The Influence of Liquid Assets and the Sectoral Distribution of Income on Aggregate Consumers' Behaviour in Ireland*

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I INTRODUCTION

THE purpose of this paper is to obtain a relationship that will explain movements in the ratio of consumers' expenditure to income. In recent years movements in this ratio have had important implications for the development of aggregate demand in the economy. A proper appreciation of the determinants of this ratio is a prerequisite for efficient stabilisation policy.

A great deal of research, both theoretical and empirical, has been devoted to the study of the consumption function. It is tempting in these circumstances to apply one of the now more standard functions to Irish data. There are, however, some grounds for believing this approach would be inappropriate.

First the recent recession has witnessed a very sharp increase in the savings ratio which the standard functions have been unable to track. Townend (1976), in a recent contribution, shows how such a function failed to predict the savings behaviour in Britain in 1974 and 1975. He argues that the inability to track these recent developments derives from the failure of the function to take account of the role of liquid assets in determining consumer behaviour.

It is easily confirmed that this type of function gives similar results in the Irish case. A standard Friedman consumption function was estimated on Irish data (up to 1974) as follows

$$(C/Y) = 0 \cdot 303 + 0 \cdot 682(C_{-1}/Y) \qquad (1)$$
$$(3 \cdot 52) \quad (6 \cdot 89)$$
$$\bar{R}^2 = 0 \cdot 71$$

C is the real value of personal consumers' expenditure, Y is the real value of personal disposable income, and C_{-1} is the lagged value of C. Student t-values

for the coefficients are given in parentheses, together with the R squared adjusted for degrees of freedom. Due to the existence of a lagged dependent variable in (1) the Durbin-Watson Statistic is not appropriate in this case. Using a maximum likelihood programme (Chapman and Fair 1972) the equation was estimated allowing for first order autocorrelation. The autocorrelation coefficient, thus estimated however, was not significantly different from zero.

Chart 1 plots the actual value of the savings ratio in Ireland up to 1975 and the values predicted by the estimated equation (1). A very sharp increase in the savings ratio can be observed in 1972 and 1973. It fell back somewhat in 1974 but rose sharply again in 1975. It is clear from Chart 1 that the estimated function badly failed to capture the extent of this upsurge.

The equation was estimated on data up to 1974. Using preliminary data for 1975, *ex post* forecasts were generated. The equation predicted a savings ratio of 14·42 per cent and a level of expenditure of £1,393 million, in constant 1970 prices. The actual values were 21·44 per cent and £1,279 million respectively. A major objective of this paper is to test whether recognition of the role of liquid assets in consumer decisions would significantly improve the ability to explain this increase in the savings ratio, as appears to be the case with British data.

Secondly, these standard functions were developed to try and explain specific characteristics of the American consumer expenditure data which are unlikely to
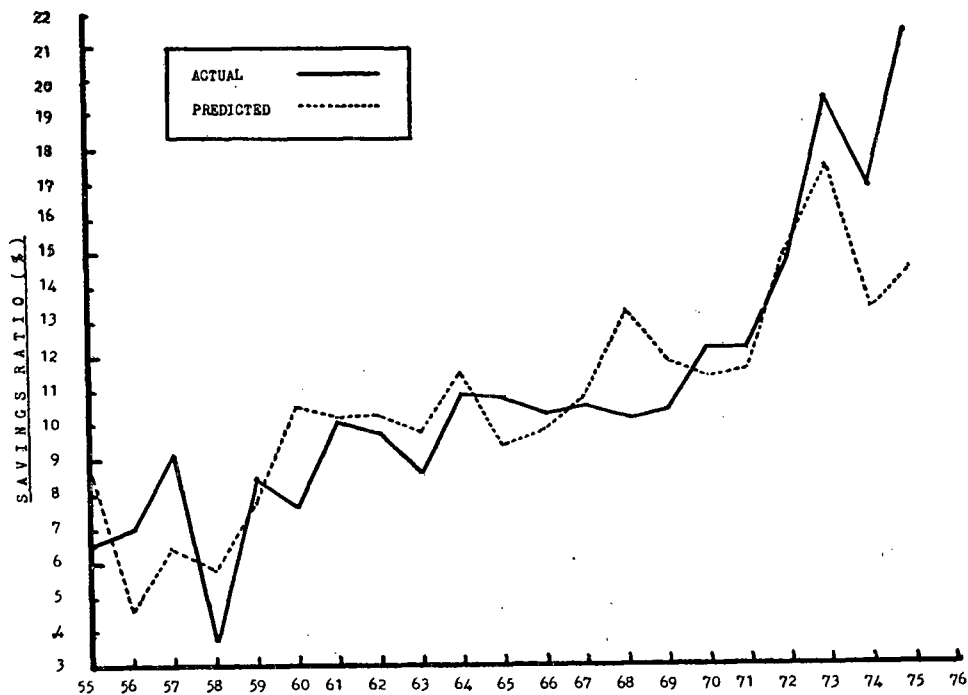

