

Statistical and Social Inquiry

Society of Ireland

The Pattern of Personal Expenditure in Ireland

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1 BASIC DATA

The object of the present paper is to study the distribution of personal expenditure in Ireland over a number of commodity groups, to analyse the changes that have recently taken place, and to consider the implications for the future. In particular, an attempt is made to assess the effect of income and price changes, though it will be seen that very firm conclusions cannot be drawn, and the results obtained will be in the nature of general tendencies rather than strict laws. A forecast of the future pattern of expenditure will be made, but it will depend to a good deal on assumptions and judgment.

Eight commodity groups will be distinguished throughout the analysis of Irish and United Kingdom data. They are defined in accordance with the classification adopted in the Irish national expenditure statistics (Central Statistics Office, 1962). The short titles used, and the corresponding personal expenditure categories, are as follows:

- (1) Food "Food and non-alcoholic beverages"
- (2) Drink and tobacco "Alcoholic beverages" and "Tobacco"
- (3) Clothing "Clothing, footwear and personal equipment"
- (4) Fuel "Fuel and power (excluding motor spirit)"
- (5) Durable goods "Durable household goods" and "Transport equipment"
- (6) Miscellaneous goods "Other goods"
- (7) Housing "Rent"

- (8) Services "Travelling within the State", "Entertainment and sport", "Professional services (including education)", "Private domestic service", "Other expenditure"

These commodity groups thus add up to "Personal expenditure on consumers' goods and services" plus "Expenditure by non-residents" less "Expenditure outside the State" The resulting total may be described for this country as "Total personal expenditure in Ireland"

Table 1 shows the percentage distribution of total personal expenditure in Ireland at current prices for each of the years 1953-61 The percentages—particularly those for 1961 which are based on totals rounded to the nearest £ million—are not necessarily correct to the last digit shown, but further rounding has been avoided at this stage as the percentages will form the basis of further analysis For similar reasons, they have been adjusted where necessary so as to add up to 100.00 exactly

The expenditure pattern shows a remarkable degree of stability during the observation period There has been some increase in the proportions of total outlay devoted to durable goods, miscellaneous goods and services, which was accompanied by a fall in the proportion spent on clothing during the earlier part and a fall in the proportion spent on food during the later part of the period Expenditure on drink and tobacco, on fuel and on housing amounted respectively to about 15%, 5% and 5% of the total all the time

For comparison with the average Irish expenditure pattern, a similar set of figures has been computed for the United Kingdom, also based on published national expenditure data (U.K. Central Statistical Office, 1962) The total on which the percentages are based includes visitors' expenditure and excludes expenditure abroad as in the case of Ireland, in addition, unclassified income in kind has been excluded

Furthermore, a comparison has been attempted with the expenditure pattern observed in the Irish household budget collection of 1951/2 (Central Statistics Office, 1954) In order to do this, a correction has been made to the published data, on grounds that the total amount spent on alcoholic drink is known to have been considerably understated in the budget enquiry The recorded drink figures have been disregarded, and instead, for want of better figures, the amount spent on drink and tobacco have, for every household group considered, been taken as twice the amount recorded for tobacco, with a corresponding adjustment for total outlay Furthermore, since expenditure on transport equipment was not separately recorded, the amount spent on bicycles, and half the amount spent on motor cycles and motor cars (including running costs) has been added to outlay on durable household goods, to obtain figures for "durable goods"

Two sets of figures are given for 1951/2, one of them being based upon the totals for all households, the other one representing an unweighted mean of the expenditure patterns for sixteen size/income groups The first set is more readily comparable with national accounts data, whilst the second set will be used later in the estimation of income elasticities of demand

