0·18	0·31	0·02	·952	·696

Note: For comparative purposes all elasticities are evaluated at 1967 values.

One is slow to accept compensated price elasticities with a positive sign because the activities of a rational utility-maximising consumer cannot lead to such values. The data used here refer of course to the whole body of Irish consumers but it is convenient to regard them as describing the actions of a single representative individual with the normal theoretical characteristics. If positive elasticities are accepted, this convenient assumption must be abandoned.

It was thought possible that the aberrant results might be due to the poor quality of the data in the period 1947–52. In addition to the potential inaccuracies already referred to, there is the fact that many commodities (notably butter, sugar, tea, clothing and components of fuel and power such as coal and petrol) were rationed up to 1951. Thus in the earlier years the "normal" relationship between price and quantity can scarcely have existed in all cases.

To remove this objection the programme was re-run for the period 1953 to 1973 and the compensated price elasticities calculated as before. The results are shown in column (6). There is no major change; the same five elasticities remain positive. This aspect of the results is clearly a very consistent one.

In passing, it is perhaps worth noting that the change of period does make some difference to the results. Apart from potatoes all the commodities show an increase in the value of their elasticities which, while numerically small, is relatively large—in many cases more than 100 per cent. One can only speculate about the reason for this. It may be caused by removal of a bias caused by the large error component of the earlier observations. It may also be due to the removal of the effects of rationing but it is hard to see why this should affect all the elasticities in the same way since only some goods were rationed.

The explanation of these positive elasticities may well be found in the form of the system used. If a particular b_i should be negative—which is likely to happen in the case of some food items—then it is almost impossible to avoid a positive price elasticity. This may be seen directly in the case of the ordinary (uncompensated) elasticity. The representative demand function is

$$Q_i = c_i + b_i \, Z/P_i$$

$$\text{where } Z = Y - P_1c_1 - P_2c_2 \ldots$$

(Y is income and b_i and c_i constants)

If P_i should rise, then Z/P_i must fall unless Z is negative or c_i disproportionately large. Thus with b_i negative Q_i will rise, giving a positive price elasticity.

The case of the compensated price elasticity is a little more complex. This quantity may be written

$$E_{ii} = -b_i(1-b_i)[Z/P_ic_i] \quad \text{(the derivation is given in (9) section 3).}$$

The term in square brackets can only be negative if either Z or c_i is negative. The former possibility would lead to a most unusual situation and the latter is unlikely to happen in the case of staple food items. With b_i negative and less than unity in absolute value, $-b_i(1-b_i)$ will also be positive so the elasticity will be positive in this case too.

If the linear expenditure system describes the behaviour of consumers exactly then there is no more to be said on the matter—the price elasticities *are* positive. But if, as seems more probable, it is merely a good approximation to the true situation, it is likely that the b_i will be determined by the strong income-reactions and the price elasticities may well be misrepresented. If we are interested in price elasticities, the LES may not be the best system to use in conjunction with food expenditure where inferior goods are likely to be encountered. Indeed, one may very well question the use of the LES in any system which is likely to contain inferior goods. Such goods require a negative value for b_i. But since the underlying utility function is

$$U = \sum b_i \log(Q_i - c_i)$$

negative values for b_i are obviously theoretically unacceptable. The LES is at its best in the use for which it was intended, namely, the investigation of relationships between large commodity-groups.

We may summarise this section by saying that the pattern of the income elasticities estimated here is quite similar to those discovered by Casey, but the maximum likelihood estimates seem to cover a wider range than the earlier ones based on least squares. There is also a strong similarity in the pattern of the price elasticities particularly in regard to the five commodities with positive values. This feature may, however, be imposed by the form of the function chosen.