Chart 1: *Actual savings ratio and ratio predicted by equation (1): estimation using data up to 1974.*

be relevant in the Irish case. In the first instance, in most of the more common theories of consumption behaviour consumer expenditure excluded expenditure on durable goods but included the use value of services rendered by the stock of durables. Such a series has not been constructed for Ireland, so that the consumption figures used include expenditure on durable goods.

The most obvious features of the American data have been the long-run stability of the C/Y ratio and its counter-cyclical behaviour. Inspection of Chart 1 indicates that these characteristics were not features of the Irish data used in the study. Even before the great upsurge in 1972, the savings ratio appeared to fluctuate around a mildly increasing trend. In the depression years of 1956 and 1957 the ratio rose in a pro-cyclical manner, and the ratio declined in the relatively prosperous years of 1962 and 1963. Furthermore the ratio does not appear to have acted as a moderating influence in the expansionary period of 1967, 1968 and 1969. Given these facts, it was felt unwise to apply mechanically some of the more well-known functions developed in the literature.

Rather, the specific form in which this study was cast was dictated by the desire to fulfil four specific objectives. First, it was hoped to establish the role of liquid assets in determining consumer behaviour. In particular, an effort was made to confirm the results obtained by Townend in Britain—that a consumption function which acknowledged the role of liquid assets was capable of explaining recent developments in the savings ratio.

Secondly, an attempt was made to obtain a function which takes account of the structural shifts that have taken place in the Irish economy and which are important from the point of view of consumer behaviour. Kennedy and Dowling (1970), in an earlier study, established that the agricultural sector had different spending patterns from the rest of the community. Given the relatively large size of this sector in the Irish economy and more importantly, the change in its share of income, it is important that the function takes account of these patterns.

Thirdly, the paper tries to establish the time pattern in the response of consumer expenditure to changes in income. It is vital that a model which will be used for both policy simulation and forecasting takes proper account of any lags that are in the system.

Finally, the paper attempts to test for the existence of money illusion amongst Irish consumers. During the latter part of the time period under review the rate of inflation increased considerably. It is sometimes felt that in these situations of high inflation, agents in the economy observe the increase in prices rather differently from the increase in their income.

II THEORETICAL CONSIDERATIONS

The *a priori* framework which served as a point of departure for the study is given in equation (2),

$$C = a_0 + a_1 YA + a_2 YNA + a_3 L + a_4 C_{-1} \tag{2}$$

where C is real personal consumers' expenditure on goods and services, YA is real agricultural disposable incomes, YNA is real non-agricultural disposable incomes, L is the real value of liquid assets held by the personal sector and C_{-1} is the lagged value of real expenditure.

The equation allows for the possibility of a different marginal propensity to consume (MPC) out of agricultural incomes than out of non-agricultural incomes. Variability of income is considerably greater in agriculture. Thus of any increase in income a considerable part of it is likely to be viewed as transitory. Therefore we would expect the marginal propensity to consume agricultural income to be less than that outside of agriculture, i.e., we expect $a_1 < a_2$.

It is likely that further stratification of the personal sector would yield other groups whose spending habits differed. However, the income data is not as readily available as in the case of the agriculture and non-agriculture distinction. In some studies in other countries, the MPC out of income arising from government transfers was constrained to be unity. This, however, has not been done here.

Townend (1976) argues that liquid assets can be included either because of a wealth effect or a portfolio balance effect. Proponents of a wealth effect viewpoint hold that consumer expenditure is influenced not only by income but also by wealth. In this context liquid assets can be included directly in the consumption function, either because they are regarded as a proxy for the total wealth of the personal sector, or because it is felt that the liquid assets are the most important component of wealth in determining consumer expenditure.

The nature of this particular relationship is not altogether clear however. A consumption function implies a savings function and once savings are given the accumulation of total assets is given. In this sense, the causal relationship runs from consumption to assets rather than in the other direction.

