

THE FINANCIAL ASSETS OF HOUSEHOLDS IN IRELAND

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*THE FINANCIAL ASSETS OF
HOUSEHOLDS IN IRELAND*

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GENERAL SUMMARY

This paper describes how different types of household allocate their financial assets. We look at household characteristics such as wealth, income, age, sex, and socio-economic group and at financial assets from bank deposits and Government savings schemes to equities and life assurance. Though wealth in the form of housing is examined, the focus is primarily on financial assets.

The study is based on a large-scale sample survey carried out during 1987 by the ESRI which collected data on a range of economic and social variables from more than 3,000 households in Ireland. Despite the known reluctance of respondents to reveal financial assets, analysis of the data shows that this sample does provide useful information. Thus, although the aggregate financial wealth implied by the respondents in this sample falls well short of independent estimates of household financial wealth, the sample is not materially worse in this regard than samples analysed abroad. Furthermore, the pattern of financial asset holdings actually reported generally accords with a priori expectations. For this reason, we believe that the patterns displayed by the sample are probably indicative of the population as a whole, except for the very top of the wealth distribution.

Financial assets represent a relatively small fraction of total household wealth. Housing and farmland bulk much larger. Of financial assets, fully two-thirds are in the form of deposits at financial institutions, and three quarters in deposits or in Government small savings schemes.

Tables showing the mean and median holdings of different categories of household are provided. These illustrate the degree to which households with higher income, and with older heads, tend to hold more financial assets. The labour force status of the household is also significantly correlated with financial asset holdings: the retired have median holdings more than 10 times that of the unemployed. Among broad socio-economic groups, median holdings of the professional and managerial and the farmers are a multiple of that of the low-skill group.

Comparatively few households hold more sophisticated assets such as equities or bonds – indeed only 1 in 10 reporting households held any of these. Furthermore even these households did not diversify into different categories of sophisticated assets. Not surprisingly, households with sophisticated assets tended to be in the higher income categories, with

median income 50 per cent higher than the rest. Also their total financial asset holdings were much higher in relation to their income.

In addition to analysing the way in which average holdings of different types of financial assets vary across households of different types, the study attempts to distinguish between the explanatory role of different factors using multiple regression techniques. These suggest that both the level of wealth holdings and of income are important and independent influences on portfolio composition. Broadly speaking, wealthier households hold less of their assets in financial form. Furthermore, among financial assets, they hold a lower proportion of bank deposits and small savings; and a higher proportion of equities and bonds. The influence of income (as distinct from wealth) varies with age; except for households with young heads, higher income is associated with greater emphasis on bank deposits and small savings.

Housing investment, though undoubtedly influenced by other factors, also has a financial aspect. In particular, we find that households facing a higher marginal income tax rate borrow more to pay for more valuable houses. This is undoubtedly related to the favourable tax treatment of home mortgages.

There is also an analysis of overdrafts, term loans and recurrent premium life assurance contracts. The latter do not appear to be treated as close substitutes for other financial assets.

Examination of portfolio composition can throw light on the degree to which households are risk averse, and how this risk aversion varies with wealth. The study illustrates how these questions can be addressed, and obtains the tentative conclusion that risk aversion (measured by the coefficient of relative risk aversion) probably declines with wealth, a finding that has implications for the impact of tax policy on risk-taking.

Chapter 1

INTRODUCTION

This paper presents new information about the composition of the asset portfolios of households in Ireland. Our focus is on financial assets, but we do have some material on housing wealth. The paper does not refer to pension wealth.

The management of household financial portfolios has become considerably more sophisticated in recent years as financial institutions have competed much more actively for resources. Generally higher returns, and other characteristics including tax advantages, and a fuller menu of risk-and-return combinations, have characterised the range of savings products offered to households. While participating financial institutions themselves are able to form some picture of the profile of their own customers, there has not been any systematic overall study of the portfolio choices of households in Ireland.