TABLE 1
DISTRIBUTION OF PERSONAL EXPENDITURE IN IRELAND AT CURRENT PRICES,
1953-61

Year	% OF TOTAL EXPENDITURE							
	Food	Drink and tobacco	Clothing	Fuel	Durable goods	Miscell goods	Housing	Services
1953	37 24	15 46	12 00	4 77	5 48	5 06	4 77	15 22
1954	37 01	15 03	11 45	4 81	6 09	5 20	4 95	15 46
1955	37 25	14 71	10 94	5 38	6 26	5 32	4 93	15 21
1956	36 56	15 21	11 06	5 41	5 26	5 30	5 23	15 97
1957	36 68	15 59	10 19	5 42	5 14	5 36	5 53	16 09
1958	37 40	14 92	9 87	4 71	5 93	5 56	5 37	16 24
1959	37 21	14 54	9 57	4 84	6 37	5 71	5 31	16 45
1960	35 79	15 03	9 85	4 63	6 49	5 87	5 30	17 04
1961	34 58	15 15	10 16	4 82	6 95	6 06	5 17	17 11
Mean (unweighted)	36 63	15 07	10 57	4 98	6 00	5 49	5 17	16 09

Source Computed from Central Statistics Office, National Income and Expenditure 1961

TABLE 2

AVERAGE EXPENDITURE PATTERNS, IRELAND 1953-61,
UNITED KINGDOM 1951-61 AND IRISH HOUSEHOLDS 1951/2

Commodity group	% OF TOTAL EXPENDITURE			
	Ireland 1953-61	United Kingdom 1951-61	Irish households 1951/2	
			All households	Unweighted mean of groups
Food	36 63	30 54	36 13	38 71
Drink and tobacco	15 07	13 61	9 63	9 56
Clothing	10 57	10 03	12 48	11 22
Fuel	4 98	4 24	6 83	7 90
Durable goods	6 00	7 02	3 85	3 15
Miscell goods	5 49	9 21	3 54	3 45
Housing	5 17	8 62	6 84	6 94
Services	16 09	16 73	20 70	19 07
Total	100 00	100 00	100 00	100 00

Sources Table 1, and computed from U.K. Central Statistical Office, National Income and Expenditure 1962, and from Central Statistics Office, Household Budget enquiry 1951-52 (adjusted)

Compared with the household budget enquiry pattern, the time series for Ireland shows a relatively high expenditure on drink and tobacco, durable and miscellaneous goods, and a relatively low outlay on clothing, fuel, housing and services. The differences may be partly explained by the omission of agricultural households and tourists' expenditure from the household budgets, it is also possible that the procedure adopted here does not fully allow for under-recording of expenditure on drink and possibly on tobacco in the budgets. There may, of course, be other errors in either set of data.

The chief differences between the Irish and British expenditure distributions is the relatively high weight of food and the relatively low weight of miscellaneous goods and housing here. As regards housing, this almost certainly reflects the low level of rents in Ireland. Other differences may be partly or wholly explainable by the difference in average income per head between the two countries. This applies not only to the major discrepancies regarding food and miscellaneous goods, but also to smaller differences with regard to drink and tobacco, clothing and fuel which command a somewhat higher share of total outlay in Ireland than in the United Kingdom, and with regard to durable goods and services for which the opposite is true. It should, however, be noted that the share of durable goods in the Irish expenditure pattern is not as much below the U.K. share as might be expected.

2 ANALYSIS OF HOUSEHOLD BUDGETS

The problem now arising consists in ascertaining the effects of income and price changes on the pattern of expenditure. Family budget data

may be helpful for this purpose as they permit an estimation of income effects, and in fact, family budgets and time series have been utilised together in a number of econometric studies. Even if income elasticities derived from budget data are not applied to time series, they may at any rate provide corroborative evidence for results obtained by other methods.

An analysis of the Irish household budgets of 1951/2 has previously been made by Leser (1962). The results obtained are not immediately applicable here since the commodity grouping is different in some cases and since, as previously explained, adjusted figures for drink were used, which also affected the total for all goods and services. A new analysis was therefore made, also using a slightly different mathematical form of relationship as follows:

$$w_i = \alpha_i + \beta_i \log M + \gamma_i \log N$$

(i = 1, 2, ..., 8)

where w_i represents the expenditure proportion for each commodity group,

M total outlay per equivalent person

N number of equivalent persons

an adult counting as one, and a child under 14 as half an equivalent person. The reasons for the choice of function are discussed elsewhere (Leser, 1963).