The portfolio balance approach holds that there is a desired or equilibrium level of liquid assets that consumers wish to hold for precautionary and transactions motives. If the actual level of liquid assets either falls short of or exceeds this equilibrium level then consumer expenditure will either be constrained or expanded until equilibrium is reached again. This being the case, the consumption function would be of the form

$$C = b_0 + b_1 YA + b_2 YNA + b_3(L\text{-}L^*) + b_4 C_{-1} \qquad (3)$$

where L^* is the desired or equilibrium level of liquid assets. If we assume that L^* is a linear function of income, it can be written as

$$L^* = b_5 + b_6 Y \qquad (4)$$

where Y is total real personal disposable income. Substituting for L^* in equation (3) yields the following relationship,

$$C = (b_0 - b_3 b_5) + (b_1 - b_3 b_6)YA + (b_2 - b_3 b_6)YNA + b_3 L + b_4 C_{-1} \qquad (5)$$

This is identical with the formulation in equation (2) which would arise directly if the wealth effect was assumed to operate. Thus one is unlikely to be able to distinguish statistically between the two hypotheses concerning liquid assets and consumer behaviour.

The final variable included in equation (2) is the lagged value of consumer expenditure. This is an attempt to pick up the lag in the response of expenditures to changes in income. People become accustomed to a certain level and pattern of consumption and take time to adjust to a new level of income. The existence of this lag and the importance of the lagged consumption term has been firmly established in other countries. Ferber (1973), in a survey article on consumer economics, concluded ". . . if one additional thing is clear from the theoretical and empirical work of the last 10–15 years, it is that consumer purchases are best explained in terms of a dynamic view of income. This may be some sort of permanent income concept, a distributed lag view of the world, or something else. However formulated, it is surprising to note how often the testable and successful form of the hypothesis reduces to the inclusion of lagged consumption". One point worth noting, however, is that most of the studies that Ferber refers to are based on quarterly data. Our estimates will be on the basis of annual data and the existence of dynamic behaviour may not be as clearcut.

Consumer expenditures are often estimated with the ratio of consumer expenditure to disposable income being the dependent variable rather than consumer expenditure itself. Equation (5) can be easily written in this form. Remembering that $Y = YA + YNA$.

$$(C/Y) = (b_2 - b_3 b_6) + (b_0 - b_3 b_5)(\mathrm{I}/Y) + (b_1 - b_2)(YA/Y) + b_3(L/Y) + b_4(C_{-1}/Y) \quad (6)$$

In this form, one can readily test the hypothesis that the response of expenditure to changes in agricultural incomes is different to that arising from changes in non-agricultural incomes. This amounts to testing whether b_1 is significantly different from b_2. If the coefficient on YA/Y is not significantly different from zero this implies that b_1 is not significantly different from b_2. A significant negative coefficient, however, would imply the acceptance of the view that the agricultural community has a lower MPC than the non-agricultural community.

III THE EMPIRICAL RESULTS

An attempt was made to estimate equation (6) on Irish data. However, no data are readily available on the liquid asset holdings of the personal sector (L). Of the standard monetary variables, the one that is likely to approximate L most closely is M_2—the broader definition of the money supply. It is possible that this could be improved by adding in data on other liquid holdings for which data are available such as deposits in building societies, Post Office Savings Bank

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deposits, Prize Bonds etc. However, M_2 has been used as a proxy for L throughout this study[1].

All the estimates of equations presented in this paper are obtained by Ordinary Least Squares (OLS) or, in the cases where autocorrelation correction is performed, by direct maximum likelihood methods. Since consumer expenditure is not only determined by income but also is a component of it, OLS estimation of an equation such as (2) will result in biased coefficients. However, when the ratio of consumer expenditure to income is taken as the dependent variable the interdependency between the left-hand-side and the right-hand side variables is considerably reduced. Whereas in (2) when C increases YA and YNA will clearly also increase, it is not so clear that in (6) if (C/Y) changes (YA/Y) will also change as a consequence. Thus by estimating in ratio form the bias is very much reduced.

