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by

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In the present study, the distribution of total consumption expenditure in Ireland over 11 broad commodity groups is investigated. The basic data were obtained from tabulations used in the preparation of the national income and expenditure tables for the years 1953 to 1959 inclusive. The figures include expenditure in Ireland by non-residents, whilst expenditure outside the state by Irish residents has been excluded.

Table 1 shows the commodity groups distinguished with their average share of total consumption expenditure over the years 1953-59, with approximately comparable figures for the United Kingdom derived from published data. The figures represent simple arithmetic means of the percentages for individual years.

Table 1.

Proportionate distribution of consumption expenditure, Ireland (Republic) and United Kingdom, 1953-59.

Commodity group	% of total expenditure	
	Ireland	U.K.
1 Food	36.85	31.14
2 Alcoholic drink	7.73	6.63
3 Tobacco	7.42	6.95
4 Clothing	10.77	9.91
5 Housing	5.18	8.61
6 Fuel and light	4.99	4.20
7 Durable household goods	3.84	4.86
8 Miscellaneous goods	5.39	8.87
9 Transport	7.02	7.96
10 Domestic Service	1.58	0.70
11 Miscellaneous Services	9.23	10.17
	100.00	100.00

Broadly speaking, the two expenditure patterns are seen to be not too dissimilar, but there are some noticeable differences. Price differentials are not believed to be large, except that rents and housing costs are probably a good deal lower in Ireland, whilst food prices may be a little higher. The main explanation for the difference, may, however, be found in the higher income per head in the United Kingdom. This tends to reduce there the proportions spent on necessities and conventional necessities like food, fuel and light, alcoholic drink and tobacco, and to raise the proportions spent on relative luxuries like durable household goods, transport which includes motor cars and other equipment, and other goods and services. The low expenditure on domestic service in the U.K. may reflect unavailability of labour at prevailing prices which tend to be rigid, or may be explained as a shift in demand owing to the greater availability of washing machines and other aids in the home.

In the U.K., there may also have occurred a shift towards housing outlay at the expense of drink and tobacco consumption. It will be seen that similar forces tend to operate in Ireland.

During the period under consideration, some changes in the consumption took place. In theory it might be possible to relate these changes to change in total consumption per head and in prices, and to derive income and price elasticities of demand for the commodity groups. In practice real income per head and relative prices varied so little during this period that it does not appear to be feasible to derive reliable estimates for income and price

effects from the data. Moreover, unless the data are very seriously deficient, it appears that the major part of the changes in demand pattern are not explicable in terms of income and price elasticities of demand.

The method adopted here consisted in using estimates of income elasticities of demand based on the 1951-52 household budget enquiry, and price elasticities of demand based on a priori assumptions. These are utilised in computing the effects of average annual changes in total outlay per head and prices on the consumption pattern, which are compared with actual changes per annum. The residual then indicates shifts in demand.

Estimates for income elasticities of demand in 1951-52 have been made in The Economic Research Institute Paper No. 4. These, however, could not be directly applied, chiefly because of the under-recording of expenditure on alcoholic beverages. A new set of figures was therefore calculated. These were based on four income per person groups, standardised for family size. In the absense of other information, expenditure on alcoholic drink was put as equal to recorded expenditure on tobacco in each income group, disregarding recorded drink figures, and total outlay on all goods and services was correspondingly adjusted. The expenditure functions were assumed to be of the form

$$w_{ic} = a_i + \beta_i \log C$$

where w_{ic} indicates theoretical proportion of outlay on the i th commodity group, C total consumption expenditure, a_i and β_i constants.

The average income elasticities so obtained were furthermore adjusted, dividing each by a constant, to make their average equal to unity with weights based on the average consumption pattern 1953-59. Table 2 shows the unadjusted and adjusted elasticities, compared with the previous estimates as far as figures for the same commodity group are available. The differences between corresponding figures are not substantial.

Table 2.

Estimates of income elasticities of demand

Commodity group	Paper No. 4	Present study	
		Unadjusted	Adjusted
1 Food	0.553	0.600	0.576
2 Alcoholic drink	---	0.834	0.800
3 Tobacco	0.330	0.834	0.800
4 Clothing	1.540	1.455	1.396
5 Housing	0.967	0.943	0.910
6 Fuel and light	0.499	0.526	0.505
7 Durable household goods	2.162	1.969	1.889
8 Miscellaneous goods	---	1.040	0.998
9 Transport	2.611	2.239	2.148
10 Domestic service	---	2.693	2.584
11 Miscellaneous services	---	1.423	1.365

These last set of figures is assumed to be applicable to time series. With regard to price changes, it is assumed that all cross elasticities of substitution are equal to 0.5. This implies that all direct price elasticities lie in the neighbourhood of -0.5. In ordinary language it means that if one commodity group increases in price relatively to the others, and the price increase is compensated by a corresponding increase in income and total outlay, consumers strike a compromise

between maintaining the same consumption pattern in real terms and in money terms.