Estimates a_i , b_i and c_i for the coefficients α_i , β_i and γ_i in these equations are obtained by least square estimation from data for 16 size/income groups. Then b_i represents the effect which a 1% increase in total outlay has in raising or lowering the expenditure percentage $100w_i$, c_i similarly the effect of a 1% increase in family size as measured here by equivalent persons. The figures which are only of incidental interest here, are given in the appendix. The main information given by the values of c_i is that larger households, generally containing a higher proportion of children, spend relatively less on housing and fuel than smaller households with the same total outlay per equivalent person, on the other hand they spend relatively more on clothing and services.

The information given by the coefficients b_i is more clearly expressed in the form of income elasticities of demand, that is to say, the percentage changes in commodity group outlay associated with a 1% change in total outlay. Their average values, commonly denoted by $\overline{Eq_i/EM}$ are in the present mathematical model related to the coefficients b_i and the average expenditure proportions $\overline{w_i}$ by the formula

$$\frac{\overline{Eq_i}}{\overline{EM}} = 1 + \frac{b_i}{\overline{w_i}}$$

According to whether $\overline{Eq_i/EM} < 1$ or > 1 , the demand is said to be inelastic or elastic with regard to income.

The results obtained for the elasticities are shown in Table 3, together

with the coefficients of determination R_1^2 , showing the proportions of the variations in w_1 which are explained by the regressions and thus indicating their goodness of fit

TABLE 3
RESULTS OF HOUSEHOLD BUDGET ANALYSIS, IRELAND 1951/2

Commodity group	Estimated income elasticity of demand	Coefficient of determination
Food	0.58	970
Drink and tobacco	0.86	170
Clothing	1.51	924
Fuel	0.49	894
Durable goods	2.27	904
Miscellaneous goods	1.06	145
Housing	0.99	963
Services	1.61	907
All goods and services	1	

The regression equations give a good explanation for the variations in expenditure proportions with regard to six out of the eight commodity groups. For drink and tobacco, the data show considerable irregularities which may reflect their inherent inaccuracies, and for miscellaneous goods, the proportion spent varies extremely little between the sixteen groups of households studied, hence the low values of R_1^2 for these two commodity groups.

The main results are that the demand for food and fuel, and to a lesser extent the demand for drink and tobacco, is seen to be inelastic, the demand for clothing, durable goods and services elastic with regard to income. In other words, in the higher income groups, the proportion of total outlay devoted to food, to drink and tobacco and to fuel is smaller, the proportion devoted to clothing, durable goods and services larger than in the lower income groups. The proportion spent on housing and miscellaneous goods appears to remain practically constant at various income levels.

One might expect these results to be applicable to changes over time for the community as a whole. In fact, a cursory glance at Table 1 makes this proportion appear a very dubious one, since the share of fuel in total outlay shows no sign of decline with rising income, and the share of clothing not only no marked rise but even a substantial fall between 1953 and 1959.

There exists the possibility that the differences in expenditure patterns observed between the household budgets of different income groups partly represent differences between social groups rather than the effect of income differentials. This would imply that the observed income elasticities do not tell us what would happen if income and thus total

household expenditure for a given social group or for all social groups increased (or decreased)

In order to investigate this possibility, separate regressions have been fitted to five social groups distinguished in the Irish budget study. For each social group, four observations representing different income classes are available. The expenditure proportions given were corrected for differences in household size, on the basis of the given number of adults and children and of the regression coefficients c_1 estimated previously from sixteen observations. Different regression coefficients on $\log M$ were thus obtained for each social group, and the results for the five social groups were combined in an unweighted mean.

The result of this analysis does not bear out the suggestion that the estimates for the income elasticities of demand would be substantially modified if the social class differences were eliminated. The only possible exceptions are the two groups "Drink and tobacco" and "Housing". The data suggest that within social groups, the income elasticity of demand for drink and tobacco might be a little higher, and the elasticity for housing a little lower than the figure given in Table 3. In view of the unsatisfactory nature of the data for drink expenditure, however, it does not seem worth while to put too much emphasis on this result.

We are thus left with the results of Table 3, reflecting the effects of income differentials on the Irish expenditure pattern. However, they represent long-term effects of income differentials and need not apply to comparatively short-term effects of income changes, particularly when these are accompanied by other changes in economic and social conditions. An entirely separate time series analysis will therefore be made.