An estimate of equation (7) is given below, using data up to and including 1974.

$$(C/Y) = 0{\cdot}51 + 79{\cdot}7394(1/Y) - 0{\cdot}277(YA/Y) + 0{\cdot}51(M_2/Y) - 0{\cdot}006(C_{-1}/Y) \qquad (7)$$
$$ (6{\cdot}04) \quad (2{\cdot}18) \qquad (1{\cdot}94) \qquad\quad (5{\cdot}12) \qquad (-0{\cdot}17)$$
$$\bar{R}^2 = 0{\cdot}95$$

From an overall point of view the equation is quite satisfactory with a very high R squared, considering that the dependent variable is expressed in ratio form, and four of the five coefficients being highly significant. The significant negative sign on YA/Y bears out our hypothesis of the agricultural community having a lower marginal propensity to consume. Furthermore, the liquid assets variable is highly significant confirming the results obtained in other countries that the level of holdings of these assets are an important determinant of consumer expenditure. The one unsatisfactory feature of the equation is the insignificant and negative sign on the lagged consumption variable. This suggests that the lag structure implied in equation (6) is not operative in Ireland.[2]

This may not be particularly surprising in that the lag structure in equation (3) implies that consumer expenditure is a geometrically declining distributed lag function of YA, YNA and $(L-L^*)$ with the rate of decay in the weights being identical in each case. One would expect, in fact, the pattern of the lagged response to vary between variables—particularly between agricultural and non-agricultural incomes.

As an alternative a direct search was made for the existence of lags. First, a one-period lag on both agricultural and non-agricultural incomes was postulated. This resulted in the following estimated equation.

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[1]Dowling (1974) has compiled information on liquid assets. Neither this nor data contained in Central Bank Reports refers to the personal sector. Rather it refers to the whole of the private sector.

2. Due to the existence of a lagged dependent variable in (7), as in (1), the Durbin-Watson statistic is not appropriate in this case. Again, using the maximum likelihood programme of Chapman and Fair (1972), the equation was estimated allowing for first-order autocorrelation. The autocorrelation coefficient thus estimated was not, however, significantly different from zero.

$$(C/Y) = 0.62 + 58.91(1/Y) - 0.45(YA/Y) + 0.16(YA_{-1}/Y) - 0.16(YNA_{-1}/Y)$$
$$(5.59) \quad (1.29) \quad (-2.44) \quad (1.27) \quad (-1.44)$$
$$+ 0.55(M_2/Y) \qquad (8)$$
$$(6.03)$$
$$\bar{R}^2 = 0.96 \quad DW = 2.38.$$

Neither lag proved significant and the sign on the non-agricultural variable was negative, which is unacceptable. Secondly, a one period lag on YA with no lag on YNA was tried. The resulting equation was

$$(C/Y) = 0.48 + 59.23(1/Y) - 0.26(YA/Y) + 0.08(YA_{-1}/Y) + 0.55(M_2/Y) \qquad (9)$$
$$(8.63) \quad (1.26) \quad (-1.96) \quad (0.69) \quad (5.77)$$
$$\bar{R}^2 = 0.95 \quad DW = 2.42.$$

Again the lagged variable proved to be insignificant. Accordingly, it is concluded that it is not possible to identify lags in the response of Irish consumers to changes in their incomes from annual data, having already allowed for the effects of liquid assets and the differing MPC's out of agricultural and non-agricultural incomes. It is likely that if quarterly data were available it would be easier to identify these lags.

Given this result on the lag structure, the equation was re-estimated without any lagged variables. The resulting equation was

$$(C/Y) = 0.50 + 80.102(1/Y) - 0.27(YA/Y) + 0.52(M_2/Y) \qquad (10)$$
$$(10.08) \quad (2.26) \quad (-2.07) \quad (6.08)$$
$$\bar{R}^2 = 0.96 \quad DW = 2.64.$$

To calculate from this equation the MPC's out of both agricultural and non-agricultural incomes it is necessary to refer back to equation (6). From this equation and the estimates in equation (10), it can be seen that

$$b_2 - b_3 b_6 = 0.50$$
$$b_1 - b_2 = -0.27$$
$$b_3 = 0.52$$

It can be observed from equation (3) that the MPC's out of agricultural and non-agricultural incomes are given by b_1 and b_2 respectively. To obtain estimates of these magnitudes it is necessary to assume a value for b_6, which is the marginal response of the desired level of real liquid balances to changes in real income. A simple regression of M_2 on Y yields an estimate of 0.5. Using this figure we obtain a value for b_2 (the MPC out of non-agricultural incomes) of 0.76 and for b_1 (the MPC out of agricultural incomes) of 0.49[3]. A weighted average of both yields an estimate of the overall MPC of 0.72

3. As an indication of the sensitivity of the results to values of b_6, increasing (decreasing) b_6 by 0.2 will raise (lower) the values of both MPC's by 0.1.