The growth in household financial assets has been appreciable, doubling in nominal terms between 1985 (when they were probably lower than that year's GNP) and 1990 (when they exceeded GNP by some 20 per cent).¹ These resources are channelled to borrowers whose use of the funds can have a strong influence on investment, productivity and growth. By pooling risks, financial institutions can transform the liquidity and risk characteristics of their assets, and offer households much safer assets than can the individual borrower. In an increasingly open international capital market, it is important to ensure that Irish borrowers are not starved of funds by virtue of Irish household savers being offered more attractive savings media abroad. The ability of the Irish financial institutions to offer the savings media that Irish households want will depend on their knowledge of Irish household preferences in these matters, as well as on the tax and regulatory environment. Thus an understanding of existing or recent household portfolios should help contribute to policy, both of domestic financial institutions and of Government.

¹Estimates from Honohan (1993).

This paper reports the findings of a study on the patterns of portfolio choice of Irish households. To date little has been known about how household financial portfolios vary with household characteristics such as wealth, income, age, sex, and socio-economic group. This study provides an opportunity to explore these matters in some detail. Though we do treat housing wealth briefly, our focus is almost exclusively on financial assets and we do not use data on pension wealth.

The study is based on a large-scale sample survey carried out during 1987 by the ESRI. The survey collected a mass of information concerning income, expenditure, labour force status, occupation and industry, education, assets, use of State services and a variety of measures of attitudes, lifestyle and physical and psychological health, for some 3,294 households. Much of the data collected in this study on matters other than financial holdings has already been analysed and reported,² and the sample has provided a framework for analyzing the impact of policy actions in a variety of fields.³

Although the total financial wealth reported by these households turns out to fall well short of independent estimates, the sample is not materially worse in this regard than samples analysed abroad. Furthermore, the pattern of financial asset holdings actually reported generally accords with a priori expectations. For this reason, we believe that the patterns displayed by the sample are probably indicative of the population as a whole, except for the very top of the income distribution.

In addition to presenting a number of cross-tabulations, showing how average holdings of different types of financial assets vary across households of different types, we attempt to model portfolio selection using multiple regression techniques. It should be pointed out right away that we do not include any information on pension wealth in this study.

To give a flavour of the results, these suggest, for example, that both wealth holdings and income are important influences on portfolio composition. Broadly speaking wealthier households hold less of their assets in financial form.⁴ Furthermore, among financial assets, they hold a lower proportion of bank deposits and small savings; and a higher proportion of equities and bonds. The influence of income (as distinct from wealth) varies with age; except for households with young heads, higher income is associated with greater emphasis on bank deposits and small savings.

²The first major report was Callan, *et al.* (1989), which contains, in Chapter 4, the basic detailed account of the methodology used in collecting the sample.

³Two recent examples are Callan (1991) and Nolan (1991a).

⁴They also hold less in the form of housing: it is the share of business wealth that most notably increases as wealth increases.

Examination of portfolio composition can throw light on the degree to which households are risk averse, and how this risk aversion varies with wealth. The data available to us are not rich enough to allow definite conclusions here, but we illustrate how these questions can be addressed, and obtain the tentative conclusion that risk aversion (measured by the coefficient of relative risk aversion) probably declines with wealth, a finding that has implications for the impact of tax policy on risk-taking.

The presentation of our findings is influenced by the fact that, for a variety of reasons, some financial assets held by households must be treated separately from the others. For one thing, recurring premium life assurance policies represent a financial asset, but one which households appear to treat differently from the rest. Another special area is household current accounts and borrowing: our data here seem likely to combine accounts that are essentially business related with those truly related to household activities. As already mentioned, pension wealth is an important component of wealth, but it is not one on which our data set can throw much light.

The paper is arranged as follows: Chapter 2 briefly reviews the various assets which are being examined, and puts the present study in the context of previous empirical work on asset holdings for Ireland. Chapter 3 provides an account of the sample and the questions asked about financial assets. Chapter 4 describes the main features of household portfolios and presents the cross-tabulations. Chapter 5 reports the regression modelling. Chapter 6 illustrates the economic application of the modelling. We do have data on housing, and though the focus of the paper is mainly on financial assets, we review these data in Chapter 7, and apply a regression analysis to the determinants of the relative share of housing and other assets. Chapter 8 describes the (less complete or interpretable) information that is available on current accounts, debt and life assurance policies, and examines the impact of including these variables in the regression models. Chapter 9 contains some concluding remarks.