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APPENDIX

(i) *Demand Systems*

Using Q_i for the quantity of good i, P_i for its price, Y for total expenditure, W_i for the (average) budget share of good i (that is P_iQ_i/Y) and a, b and c as constants, the equations of the demand systems are as follows, where li is the income elasticity and E_{ii} own price elasticity

Linear expenditure system: $$Q_i = c_i + b_i(Y - \sum_j P_j c_j)/P_i$$

$$e_i = b_i/W_i \qquad E_{ii} = -1 + (1 - b_i)(c_i/Q_i).$$

Indirect addilog system: $$Q_i = a_i Y^{b_i} P_i^{-(b_i+1)} \qquad \sum_j a_j Y^{(b_j-1)} \quad P_j^{-b_j}$$

$$e_i = (1 + b_i) - \sum_j b_j W_j \qquad E_{ii} = -(1 + b_i) + b_i W_i$$

Direct addilog system: $$Q_i = (P_i/c_i)^{1/(b-1)} \qquad Y/\sum_j P_j (P_j/c_j)^{1/(b-1)}$$

$$e_i = 1 \qquad E_{ii} = -(1 + bw_i)/(1 - b).$$

This is a special form of the general direct addilog model in which b takes on a different value in each equation. However, in the general case, satisfactory demand functions cannot be derived and that fact makes it unsuitable for use here.

(ii) The stochastic disturbance vectors were produced in the following way. The computer was used to generate a series of 27 random numbers. These were then inserted in the normal equation to produce 27 random normal numbers. The mean was then subtracted to give the series a zero mean. The series was then divided by an appropriate constant so that its variance was 5 per cent of that of the first expenditure series. The disturbance vector was then added to the first expenditure series to provide it with a stochastic element. The procedure was repeated with each of the other expenditure series, the variance ratios being alternately 5 per cent and 1 per cent because LES results usually give R^2 between 0·95 and 0·99. Thus each run needed a stochastic matrix of order 27×18. A new matrix was produced for each run.

Total consumer expenditure 1947–1973

	Current price expenditure (£ million)						Price indices				
	Food	*Alcohol and Tobacco*	*Clothing*	*Fuel*	*Other*	*Total*	*Food*	*Alcohol and Tobacco*	*Clothing*	*Fuel*	*Other*
1947	117	41	40	11	91	300	83	67	75	87	81
1948	117	44	40	11	109	321	83	71	76	81	88
1949	119	48	45	14	112	338	82	73	76	79	90
1950	124	49	48	14	122	357	82	73	85	82	92
1951	130	53	52	18	134	387	89	73	98	93	99
1952	138	63	48	19	131	339	95	92	99	99	100
1953	147	65	49	19	133	413	100	100	100	100	100
1954	150	64	47	19	141	421	100	100	100	100	101
1955	161	67	48	23	151	450	104	101	100	103	103
1956	159	69	50	24	154	456	105	110	102	114	108
1957	162	72	47	23	159	463	109	117	103	121	113
1958	173	74	48	23	173	491	119	122	103	119	116
1959	176	76	47	24	179	502	118	122	104	111	118
1960	181	80	52	24	197	534	117	126	106	109	120
1961	186	87	57	26	210	566	121	130	107	113	123
1962	195	97	59	28	229	608	123	142	110	120	128
1963	200	105	63	29	253	650	125	147	112	125	131
1964	223	115	70	31	288	727	133	159	118	132	139
1965	237	124	76	32	304	773	141	169	122	132	145
1966	245	132	75	33	327	812	142	182	123	134	152
1967	253	144	86	35	347	865	144	191	125	139	157
1968	288	158	95	39	407	987	153	199	127	144	166
1969	305	182	113	43	469	1,112	162	222	132	152	179
1970	330	206	123	49	516	1,224	174	237	143	165	196
1971	365	227	136	57	589	1,374	187	249	156	185	218
1972	412	253	151	66	673	1,555	209	254	172	203	237
1973	493	292	188	72	814	1,859	244	270	199	217	258

Note: Food = Food + non-alcoholic beverages;
Clothing = Clothing footwear and personal equipment;
Fuel = Fuel and power;
Other = All other consumer expenditure including non-residents' expenditure.