The Durbin-Watson statistic in the above equation is in the indeterminate region, suggesting the possibility of significant negative autocorrelation. The equation was re-estimated, allowing for first-order autocorrelation. The resulting equation was (where α is the autocorrelation coefficient).

$$(C/Y) = 0.52 + 89.33(1/Y) - 0.287(YA/Y) + 0.48(M_2/Y) \qquad (11)$$
$$ (9.5) \quad (2.10) \quad (-1.71) \qquad (5.47)$$
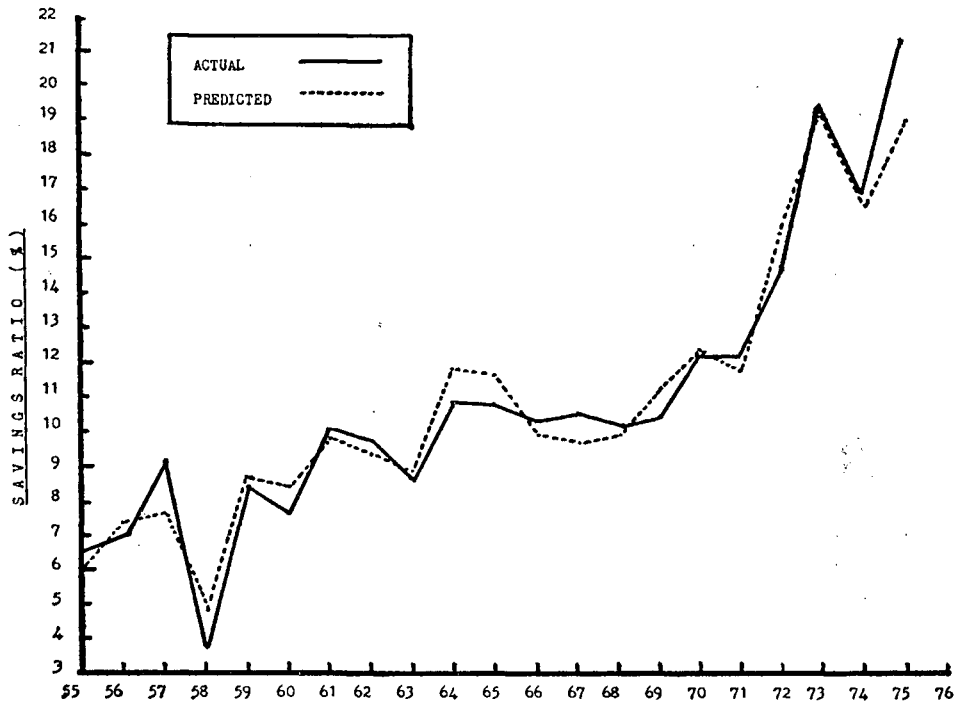$$\bar{R}^2 = 0.97 \quad DW = 2.20 \quad \alpha = -0.35$$

Chart 2: *Actual savings ratio and ratio predicted by equation (11): estimation using data up to 1974*

Chart 2 plots the predicted value of the savings ratio by equation (11) against the actual ratio. Although the equation was estimated on data up to 1974 the predicted and actual values for 1975 are also given. The predicted value was 18.73 per cent while preliminary data indicate that the actual value was 21.44 per cent. A striking feature of this chart is the ability of the equation to track recent developments in the savings ratio. The great upsurge in the ratio in 1972 and 1973 is tracked, together with the temporary decline in 1974 and the very large increase, again, in 1975.

Table 1: *Predicted and actual savings ratio (per cent) 1971-1975*

	Predicted	Actual
1971	11·88	12·29
1972	16·24	14·95
1973	19·90	19·32
1974	17·05	16·75
1975	19·90	21·44