Chapter 2

WEALTH AND FINANCIAL ASSETS

Types of Wealth and Their Holders

This paper is chiefly concerned with financial assets. In considering the findings it is important to bear in mind that these represent only a small part of the typical household's aggregate wealth. In addition to financial assets, the household wealth can take the form of ownership of a business (for example a farm enterprise or a shop), a house, land and other tangible property or intangible property (patents and the like). To these may be added the household's stock of human capital, i.e., the present equivalent value of the stream of labour income which the members of the household can expect to earn in the future. Household borrowings need to be netted from wealth holdings in order to arrive at a net wealth or net worth concept.

Incorporated businesses also have wealth holdings, though households generally hold an indirect claim on most of business wealth through ownership of equities and other financial assets. Government wealth holdings are also important, and it has been observed that these too have an impact on household spending power through the services they provide, or by reducing the tax burden that might otherwise be levied. By concentrating on household financial assets here we avoid some of the complex issues of who the ultimate beneficiaries of business and government wealth holdings are. Note however that (although not covered in this paper) households also have quantitatively important pension rights,⁵ effectively representing a type of quasi-financial claim on a pension

⁵Measuring pension claims is a very complex matter. Many firms establish pension funds holding financial assets to meet future claims, but the value of the pension rights promised to employees (in the case of defined benefit pension schemes) may exceed or fall short of the value of the pension fund. In addition many employers (including the Government) do not have a separate fund for pension liabilities. The value of pension funds at end-1987 was about £5 billion, a figure which may be compared with total money supply and liquid assets of about £15 billion at the same date (cf. Honohan, 1992). A comprehensive review of pension schemes in Ireland is contained in Hughes (1992).

fund which, in turn, holds financial and other assets to meet these claims in due course.⁶

Financial Assets in Ireland

The main Irish financial assets⁷ held by Irish households are (1) currency and deposits with the banks, building societies and similar institutions,⁸ (2) Government small savings schemes, (3) other Government securities, (4) shareholdings in enterprises, (5) claims on life assurance companies on foot of savings-related schemes.⁹ This is the broad classification which we follow throughout the paper. There are also fixed interest claims on enterprises (including semi-state bodies), but, though these have grown in recent years, they were small in 1987, the year to which this study refers. In addition, Irish households have claims on the rest of the World.¹⁰

⁶The question of evaluating the role of pension funds in saving and asset accumulation has generated a large international literature, a full review of which is beyond the scope of this paper. A useful survey of the issues, providing further references is Bodie (1990), who points out that occupational pension schemes serve as incentive devices in the labour market as well as reflecting aspects of corporate tax planning. The predominance of defined benefit (as opposed to defined contribution) schemes suggest that the traditional perspective, which argues that the chief role of pensions is to provide insurance against longevity and investment risk, is correct. For high income households which have the discretion to make additional pension fund contributions, these may be important investments at the margin. Whether pensions (or social security) are substitutes for liquid forms of saving is hotly disputed, though in the case of individual retirement accounts in the US the substitutability appears low (Venti and Wise, 1990).

⁷For accounts of the Irish financial system and its evolution see Bourke and Kinsella (1988), McGowan (1990).

⁸Such as the Post Office and Trustee Savings Banks (POSB and TSB), the Government-owned specialised banks ACC and ICC, and the Credit Unions.

⁹Because of good before tax returns, as well as favourable tax treatment, life assurance companies were able to attract considerable savings. In addition to the traditional endowment assurance, offering a payment at a certain future date, or before if the insured person dies, and bought through periodic premium payments, life assurance related savings have been available through a single "premium payment" offering either a return linked to the performance of a managed investment fund ("unit-linked bonds") or a fixed income or capital appreciation ("guaranteed bonds").