Food items: prices: new pence

	Milk (qt)	Butter (lb)	Margarine (lb)	Cheese (lb)	Eggs (doz)	Beef (lb)	Mutton (lb)	Pig (lb)	Sugar (lb)	Bread (2 lb)	Flour (st)	Potatoes (st)	Population official estimates (millions)
1947	3·1	12·9	7·5	9·6	17·9	9·6	12·1	14·6	2·3	2·8	17·9	10·4	2·974
1948	3·5	13·3	9·2	10·8	20·4	10·0	12·1	14·6	1·7	2·5	14·2	10·4	2·985
1949	3·5	13·3	8·3	10·8	19·2	10·0	12·1	15·0	1·7	2·6	14·2	9·6	2·981
1950	3·5	13·3	7·5	10·8	17·9	10·0	12·5	15·4	1·7	2·6	14·2	11·3	2·969
1951	3·7	14·2	9·6	11·3	19·6	10·8	13·3	17·9	1·7	2·7	14·2	10·0	2·961
1952	4·1	17·1	8·3	12·5	22·5	11·7	14·6	19·2	2·2	3·3	18·3	10·0	2·953
1953	4·3	20·4	7·9	13·3	22·1	13·3	15·4	20·0	2·9	4·0	22·5	10·8	2·949
1954	4·3	20·4	7·9	14·2	20·0	13·8	15·8	19·2	2·9	3·8	21·3	11·7	2·941
1955	4·5	18·8	7·9	14·2	22·1	15·8	16·7	18·8	2·9	3·8	20·8	15·0	2·921
1956	4·6	18·8	7·9	14·2	20·8	15·4	15·8	19·2	2·9	3·8	20·8	13·3	2·989
1957	4·8	20·8	8·3	14·2	19·6	15·4	16·3	19·2	3·1	4·7	30·0	12·5	2·885
1958	4·8	20·8	8·3	14·6	20·8	16·3	16·7	19·6	3·1	6·0	37·5	18·3	2·853
1959	4·8	21·7	8·3	14·2	20·4	17·5	16·3	20·0	3·1	6·0	37·5	16·3	2·846
1960	5·0	22·5	8·3	15·4	20·0	17·5	16·3	20·4	3·1	6·2	39·2	11·3	2·832
1961	5·0	22·9	8·3	16·3	20·8	17·1	16·3	20·4	3·1	6·3	40·8	15·8	2·818
1962	5·1	22·5	8·8	16·3	20·0	17·5	16·7	20·0	3·4	6·7	41·7	16·3	2·830
1963	5·3	22·9	8·8	16·3	23·3	17·9	17·1	20·4	3·5	6·8	42·1	14·6	2·850
1964	5·7	23·3	9·2	17·1	20·4	21·3	18·8	21·3	4·0	7·3	45·0	16·7	2·864
1965	5·8	23·5	9·9	17·4	22·2	25·6	20·8	22·2	4·1	7·5	45·8	22·7	2·876
1966	6·3	24·0	9·9	17·6	21·3	25·3	20·6	22·1	4·1	7·6	45·8	19·3	2·884
1967	6·5	24·6	10·0	17·8	20·7	24·7	20·4	22·9	4·1	8·2	47·9	17·7	2·899
1968	6·7	24·6	10·0	17·9	22·5	28·0	22·9	23·6	4·2	9·3	56·3	16·7	2·910
1969	7·1	24·1	10·0	18·8	21·4	30·9	25·0	25·2	4·2	9·9	59·6	25·1	2·921
1970	7·5	24·7	11·6	19·8	21·9	35·3	28·1	27·2	4·3	10·8	61·9	30·1	2·944
1971	8·5	25·0	13·5	20·5	23·7	40·0	30·6	29·0	4·7	11·7	66·7	24·5	2·978
1972	9·2	27·7	14·1	23·7	26·3	47·1	35·4	32·3	5·0	13·0	73·1	35·5	3·014
1973	10·3	28·1	15·6	29·1	35·8	60·4	47·0	41·1	5·4	13·1	73·3	45·5	3·051