As a further test on the relationship an estimation was performed using the data period up to 1970 and forecasts were generated for the later years. These are presented in Table 1. The estimated equation was

$$(C/Y) = 0.47 + 91.2(1/Y) - 0.34(YA/Y) + 0.56(M_2/Y) \qquad (12)$$
$$ (6.02) \quad (2.14) \quad (-1.94) \quad (4.34)$$
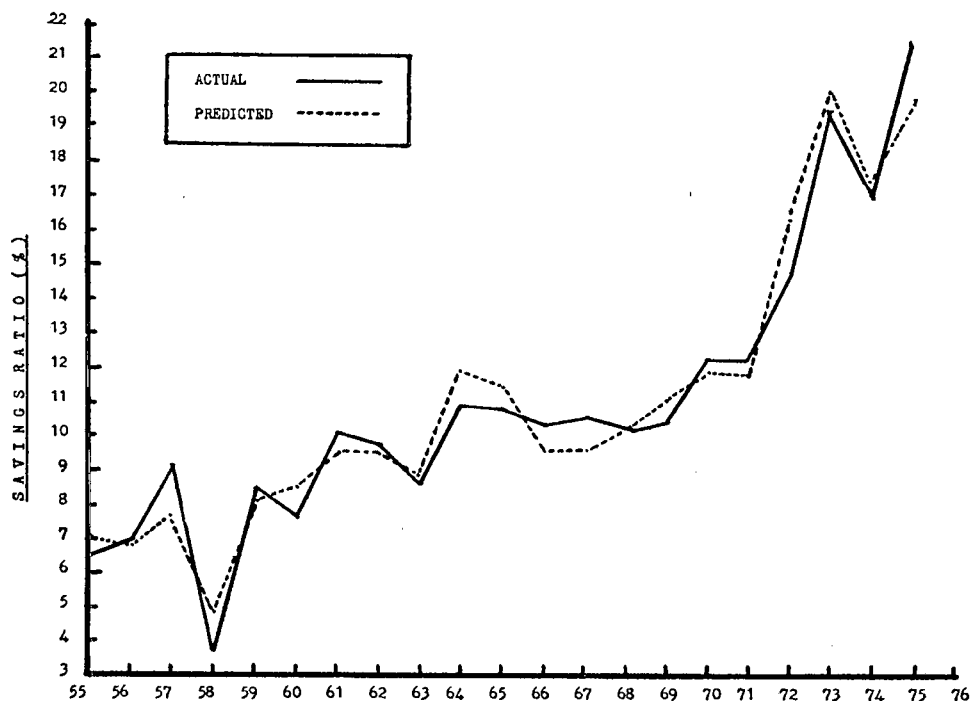$$\bar{R}^2 = 0.86 \quad DW = 2.37$$

Chart 3: *Actual savings ratio predicted by equation (12): estimation using data up to 1970*

Chart 3 plots the actual and predicted values of the savings ratio up to 1975. It can be seen from both Table 1 and this chart that, even though the equation was

estimated in the period before the large changes in the ratio occured, it still tracked the major movements in the ratio. We conclude, therefore, that Irish data confirm the results obtained by Townend (1976) in Britain i.e., a consumption function that allows for the role of liquid assets is capable of tracing recent developments in the savings ratio.

IV MONEY ILLUSION

The discussion so far has taken place completely in terms of real magnitudes. The volume of consumer expenditure has been specified as a function of real incomes and the real value of liquid assets of the personal sector. Thus the absence of money illusion has been imposed on all the estimations so far. It seems worthwhile to test whether this particular hypothesis is confirmed or not by the data.

Branson and Klevorick (1969) found prices to exert a significant independent positive influence on consumer expenditure in the United States. Their argument was a pure money illusion one, in which they asserted that people are more conscious of increases in nominal income rather than increases in the price level, particularly when prices and incomes are rising rapidly.

To take account of this influence the consumption function we have been using should be written in a more general form as in (13)

$$C = a_0 + a_2(YN/P^d) + (a_1 - a_2)(YAN/P^d) + a_3(M_2N/P^d) \qquad (13)$$

where C is the real value of personal consumer expenditure, YN is the nominal value of total personal disposable income, YAN is the nominal value of agricultural disposable income, M_2N is the nominal value of the broader definition of the money supply, P is an index of the price level and d is a coefficient to be estimated. If d is equal to unity, this reduces to the relationship we estimated in equation (10). On the other hand, if d equals zero extreme money illusion exists, where consumers do not observe prices rising at all. If d lies somewhere between zero and unity, then consumers are more conscious of nominal income rising than of prices rising, and thus prices can be expected to exert a positive influence on consumer expenditure. Finally, if d is greater than unity then consumers are more conscious of price increases than increases in their nominal income. In this case, prices will exert a negative influence on expenditure.