The demand relationships envisaged are as follows:-

$$w_{ic} = a_i + \beta_i \log \frac{C}{P} + \frac{\bar{w}_i}{2} \log \frac{P_i}{P} + \gamma_i t$$

where w_{ic} represents the theoretical share of the i th commodity group in total outlay, C total outlay, price or price index for the commodity group, P the weighted geometric mean of the price indices, and t time. a_i , β_i and γ_i are constants, whilst \bar{w}_i is the mean of the observed expenditure share. The values of \bar{w}_i are given in Table 1, and estimates b_i for β_i are obtained from the income elasticities η with the aid of the formulae

$$\eta_i = 1 - \frac{b_i}{\bar{w}_i}$$

or

$$b_i = \bar{w}_i (1 - \eta_i)$$

The demand relationships are treated as valid in the medium long run only. Regressions on time of $\log \frac{C}{P}$, $\log \frac{P_i}{P}$ and w_{ic} have therefore been constructed. They show that real consumption per head increased at an average rate of about 1.1% per annum; furthermore, prices of tobacco, domestic service, housing and miscellaneous goods increased somewhat more, prices of clothing, durable household goods and of fuel and light somewhat less than the average.

The theoretical effect of the rise in real income is to raise the proportions spent on goods and services with an income elastic at the expense of those with an inelastic demand. Price changes in this model imply a rising share of commodities that are becoming dearer and a declining share in those that are becoming cheaper, though the opposite would apply in a comparison at constant prices.

Table 3 shows the actual change in the consumption pattern, and this is compared with the theoretical income and price effects; by difference a residual trend is obtained.

Table 3.

Average yearly changes in percentages
distribution of total outlay

Commodity group	In % of total outlay			
	Actual	Income effect	Price effect	Residual
1 Food	+.066	-.174	-.003	+.248
2 Alcoholic drink	-.059	-.017	-.002	-.040
3 Tobacco	-.025	-.016	+.093	-.102
4 Clothing	-.421	+.047	-.118	-.350
5 Housing	+.108	-.005	+.009	+.104
6 Fuel and light	-.001	-.027	---	+.026
7 Durable household goods	+.066	+.033	-.019	+.047
8 Miscellaneous goods	+.093	---	+.011	+.082
9 Transport	+.130	+.089	+.021	+.020
10 Domestic service	-.050	+.028	+.009	-.097
11 Miscellaneous services	+.103	+.037	+.004	+.062
	0	0	0	0

The meaning of these figures is that, for example, the share of food expenditure, which theoretically was 36.35% at the centre of the observed period, i.e. in 1956, could have been expected to have declined between 1956 and 1957 by .17 percentage points to 36.68% on account of real income changes and by a further .01 percentage point to 36.67% on account of relative price changes. A shift in demand, however, raised the proportion by .25 percentage points so that the balance, food expenditure tended to increase to 36.92%. Similarly for all other commodity groups.

It is seen that income and price effects combined explain part of the change in proportionate expenditure on alcoholic drink, clothing, housing, durable household goods, miscellaneous goods, transport, and miscellaneous services; but only in the case of transport do they account for the major part of changes. Demand appears to have shifted away from tobacco and clothing towards housing, durable household goods as well as miscellaneous goods and services; also towards food, though this effect is not as important in relation to the size of the group as it appears here.

Substituting the values of all constants, the following expenditure functions are obtained:-

$$\begin{aligned}
 w_{1c} &= .43471 - .1563 \log \frac{C}{P} + .1842 \log \frac{P_1}{P} + .00248 (T-1959) \\
 w_{2c} &= .08196 - .0155 \log \frac{C}{P} + .0386 \log \frac{P_2}{P} - .00040 (T-1959) \\
 w_{3c} &= .07464 - .0148 \log \frac{C}{P} + .0371 \log \frac{P_3}{P} - .00102 (T-1959) \\
 w_{4c} &= .08450 + .0427 \log \frac{C}{P} + .0539 \log \frac{P_4}{P} - .00350 (T-1959) \\
 w_{5c} &= .05598 - .0047 \log \frac{C}{P} + .0259 \log \frac{P_5}{P} + .00104 (T-1959) \\
 w_{6c} &= .05937 - .0247 \log \frac{C}{P} + .0250 \log \frac{P_6}{P} + .00026 (T-1959) \\
 w_{7c} &= .02771 + .0341 \log \frac{C}{P} + .0192 \log \frac{P_7}{P} + .00047 (T-1959) \\
 w_{8c} &= .05598 - .0001 \log \frac{C}{P} + .0270 \log \frac{P_8}{P} + .00082 (T-1959) \\
 w_{9c} &= .04056 + .0205 \log \frac{C}{P} + .0351 \log \frac{P_9}{P} + .00020 (T-1959) \\
 w_{10c} &= .00325 + .0251 \log \frac{C}{P} + .0079 \log \frac{P_{10}}{P} - .00097 (T-1959) \\
 w_{11c} &= .08154 + .0337 \log \frac{C}{P} + .0461 \log \frac{P_{11}}{P} + .00062 (T-1959)
 \end{aligned}$$