¹⁰In 1987, relatively strict exchange controls limited new investment in foreign financial assets. However, households still had holdings dating to before the application of exchange controls to the UK in 1978. Remaining exchange controls were removed in January 1993.

Not all of the assets outstanding under the above headings are directly held by households. For example, enterprises are important holders of bank deposits; assurance companies and pension funds are important holders of Government securities and company equities. In most cases, only rough estimates are available concerning the proportion of these assets held by households.

Several studies have appeared to explain the evolution of aggregate outstanding amounts of various financial assets in Ireland. Browne and Honohan (1988) in particular explained trends in bank and building society deposits, and bank lending, on the basis of interest rate differentials. But the data used did not allow any sectoral breakdown. Browne (1988) and Thom (1990), among others, have studied the evolution of mortgage lending.

The Intersectoral Flow of Funds

By acquiring financial assets, households with a surplus of income over desired expenditure transfer purchasing power to households with a deficit, to the Government, or to enterprises. The financial assets acquired may directly represent the liability of the ultimate user of the funds (as in the case of shareholdings in a company) or that of a financial intermediary which in turn will lend to the ultimate user of funds (bank deposits). The Government is both a final user of funds and an important financial intermediary in that it onlends a significant¹¹ portion of its borrowings.

This intersectoral flow of funds in Ireland has been described and quantified in a number of studies over the years (Dowling, 1973; Honohan, 1982b; O'Connell, 1986; Honohan, 1992, 1993); data for most of the OECD countries appears in United Nations (1991), and for a selection of developing countries in Honohan and Atiyas (1993). No systematic study of the aggregate claims outstanding between sectors has been published for Ireland (for the UK see Revell, 1967; for other countries see the World Bank, 1989).

Scope of the Present Study

This paper is concerned with examining how households allocate wealth as between financial and non-financial assets, and how their financial wealth is apportioned between different categories of financial assets. A given household will make these choices on the basis of a variety

¹¹Though recently reduced as a result of the new policy of making grants instead of subsidised loans to local authorities for housing and other capital services.

of considerations, not all of which will be evident from the sample survey data. As a result, only a small proportion of the variations between the portfolios of different households can be explained by measured characteristics.

The economic theory of household saving behaviour emphasises the desire to smooth consumption over the life-cycle and over transitory shocks in income, as well as the desire to make bequests, as important determinants of saving. The form in which household assets are held will depend on characteristics of expected after-tax return, risk, liquidity and transactions costs. Different assets present a trade-off between these characteristics to which households will respond depending on their particular circumstances. Thus households which are more risk-averse will tend to choose less risky assets; households which are liable to fluctuations in their income will choose assets with high liquidity; wealthy households will be prepared to incur fixed transactions costs involved in holding a greater variety of assets, or more sophisticated assets.¹²

Although the wealth variables that we use do include housing, farmland and the value of businesses, we focus mainly on financial assets. It is likely to be easier to explain or model household choices between different financial assets than the allocation of their wealth between financial and non-financial assets. For one thing, measurement of non-financial wealth is considerably less reliable than financial wealth, especially for human wealth (i.e., the present value of future earnings potential). Furthermore, households may experience some constraints in reaching the desired balance between financial and non-financial wealth. To begin with, much of non-financial wealth may not be readily sold, or mortgaged: this is likely to apply to much of human wealth, as well as the value of small businesses owned. Likewise, households may experience borrowing constraints so that it may not be possible for them to achieve the portfolio structure they would like to have. Finally, investing in many types of non-financial wealth, including owner-occupied homes and human capital, is done in order to obtain non-financial benefits.¹³

These considerations also explain why we look not only to the households net wealth as a scale variable in explaining the portfolio, but also to financial wealth and income.

¹²Inertia and transactions costs will inhibit households from reaching a theoretically ideal portfolio, but the systematic tendencies we have described should appear on average.

¹³The question of whether portfolio allocation among financial assets can be analyzed independently of other non-financial assets is further considered in Chapter 7 below.