Equation (13) is non-linear in the parameter d. An estimate of the other parameters can be obtained by linearising the equation through selecting a particular value for d. A maximum-likelihood estimate of d and the other parameters can be obtained by searching for the value of d which maximises the fit of the linear equation. The result of such a procedure is given in equation (14)

$$C = 73.68 + 0.72(Y/P^d) - 0.46(YA/P^d) + 0.48(M_2/P^d) \qquad (14)$$
$$\quad (2.06) \ (14.10) \quad (-3.3) \qquad (5.21)$$
$$\bar{R}^2 = 0.998 \quad DW = 2.11 \quad d = 0.98$$

The estimated value of d is 0·98 which suggests that money illusion does not exist amongst Irish consumers.

As an alternative to this search procedure, a direct estimation method was employed by re-writing (13) in log-linear form as

$$C = exp(b_0)[YNAN/P^d]^{b_1}[YAN/P^d]^{b_2}[M_2N/P^d]^{b_3} \tag{15}$$

where $YNAN$ is the nominal value of non-agricultural disposable income. This can be rewritten as

$$lnC = b_0 + b_1 lnYNA + b_2 lnYA + b_3 lnM_2 + b_4 lnP \tag{16}$$

where YNA, YA and M_2 are real magnitudes as before, and $b_4 = (1-d)(b_1 + b_2 + b_3)$. It is again clear in this case that if d is less than unity b_4 will be positive and the price level will exert a positive influence on consumer expenditure. If d equals unity, b_4 will be zero and prices will have no effect on expenditure. It is clear also that if d is greater than one, prices will exert a negative influence. Assuming b_1, b_2 and b_3 are all significantly positive, one intuitively feels that a test on whether b_4 is significantly difficult from zero is equivalent to testing whether d differs significantly from unity.

Applying (16) to Irish data the resulting estimation is

$$lnC = 0·94 + 0·38 lnYNA + 0·09 lnYA + 0·44 lnM_2 + 0·06 lnP \tag{17}$$
$$(2·25) \ (5·73) \qquad (3·42) \qquad (5·44) \qquad (1·28)$$
$$\bar{R}^2 = 0·998 \quad DW = 2·56$$

This result seems to confirm the results obtained from the earlier search procedure. The coefficient on $ln P$ is not significantly different from zero, which implies that d is not significantly different from one. Thus it would seem that Irish consumers observe equally well changes in prices and changes in income and that the price level has no long-run effect on the level of consumer expenditure.

In testing for the existence of money illusion amongst Irish consumers so far it has been introduced into the specifications as a long-run phenomenon. It was hypothesised that consumers would continually observe the price level to be different from what it actually was. In the extreme case, where the price level remained stable, people would continue to observe it as being P^d. This seems a somewhat unlikely situation. It is more likely that consumers may initially falsely observe the price level but that in the long run they will tend to adjust to the true situation. Therefore, it is the difference between the observed price level and the actual price level that is important for the level of consumer expenditure. If we assume that this effect can be approximated by including this difference linearly in the consumption function, the relationship should be written as

$$C = a_0 + a_2 Y + (a_1 - a_2) YA + a_3 M_2 + a_4 (P - P^e) \tag{18}$$

where P^e is the observed price level. If we furthermore assume that P^e can be written as a distributed lag function of past actual price levels, $d(L)P$, we can rewrite (18) as

$$C = a_0 + a_2 Y + (a_1 - a_2) YA + a_3 M_2 + f(L)P \tag{19}$$
where $f(L) = a_4(1 - d(L))$.

This relationship was estimated on Irish data allowing the length of the lag to be zero, one and two years. The results were as follows

$$C = 69{\cdot}53 + 0{\cdot}53\,Y - 0{\cdot}21\,YA + 0{\cdot}46 M_2 + 15{\cdot}7 P \tag{20}$$
$$(1{\cdot}84)\ (6{\cdot}63)\ (-1{\cdot}48)\quad (4{\cdot}99)\quad\ (0{\cdot}29)$$

$$C = 78{\cdot}00 + 0{\cdot}54 Y - 0{\cdot}23\,YA + 0{\cdot}46 M_2 + 65{\cdot}18 P - 62{\cdot}28 P_{-1} \tag{21}$$
$$(1{\cdot}60)\ (5{\cdot}96)(-1{\cdot}38)\quad (4{\cdot}46)\quad\ (0{\cdot}40)\ (-0{\cdot}33)$$

$$C = 83{\cdot}59 + 0{\cdot}55 Y - 0{\cdot}21\,YA + 0{\cdot}47 M_2 + 19{\cdot}80 P - 142{\cdot}81 P_{-1} - 222{\cdot}45 P_{-2} \tag{22}$$
$$(2{\cdot}07)\ (7{\cdot}32)(-1{\cdot}50)\quad (5{\cdot}51)\quad\ (0{\cdot}14)\quad (0{\cdot}64)\quad\ (-1{\cdot}27)$$