In these equations, C is measured in £ per head of the population and all prices as 100 in 1953, T indicating the calendar year. All logarithms used here have the base e.

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The equations can be used for predictive purposes. It is tacitly assumed that the estimated income elasticities still apply, the response to price changes follows the adopted hypotheses, and the residual trends continue to operate irrespective of changes in income and price relations. The predictions are, however, likely to be more accurate than the individual assumptions.

The equations will be used here to estimate the hitherto unpublished expenditure pattern for 1961 on the basis of published data for total consumption expenditure and consumer price indices. Furthermore, a forecast for 1965 will be made, assuming an average annual increase of (a) 3% and (b) 5% in real consumption per head and no change in relative prices, but irrespective of any general increase in prices and money incomes. The results compared with the 1953-59 average, are shown in Table 4.

Table 4.
Expenditure pattern 1953-59, 1961 and 1965

Commodity group	% of total expenditure			
	Average 1953-59	1961	Estimate 1965	
			(a) 3% growth p.a.	(b) 5% growth p.a.
1 Food	36.85	36.02	35.16	33.95
2 Alcoholic drink	7.73	7.42	7.08	6.96
3 Tobacco	7.42	7.03	6.45	6.33
4 Clothing	10.77	9.22	8.33	8.66
5 Housing	5.18	5.75	6.10	6.07
6 Fuel and light	4.99	4.62	4.43	4.24
7 Durable household goods	3.84	4.43	5.02	5.29
8 Miscellaneous goods	5.39	5.85	6.18	6.18
9 Transport	7.02	8.19	9.23	9.85
10 Domestic service	1.58	1.45	1.36	1.55
11 Miscellaneous services	9.23	10.02	10.66	10.92
	100.00	100.00	100.00	100.00

According to this forecast, the proportion of total consumption expenditure devoted to food, drink and tobacco, clothing, fuel and light, - and possibly domestic service, will decline, whilst the proportion devoted to housing, durable household goods, transport, and miscellaneous goods and services will increase. Of course, it cannot be taken for granted that there will be no change in direction or magnitude of trends even before 1965, and the extrapolation could certainly not be carried on much further with any confidence. However, comparison with Table 1 shows that the Irish consumption pattern will tend to approach the present U.K. pattern, especially with the higher growth rate.

Assuming an unchanged population size at the 1961 level of 2,815,000 persons, the following will be the estimated totals at 1961 prices.

Table 5.
Estimated personal consumption

Commodity group	1961 £ Mill.	1965 at 1961 prices £ Mill.		% increase 1965 over 1961	
		(a) 3% growth p.a.	(b) 5% growth p.a.	(a) 3% growth p.a.	(b) 5% growth p.a.
1 Food	199.9	219.8	229.2	10	15
2 Alcoholic drink	41.2	44.2	47.0	7	14
3 Tobacco	39.0	40.3	42.7	3	9
4 Clothing	51.2	52.1	58.4	2	14
5 Housing	32.0	38.1	41.0	19	28
6 Fuel and light	25.6	27.7	28.6	8	12
7 Durable household goods	24.6	31.4	35.7	28	45
8 Miscellaneous goods	32.5	38.6	41.7	19	28
9 Transport	45.4	57.7	66.5	27	46
10 Domestic service	8.0	8.5	10.5	6	31
11 Miscellaneous services	55.6	66.6	73.7	20	33
Total consumption in Ireland	555	625	675	13	22
Residents' expenditure out- side state less non- residents' expenditure	-29	-30	-35		
Total personal expenditure	526	592	640	13	22

Table 5 shows that expenditure on food, alcoholic drink, tobacco, clothing, and on fuel and light will increase relatively less than total consumption; expenditure on housing, durable household goods, miscellaneous goods, transport and miscellaneous services will increase more than proportionately. This, of course, merely reiterates the conclusions drawn from Table 4 in another form. There is some uncertainty about the relatively small expenditure on domestic service, for which expenditure on consumer durables may be a substitute.

It is possible that some of the estimates made here will have to be revised if additional information on demand relationships over time, as distinct from cross section demand relationships, becomes available. Nevertheless, the figures given here may serve as a working basis in the context of economic planning.