We focus in particular on the choice between two classes of financial assets, which we term "basic" and "sophisticated" assets respectively. The basic, or traditional, assets comprise deposits and small savings; the sophisticated assets are the others – Government securities (gilts), equities and "bonds".¹⁴ The labels basic and sophisticated could be questioned, but they are probably more precise than alternative ways of summarising the differences such as riskiness or liquidity (though in Chapter 6 we will use a "riskiness" interpretation).

In summary then, the wealth of the household (as defined), together with its current income and the tax rate it faces, should help to explain its financial portfolio on the basis of variations in the household's willingness and capacity to absorb risk, and on the after tax returns presented to it by different savings media. As a household passes through its life-cycle it may be expected to go successively through periods of accumulation and then decumulation of financial assets, with the greatest stock of assets just before retirement of the household head. In addition, households may differ in their willingness to save (rate of time-preference) and risk-aversion, depending on measurable socio-economic factors.¹⁵

Comparison with International Empirical Literature

The international empirical literature on the composition of household portfolios can usefully be divided into three categories based on whether the studies use data on a single cross-section (as here), or on a time series (including a time series of cross-sections or panel data). Most of the recent literature focuses on the latter, and is concerned with estimating the sensitivity of the aggregate portfolio to changes in yields, covariances or other varying aspects of the external environment.¹⁶ Obviously, that part of the literature is not closely related to the present study.

There is a series of important descriptive papers on the US Survey of Consumer Finances, beginning with Projector and Weiss (1966), and including Avery *et al.* (1984a, b, 1988), Avery and Elliehausen (1986) and Kennickell and Shack-Marquez (1992). These data have been used as the basis for several of the econometric studies.

¹⁴These "bonds" (i.e., guaranteed income or growth bonds, or unit-linked bonds) are those reported in Question 8 from the list presented in Chapter 3 below.

¹⁵In other words households' intertemporal utility functions may vary systematically with observed characteristics.

¹⁶Of course, there is also a large literature on saving and wealth formation of households, some of which also uses cross-section data, cf. Hayashi (1985), for example.

Among the small collection of econometric papers dealing with a single¹⁷ cross-section, Uhler and Cragg (1971) focused on the fact that many households were incompletely diversified, i.e., that they held only a subset of all possible categories of financial asset. Their approach to this problem was to estimate equations predicting the degree of diversification, as well as equations predicting the various asset demands, conditional on degree of diversification.

Friend and Blume (1975) noted that portfolio composition could throw light on risk aversion, in that a more risk averse household would tend to hold a riskier portfolio. They grouped assets into three risk classes and, using data on average return and risk in the market, estimated both the average degree of risk aversion and how it varied with wealth for their sample of US households in 1962.

Taxation did enter into Friend and Blume's analysis, but it is central to Feldstein's (1976) paper, which was also based on the 1962 survey. He estimated the responsiveness of portfolio shares to a household's taxable income and thus to its marginal tax rate. Even though he only had one cross-section, the fact that marginal tax rates vary among households allowed Feldstein to infer (under fairly strong assumptions) the elasticity of demand for different assets with changes in their relative net yield. He found relatively high tax and *a fortiori* rate of return effects.

Two other papers should be mentioned. Shorrocks (1982) presented estimates of the sensitivity of portfolio composition to age and wealth, using data drawn from estate duty files (i.e. from the composition of portfolios measured at death). King and Leape (1984) can be seen as an attempt to combine the concern of Feldstein with taxation with the attention given by Uhler and Cragg to incomplete portfolios; it provides probably the most comprehensive framework for econometric analysis of this type of data.

¹⁷Actually Uhler and Cragg used three cross-sections, but these were simply pooled and the time dimension was ignored.

Chapter 3

THE SAMPLE

The Sampled Households

The sample comprises 3,294 households who were interviewed during 1987. These were drawn from a larger sample of whom 1,246 households refused declined to be interviewed and 598 households could not be located or interviewed for some other reason. This non-response rate, somewhat higher than normal for ESRI surveys, is not out of line with US experience with income and wealth surveys. The sample has been reweighted to correct for non-response bias. Some 205 households have to be omitted from the data in the present paper because they refused to answer questions on asset holdings¹⁸ That leaves us with 3,089 observations.