3 DEMAND FUNCTIONS BASED ON TIME SERIES

Demand functions attempting to explain changes over time in expenditure patterns must take into consideration changes in prices as well as changes in income or total expenditure. The explanatory variables must include at least an indicator of real income and an indicator of relative price, that is to say, the price index of the commodity group investigated as a ratio to the general price index. Time could also be introduced as variable, but this will not be done here, as it is not believed that time trends can be satisfactorily isolated from income and price effects with the available data.

A suitable form of relationship is as follows

$$w_i = \alpha_i + \beta_i (\log M - \overline{\log p}) + \gamma_i (\log p_i - \overline{\log p'})$$

(i = 1, 2, ..., 8)

where w_i represents proportion of total outlay on group i

M total outlay per head in current prices

p_i the price index for group i

$\overline{\log p}, \overline{\log p'}$ weighted arithmetic averages of $\log p_i$,

the weights being respectively the average expenditure proportions $\overline{w_i}$ and the coefficients γ_i . It is easily seen that provided the constants α_i

add up to 1 and the β_1 to 0, the expenditure shares w_1 always add up to 1 as they should

The estimation of the coefficients β_1 and γ_1 (α_1 being unimportant) provides some difficulties, since the coefficients γ_1 appear in $\overline{\log p'}$, and the equations are thus not linear functions of the coefficients. As a first approximation, the ordinary average $\overline{\log p}$ may be substituted for $\overline{\log p'}$ in the demand functions. By ordinary least squares, estimates b_1' and c_1' can then be obtained for the coefficients β_1 and γ_1 .

The results will not be acceptable as they stand, as the coefficients b_1' do not add up to zero, and the values obtained for c_1' imply in some instances that the substitution term in the direct price elasticity of demand or even the price elasticity itself is positive, i.e. a rise in price stimulates consumption.

The practical estimation procedure therefore consists in inserting coefficients c_1 for the constants γ_1 into the demand equations, and then to obtain estimates b_1 for the coefficients β_1 by simple regression. The values of the inserted coefficients c_1 —or, which comes to the same, of $c_1/\overline{w_1}$ —will depend partly on the estimates c_1' (which, however, are used as broad indicators only) and partly on *a priori* considerations, in particular the average proportion $\overline{w_1}$ will be taken as upper limit for c_1 to ensure meaningful results for price elasticities.

This procedure was followed for Ireland, using the data for the years 1953-61 given in Table 1 in the form $100w_1$. As indicator for the income variable $\log M - \log p$, the natural logarithm of total personal expenditure (including expenditure outside the State and excluding non-residents' expenditure) at 1953 prices, divided by population size has been used. Price data have been derived from national expenditure data at current and constant prices, making use of the consumer price index as far as necessary, because data at constant prices are not published separately for housing and other services.

The inserted values for $c_1/\overline{w_1}$, based on the preliminary analysis, and the results for b_1 are shown in the appendix. The derived average elasticities of demand $\overline{Eq_1}/EM$ with regard to income and $\overline{Eq_1}/Ep_1$ with regard to own price, showing the percentage changes in demand associated with a 1% income or price rise, are given in Table 4, together with the explained proportions R_1^2 of the variations in w_1 . The connection between the elasticities and the regression coefficients is shown by the formulae

$$\frac{\overline{Eq_1}}{EM} = 1 + \frac{b_1}{w_1}$$

$$\frac{\overline{Eq_1}}{Ep_1} = - \left[(1 + b_1) - c_1/\overline{w_1} \left(1 - c_1 / \sum_{j=1}^8 c_j \right) \right]$$

TABLE 4
RESULTS OF TIME SERIES ANALYSIS, IRELAND 1953-61

Commodity group	Estimated elasticity of demand with regard to		Coefficient of determination
	income	own price	
Food	0.63	-0.42	814
Drink and tobacco	0.75	-0.68	222
Clothing	0.63	-0.11	821
Fuel	1.09	-0.08	474
Durable goods	2.36	-1.08	624
Miscellaneous goods	1.90	-0.57	900
Housing	0.94	-0.07	270
Services	1.51	-0.31	879
All goods and services	1		

According to the present analysis, the demand for durable goods, for miscellaneous goods and—to a lesser extent—that for services appears to be highly elastic with regard to income, and the demand for food, drink and tobacco and clothing inelastic, with fuel and housing occupying an intermediate position. With regard to price, the demand for durable goods appears to be fairly elastic, the demand for clothing, fuel and housing very inelastic, whilst the demand for other groups appears to be moderately inelastic.