As can be seen, the coefficients on the price variables never reach any reasonable level of significance. Accordingly, it appears that money illusion does not exist either as a short or a long-run phenomenon amongst Irish consumers.

V CONCLUSION

The purpose of this paper was to establish those factors which are important determinants of Irish consumers' expenditure. Arising out of our investigation, it was concluded that the holdings of liquid assets of the personal sector (for which M_2 was used as a proxy) strongly influence the level of this spending. Standard consumption functions, which do not take account of this factor, badly over-predicted the level of spending both in 1974 and 1975. However, the function estimated in this paper, which allowed for the influence of liquid assets, tracked quite well developments in these two years.

The hypothesis that the marginal propensity to consume out of agricultural incomes was lower than that out of non-agricultural incomes, was also borne out by the empirical work in the paper. This divergence in the propensities to consume was also an important factor in the ability of the function to describe the more recent pattern of consumer behaviour.

Our analysis of Irish annual data suggested that there was no lag in the response of changes in spending to changes in income. It may well be that these lags do exist but are shorter than can be identified using annual data. Or it may be that,

having obtained the information relating to the role of liquid assets and agricultural incomes, it was impossible to squeeze any further information on lag structures out of the data set

Our final hypothesis related to the existence of money illusion. No evidence could be found that such a phenomenon existed either on a long-run or short-run basis. Thus, the consumption function which we found best describes Irish behaviour, includes income and liquid assets and allows for the different MPC's in the agricultural and non-agricultural sectors.

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APPENDIX : DATA USED IN ANALYSIS

	Consumer expenditure	Personal disposable income	Agricultural incomes	M_2	Price index base 1970 = 1·0
1953	381·5	422·5	126·7	331·3	·5384
1954	389·5	424·3	119·0	348·9	·5415
1955	419·9	449·3	130·8	356·7	·5553
1956	420·9	452·7	118·7	350·1	·5717
1957	430·4	473·2	130·7	364·2	·5957
1958	459·2	477·4	119·9	380·6	·6181
1959	465·8	508·9	130·4	384·4	·6206
1960	493·7	534·9	133·4	402·5	·6262
1961	520·6	578·7	139·6	426·5	·6422
1962	560·3	621·4 .	144·0	459·1	·6677
1963	598·0	654·3	141·9	489·3	·6842
1964	666·7	748·8	165·5	528·0	·7314
1965	702·0	788·2	166·7	558·8	·7663
1966	743·5	829·1	159·6	604·4	·7948
1967	794·0	888·3	171·8	655·6	·8194
1968	906·0	1008·0	195·1	746·6	·8623
1969	1028·8	1148·1	200·7	828·4	·9254
1970	1141·3	1299·1	214·3	937·8	1·00
1971	1280·4	1459·8	236·6	1047·2	1·0907
1972	1482·2	1742·7	316·6	1136·0	1·1905
1973	1740·1	2156·9	409·3	1298·9	1·3313
1974	2023·0	2430·0	367·0	1527·2	1·5407
1975	2392·0	3045·0	534·0	1818·5	1·8688

Consumer Expenditure: Personal Consumers' expenditure on goods and services at current prices (£ million).

Personal Disposable Income: Current Prices (£ million).
Agricultural Incomes: Current Prices (£ million).
M_2: Currency plus deposit and current accounts in Associated Banks. Average value throughout the year (£ million).
Price Index: Implied deflator of personal consumers' expenditure. Base 1970 = 1·0.

Sources: Consumer Expenditure, Personal Disposable Income, Agricultural Incomes and Price Index—*Economic Review and Outlook—July 1976, National Income and Expenditure* 1974, 1971, 1969.

M_2: *Moynihan* (1975). Figures for 1971–1975 are obtained from *Central Bank of Ireland Quarterly Bulletin,* Winter 1976, Appendix Table 8. Figures for offsets are added to the published figures for 1971–1975 to ensure consistency.