That the ESRI sample is a representative one has been verified by comparing the responses with independent information about the population along a number of dimensions – composition by age and sex, number of household members at work in different occupational and industrial sectors, range of taxable income, use of State health services among others. It was this good experience with the sample in other fields which encouraged us to extend the analysis into the structure of financial asset portfolios, despite the knowledge that responses to questions concerning wealth are known to pose particular problems in this kind of survey.

The Questionnaire

The questions on savings and assets included in the survey came at the end of a lengthy questionnaire. There were twelve questions, some of them broken into sub-sections as set out in Annex 1. Apart from Questions Nos. 1 and 10, these asked about the current value of various assets. The twelve questions related to:

1. Income from deposits with financial institutions and from Government savings schemes.

¹⁸These missing 205 households were widely distributed in terms of income, but about 30 per cent were from the two highest income deciles (Nolan, 1991b).

2. Deposit balances with financial institutions. Respondents were asked separately about (a) building societies, (b) POSB and TSB, (c) deposits other than "cheque book accounts" with banks, ACC, ICC and credit unions, etc.
3. Savings Certificates¹⁹ and Index-linked Savings Bonds.²⁰
4. National Instalment Savings.²¹
5. Prize bonds.
6. (a) Government and other official stocks; (b) "Shares and securities".
7. Other investments held on behalf of children.
8. "Once-off or lump-sum investments in deposit or investment bonds, guaranteed income bonds, growth bonds, or other unit-linked funds".
9. Land or property other than principal residence.
10. A question on gifts and inheritances received.
11. Current (cheque-book) accounts.
12. Other property or savings not already mentioned.

In addition, other sections of the questionnaire elicited other relevant information concerning residential property, life assurance, and borrowings.

¹⁹Savings certificates are a Government-guaranteed savings medium bearing tax-free interest. Interest is accrued half-yearly and the rate of interest increases slightly the longer the certificate is held. Interest rates are fixed at the time of investment; these rates are not adjusted for new investments as frequently as is the case with bank and building society deposits; a change in the rates is referred to as a new "issue" of savings certificates. Typically the interest yields on savings certificates have tended to be set so that they are roughly equivalent for a standard income tax rate payer to the net rate on building society deposits; this is also true (because of the retention tax on deposit interest) for most zero-rate taxpayers, or for persons who do not declare interest income to the tax authorities. For those paying a higher rate of income tax the savings certificate offers a higher net yield. The maximum holding of a given issue of savings certificates in 1987 was £25,000 (1993: £40,000) per person. Certificates may be cashed at any time, but with a delay of seven working days.

²⁰Savings bonds differ only slightly from savings certificates: they may be bought only in multiples of £50; interest accrues monthly (but no interest is payable if the bond is encashed within the first year); and there is an inflation-proofing guarantee. The ceiling on holdings in 1987 was £25,000 (1993: £40,000).

²¹Instalment savings involve paying a fixed monthly amount (of between £10 and £200) for twelve months. Interest is paid at a rate broadly similar to that available on savings certificates, but no interest is payable until twelve months after the year of saving.

Chapters 3-6 analyze the answers given to Questions 2-8 above and thus focus exclusively on financial assets. Within this class there are at least three noteworthy omissions: currency, current (cheque-book) accounts and recurring premium life-assurance related assets.

Currency is not included; no question was asked in the survey about currency holdings.

Current accounts are excluded from the analysis of Chapters 3-6. Interpreting the answers given about cheque-book accounts is complicated by several factors. For one thing, many self-employed appear to use one account for both business and personal purposes: this makes it difficult to infer what are to be regarded as household holdings and what part of the current assets of the business. For another, the sharp fluctuations in current account balances and the uncertainty surrounding uncleared cheques make aggregation especially tricky.