The regression equations, together with the actual changes in real income per head and in relative prices, give a reasonably good explanation for the changes between 1953 and 1961 in the proportions spent on food, clothing, miscellaneous goods, services and possibly durable goods. The explanation is less good for drink and tobacco, fuel and housing. The expenditure patterns are influenced by the amounts of tourist expenditure, which may account for some of the irregularities in the movements.

What actually happened during that period was first of all an increase in real expenditure per head on all goods and services between 1953 and 1955, a fall between 1955 and 1957, and an increase since then which was particularly marked between 1959 and 1960. At the same time, drink and tobacco as well as housing became relatively more expensive, clothing and durable goods relatively cheaper, whilst fuel first rose and then fell in relative price, and the other commodity groups more or less followed the general trend.

The rise in real income thus by itself largely explains the recent fall in the proportion spent on food and the fairly steady increase in the proportions spent on durable goods, miscellaneous goods and services. Rising income also appears partly responsible for the fall in the share of clothing, but part of this fall is also accounted for by the relative fall in clothing prices. With a low price elasticity, this price fall apparently did not bring

about any appreciable expansion of clothing purchases in real terms, but the freed purchasing power was otherwise utilised

If the results obtained for income elasticities of demand derived from budgets and time series, given in Tables 3 and 4, are compared, quite a good agreement between the two corresponding figures is found for food, drink and tobacco, durable goods, housing and services. Striking discrepancies are discovered for clothing, fuel and miscellaneous goods, the elasticity derived from time series being much lower than that derived from budget data in the case of clothing, and much higher in the case of fuel and miscellaneous goods

The question naturally arises which set of results, if any, should be accepted. If the income elasticities deduced from the budget data are used, then clearly income and price changes do not by themselves provide a good explanation for all the changes in expenditure proportions between 1953 and 1961, and it becomes necessary to assume the operation of a residual trend. A historical trend of this kind, even if established as linear or following another mathematical law during the observation period, is generally of limited value for extrapolation and forecasting

On the other hand, it is quite possible that the estimates based on time series are distorted by shifts in demand which occurred during the period under observation and which will not necessarily continue in future. Neither set of figures should therefore be accepted without further testing. In order to obtain further evidence, data for countries other than Ireland may be utilised, since it may well be assumed that elasticities of demand for the same commodity group are at least at the same order of magnitude in different countries

4 DEMAND FUNCTIONS FOR OTHER COUNTRIES

It seems natural enough to apply any experience gained for the United Kingdom to a study for Ireland. Estimates of income and price elasticities of demand for commodity groups in the United Kingdom have been made by several writers, the most substantial investigation covering many individual commodities also having been carried out by Stone (1954). However, results obtained by different methods show quite wide discrepancies, and particularly as far as price elasticities are concerned, no firm conclusions have as yet been established

An analysis on the same lines as that for Ireland was therefore carried out here for the United Kingdom, using officially published data for the years 1951-61 (U.K. Central Statistical Office, 1962). The first stage of the analysis suggests low price substitution effects for most commodity groups, durable and miscellaneous goods (and possibly fuel) being exceptions. The values of c_1/\bar{w}_1 accordingly chosen for insertion into the demand functions are given in the appendix, where the full results are also shown

A further set of computations has been made, based on data for all European O.E.C.D. members combined except Spain over the years 1950-61 (O.E.C.D., 1962), the area may be briefly referred to as Western

Europe Only five commodity groups are distinguished here, but otherwise the model is the same as in the other time series studies The estimates c_1 for the coefficients γ_1 obtained in the first stage of the analysis suggest a low elasticity of substitution for all commodity groups except durables Since their values are acceptable, they have been retained for the second stage in the computations, i.e. the estimation of b_1 Full results are found in the appendix