Food items: Quantities/Head/Year

	Milk (qt)	*Butter (lb)*	*Margarine (lb)*	*Cheese (lb)*	*Eggs (doz)*	*Beef (lb)*	*Mutton (lb)*	*Pig (lb)*	*Sugar (lb)*	*Bread (2 lb)*	*Flour (st)*	*Potatoes (st)*
1947	133	16·9	5·2	2·3	17·8	54·3	14·3	38·7	38·4	81	11·1	34·5
1948	138	21·5	2·6	2·0	17·8	47·5	13·0	38·4	48·8	91	7·4	34·2
1949	138	25·0	2·3	1·3	19·1	37·4	10·4	47·1	46·2	91	8·5	33·1
1950	143	28·0	2·6	2·0	21·2	32·8	10·1	44·9	60·5	91	7·8	33·1
1951	143	28·6	2·9	1·6	23·8	39·3	9·8	41·0	64·7	94	7·8	32·7
1952	143	29·3	2·9	1·3	22·5	34·8	13·0	42·3	68·6	88	8·2	32·3
1953	154	27·5	4·6	2·0	20·9	32·0	13·2	46·0	69·9	86	7·9	26·9
1954	162	27·8	4·6	2·0	23·3	29·7	13·8	48·9	64·0	86	7·3	27·2
1955	167	29·1	4·9	2·1	24·3	31·7	16·2	50·4	62·7	85	7·6	27·4
1956	168	29·6	4·8	2·0	24·5	32·6	18·2	47·9	72·2	83	7·3	26·6
1957	172	27·2	5·2	2·1	23·9	33·3	18·5	48·8	67·4	79	7·1	25·4
1958	172	26·9	5·8	2·0	24·4	32·6	19·7	46·4	66·2	77	6·5	23·8
1959	176	28·8	6·3	2·6	24·4	31·7	23·1	49·1	65·6	77	6·2	25·5
1960	180	26·9	6·9	2·7	23·0	32·8	23·5	47·7	66·5	75	6·3	25·1
1961	184	26·4	6·7	3·0	22·6	33·8	23·3	50·2	69·8	74	6·1	24·5
1962	184	26·7	6·7	3·2	22·4	35·3	24·7	51·3	60·9	74	5·9	24·4
1963	183	27·9	6·9	3·5	21·8	37·6	25·0	52·3	65·4	72	5·8	24·2
1964	184	28·6	7·6	3·7	21·5	36·6	24·5	56·4	59·3	71	5·2	23·8
1965	186	29·1	7·2	3·9	21·7	34·9	23·4	62·3	63·6	71	5·0	23·3
1966	184	27·5	7·5	4·1	21·0	36·6	23·8	60·2	59·9	71	4·8	23·0
1967	184	26·8	8·0	4·4	20·0	38·9	24·3	56·3	58·3	69	4·6	22·6
1968	183	26·8	8·4	4·6	19·0	39·3	23·8	57·2	59·9	69	4·6	22·3
1969	182	25·9	9·0	5·2	18·8	40·3	24·4	62·6	57·8	67	4·2	22·0
1970	182	26·0	9·6	4·8	18·8	42·1	23·8	67·5	58·9	66	4·0	21·4
1971	181	27·3	9·1	5·4	18·1	42·5	24·6	66·5	61·8	66	3·6	21·0
1972	181	26·6	8·9	5·7	17·4	43·4	24·3	67·2	59·3	65	3·4	20·7
1973	180	27·0	8·9	6·6	15·7	41·1	22·8	68·2	60·6	66	3·1	20·4