In both studies, the fit of the regression to the data is good for all commodity groups except for services in the U.K. study as evidenced by high values of R_1^2 This may suggest that the data are more accurate and that greater reliance should be placed on the results obtained for the U.K. and the European O.E.C.D. members combined than those derived for this country This conclusion is, however, subject to some qualification

Whilst it is true that good explanations of the long-term changes in the U.K. and O.E.C.D. expenditure patterns may be obtained with the sole aid of an income and a price variable, without introducing a trend or other variables, it is in fact almost too easy to obtain such explanations The income variable and most price variables are highly correlated with time and between themselves, and alternative explanations could give almost as good a fit For example, whilst total expenditure per head rose fairly steadily in the United Kingdom over the period investigated, the fall in relative prices of clothing and of durable goods was almost equally steady The proportion of total outlay devoted to clothing tended to rise slightly and that devoted to durable goods substantially The explanation in either case could well lie in a higher price elasticity combined with a lower income elasticity than those estimated

However, the present study is not directly concerned with demand relationships within the United Kingdom or Western Europe The estimated income elasticities, such as they are, are shown in Table 5 and compared with the corresponding results obtained for Ireland

TABLE 5
ESTIMATED INCOME ELASTICITIES OF DEMAND, UNITED KINGDOM,
EUROPEAN O.E.C.D. MEMBERS AND IRELAND

Commodity group	U.K. 1951-61	O.E.C.D. 1950-61	Ireland	
			1953-61	1951/2
Food	0.72	0.78	0.63	0.58
Drink and tobacco	0.79		0.75	0.86
Clothing	1.49	1.02	0.63	1.51
Fuel	0.86		1.09	0.49
Durable goods	2.72	2.02	2.36	2.27
Miscellaneous goods	1.29		1.90	1.06
Housing	0.61	0.93	0.94	0.99
Services	0.74	(0.99)*	1.51	1.61
All goods and services	1	1	1	1

*Including drink and tobacco, fuel, miscellaneous goods

The income elasticities of demand for food obtained for the U K and Western Europe as a whole are a little higher than those found for Ireland, but there is no serious discrepancy, Engel's law of a declining proportion spent on food with rising income is generally upheld. The elasticity of demand for housing appears to be much closer to 1 in Western Europe than in the U K, and the Irish experience seems to resemble in this respect much more that of the larger aggregate to which it belongs than its nearest neighbour. There is wider spread between results for durable goods, but the income elasticity of demand seems to be at least 2. For clothing the income elasticities show wide variations around the Western Europe result of 1.

The result for drink and tobacco is virtually the same in respect of the U K and Ireland, that is to say an income elasticity somewhat below 1. The estimated U K income elasticity is somewhat below the corresponding estimate for Ireland in the case of fuel, and substantially lower in the cases of miscellaneous goods and services. An elastic demand for miscellaneous goods seems, however, established.

5 A DEMAND FORECAST FOR 1970

The lesson which may be learnt from the demand studies carried out here, as well as from other authors' investigations, is the difficulty of obtaining firm estimates for income and price elasticities of demand on which to base a forecast. If it is assumed that changes in relative prices will be of a comparatively minor character, then it is not important to have accurate measures for price effects, but only to measure the effect of rising income per head upon the demand pattern. This still presents difficulties, as income effects may be to some extent mixed up with changes in tastes and habits. The effect of such changes may be indicated by a time trend, if they are believed to take place regardless of the increase in income. Here it will be assumed that the pace of such changes in habits is set by the growth in real income, and that for all practical purposes a simple regression equation on real personal expenditure per head may be used.

Writing $w_1^{(0)}$ for the expenditure proportions in 1960, $w_1^{(10)}$ for those ten years afterwards in 1970, and $m^{(0)}$, $m^{(10)}$ for real expenditure per head in the two years, we have

$$w_1^{(10)} = w_1^{(0)} + b_1 \log \frac{m^{(10)}}{m^{(0)}}$$

The coefficients b_1 represent changes in percentages of total outlay associated with a 1% change in real income. They are connected with income elasticities of demand in 1960 $E_{q_1}^{(0)}/EM$ by the formulae

$$b_1 = w_1^{(0)} \left(\frac{E_{q_1}^{(0)}}{EM} - 1 \right)$$

A set of income elasticities will be chosen by judgment, taking into account the results of the various demand studies undertaken and the

fact that elasticities observed in the past do not necessarily remain constant and thus need not apply in future. The elasticities must be consistent with each other in that their weighted mean is equal to 1 and thus the sum of the marginal coefficients b_1 is equal to 0. The elasticities and coefficients are shown in Table 6.

TABLE 6
COEFFICIENTS FOR FORECAST EQUATIONS

Commodity group	Income elasticity of demand	Change in % spent with 1% income rise
Food	0.7	— 1073
Drink and tobacco	0.8	— 0300
Clothing	1.1	+ 0099
Fuel	0.9	— 0045
Durable goods	2.0	+ 0650
Miscellaneous goods	1.5	+ 0294
Housing	0.9	— 0052
Services	1.25	+ 0427
All goods and services	1	0

A value must now be assigned to the change in real personal expenditure between 1960 and 1970. The assumption made here is that of an average annual growth by $3\frac{1}{2}\%$, which implies that

$$\frac{m^{(10)}}{m^{(0)}} = 1.41$$

$$\log \frac{m^{(10)}}{m^{(0)}} = .344$$

Table 7 then gives the expenditure pattern forecast for 1970, compared with the actual expenditure pattern in 1960.

TABLE 7
DISTRIBUTION OF EXPENDITURE, IRELAND 1960 AND 1970

Commodity group	% TOTAL EXPENDITURE	
	1960 actual	1970 estimate
Food	35.79	32.10
Drink and tobacco	15.03	14.00
Clothing	9.85	10.19
Fuel	4.63	4.47
Durable goods	6.49	8.73
Miscellaneous goods	5.87	6.88
Housing	5.30	5.12
Services	17.04	18.51
Total	100.00	100.00

The main changes envisaged are decreases in the proportion of total outlay devoted to food, drink and tobacco, which are offset by increases in the proportions for durable goods, miscellaneous goods, and services. On the whole, the implication is that there will be no violent changes in the expenditure pattern, which will remain basically stable.

If the individual commodity groups should experience substantial changes in relative prices, the forecast may be assumed to be still approximately applicable to the expenditure pattern at 1960 prices. As substitution effects between commodity groups are taken as small, the demand pattern in current prices should then change so as to give greater weight to the groups with high price rises and smaller weight to those showing more price stability.

The changes envisaged in the expenditure pattern become more marked when viewed as differences between expansion rates in real consumption for various commodity groups. This may be seen when the expenditure proportions given in Table 7 have been translated into totals, which is done in Table 8. For this purpose, a 41% increase in total personal expenditure at 1960 prices has been assumed accompanied by a doubling of expenditure by residents outside the State and by non-residents in Ireland, so that personal expenditure in Ireland increases somewhat more, in fact by 44%. The size of the total population is also assumed to remain constant.

TABLE 8
PERSONAL EXPENDITURE, IRELAND 1960 AND 1970

Commodity group	£ Mill. at 1960 prices		Index 1970 (1960=100)
	1960 actual	1970 estimate	
Food	189.6	245.0	129
Drink and tobacco	79.6	106.8	134
Clothing	52.2	77.8	149
Fuel	24.5	34.1	139
Durable goods	34.4	66.6	194
Miscellaneous goods	31.1	52.5	169
Housing	28.1	39.1	139
Services	90.3	141.2	156
Total in Ireland	529.8	763.1	144
Outside the State	15.2	30.4	200
Less non-residents' expenditure	-42.4	-84.8	200
Total	502.6	708.7	141

According to these figures, expenditure on durable goods will almost double in real terms between 1960 and 1970, real expenditure on miscellaneous goods will also increase by more than two-thirds, and expenditure on services by more than one-half. The expansion of the demand for the remaining commodity groups will be on a moderate scale, ranging from less than one-third for food to almost one-half for clothing.

The implications on the growth rates of various industries and industry groups are obvious, if not fully conclusive. It must be borne in mind that the growth prospects of industry groups depend on the pattern of exports, investment and government consumption as well as on personal consumption, and that competition between home-produced goods and imports remains an important factor. Furthermore, there may be considerable variations in the consumption growth rates for different commodities within a group, with consequent repercussions on the fate of individual industries.

Nevertheless, the figures given here may at least provide a basis for assessing the prospective changes in patterns of consumption and industrial production. It is hoped that the forthcoming household budget survey will throw further light on consumption habits and will help towards obtaining a more firmly based and more detailed picture of demand tendencies and relationships.

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APPENDIX FULL RESULTS OF DEMAND STUDIES

Key 1 Food, 2 Drink and tobacco, 3 Clothing, 4 Fuel, 5 Durable goods,
6 Miscellaneous goods, 7 Housing, 8 Services

BUDGET DATA, IRELAND 1951-52

$$\text{Model } w_{1c} = a_1 + b_1 \log M + c_1 \log N$$

1	$\overline{w_1}$	b_1	c_1	$\frac{\overline{Eq_1}}{\overline{EM}}$	$\frac{2}{R_1}$
1	3871	— 1624	— 0087	0 58	970
2	0956	— 0132	— 0001	0 86	170
3	1122	+ 0576	+ 0312	1 51	924
4	0790	— 0403	— 0479	0 49	894
5	0315	+ 0401	+ 0048	2 27	904
6	0345	+ 0020	— 0004	1 06	145
7	0694	— 0010	— 0389	0 99	963
8	1907	+ 1172	+ 0600	1 61	907
1-8	1	0	0	1	

TIME SERIES, IRELAND 1953-61

$$\text{Model } w_{1c} = a_1 + b_1 (\log M - \log p) + c_1 (\log p_1 - \log p')$$

1	$\overline{w_1}$	$\frac{c_1}{\overline{w_1}}$ (inserted)	b_1	$\frac{\overline{Eq_1}}{\overline{EM}}$	$\frac{\overline{Eq_1}}{\overline{Ep_1}}$	$\frac{2}{R_1}$
1	3663	0 7	— 1366	0 63	—0 42	814
2	1507	0 3	— 0378	0 75	—0 68	222
3	1057	1	— 0394	0 63	—0 11	821
4	0498	1	+ 0046	1 09	—0 08	474
5	0600	0	+ 0815	2 36	—1 08	624
6	0549	0 5	+ 0492	1 90	—0 57	900
7	0517	1	— 0029	0 94	—0 07	270
8	1609	1	+ 0814	1 51	—0 31	879
1-8	1		0	1		

TIME SERIES, UNITED KINGDOM 1951-61

Model As Ireland 1953-61

1	\bar{w}_1	c_1/\bar{w}_1 (inserted)	b_1	$\frac{\bar{Eq}_1}{\bar{EM}}$	$\frac{\bar{Eq}_1}{\bar{Ep}_1}$	2 R_1
1	3054	1	— 0860	0 72	—0 26	961
2	1361	1	— 0283	0 79	—0 13	952
3	1003	1	+ 0490	1 49	—0 16	858
4	0424	1	— 0058	0 86	—0 05	843
5	0702	0	+ 1210	2 72	—1 12	813
6	0921	0 5	+ 0267	1 29	—0 55	893
7	0862	1	— 0336	0 61	—0 06	985
8	1673	1	— 0430	0 74	—0 15	558
1-8	1		0	1		

TIME SERIES, O E C D MEMBERS 1950-61

Model As Ireland 1953-61

1	\bar{w}_1	c_1	b_1	$\frac{\bar{Eq}_1}{\bar{EM}}$	$\frac{\bar{Eq}_1}{\bar{Ep}_1}$	2 R_1
1	3441	3740	— 0774	0 78	—0 26	954
3	1283	1336	+ 0029	1 02	—0 11	941
5	0808	0356	+ 0823	2 02	—0 66	940
7	0706	0548	— 0052	0 93	—0 26	992
2, 4, 6, 8	3752	3588	— 0026	0 99	—0 40	894
1-8	1		0	1		