Though item 8 above covers single premium assurance related savings, it does not refer to the value of life assurance assets based on recurring premiums. The survey did include questions which should allow inferences about the value of assets based on savings-related life assurance policies, and this is discussed in Chapter 8. Financial liabilities are also left to Chapter 8.

It is important to note that the total wealth variable which we use (in analyzing the portfolio choices) includes (as well as financial assets) wealth in the form of land and property (including farmland) and the value of business owned by the self-employed. Except in Chapter 7 (where we are specifically interested in the mortgage debt) the total wealth variable is net of mortgages owed by owner-occupiers and debt owed by farmers.²²

Elements of Wealth Omitted

It is worth stressing that important types of asset holdings that are not covered by this study.

First, business wealth, and other assets held in the form of property (other than the principal residence) are not included, because of our focus on financial assets. Data obtained for the 1987 sample on the value of farm land and other business wealth have been analyzed elsewhere (Nolan 1991b). We do include a discussion of residential property, the most important form in which non-human wealth is held, in Chapter 7.

²²A description of the distribution of total wealth and its components is contained in Nolan (1991b).

Second, we do not cover pension entitlements payable on retirement though these constitute an important asset for many employees. The 1987 sample obtained information suggesting that about half those who were working as employees when sampled had such entitlements associated with their job. Methods of valuing such entitlements to obtain a more comprehensive picture of the distribution of total wealth have been developed elsewhere, and it would be interesting to explore their application in an Irish context. At the same time, the typical pension entitlement is quite illiquid and cannot easily be converted into other forms of savings. This applies with even more force to the social security "wealth" represented by people's entitlements to pensions and other benefits from the social welfare system.

Date of Sample

A final caveat regarding the year in which the sample was taken. It is hard to say just how representative 1987 was. To take just one example, it was a time of stock market buoyancy and there was a considerable marketing effort on behalf of collective investment media. Investment patterns can change from year to year, affecting portfolio shares as well as flows.

Comparing Reported Holdings with Independent Totals

Grossing-up reported holdings to arrive at figures corresponding to the total population we find that, as expected, there is a sizable discrepancy between the reported total holdings of a number of financial assets and independent indicators of the relevant aggregates. Table 3.1 reproduces a comparison with independent estimates from Nolan (1991b).²³ The figure of 41 per cent included in this table for household deposits may be on the high side,²⁴ though the actual percentage is unlikely to be much below 30

²³No comparable independent estimate of aggregate household equity holdings (including foreign equities) is available; our grossed-up sample of equity holdings comes to about 40 per cent of the estimate of household holdings of Irish company securities presented in Honohan (1992).

²⁴The grossed-up sample total is £2.06 billion which is compared with an external total of £5 billion proposed in Nolan (1991b). The external total was arrived at by taking 40 per cent of resident deposit accounts in licensed banks (0.4 times £6.5 billion = £2.6 billion; newly published data from the Central Bank showing a breakdown of licensed bank residents' deposits by sector in 1990 allocates 41 per cent to the personal sector) plus 60 per cent of resident building society shares and deposits (0.6 times £2.9 billion = £1.7 billion) plus 60 per cent of deposits in the POSB and TSBs (0.6 times £1.0 billion = £0.6 billion), all at end-December 1986. There are no published data on the sectoral breakdown for non-bank deposits, but it is generally believed that the share of households is much higher than for banks: the figure of 60 per cent is arbitrary, and may be on the low side. At the other extreme one could allocate all of the building society, etc., deposits to households (as is done in Honohan, 1992). Also no explicit allowance is made for credit union deposits.

per cent. The proportion for Government securities and small-savings schemes is even lower: the grossed-up sample figure, is £0.36 billion, or 25 per cent of an externally estimated²⁵ total of £1.4 billion.

Table 3.1: *Financial Assets Reported in ESRI Sample Compared with Independent Estimates*

<i>Millions of pounds</i>	<i>Grossed-up Sample</i>	<i>Independent Totals+</i>	<i>Sample as % Total</i>
Deposit accounts*	2,060	5,000	41
Government obligations of which:	357	1,427	25
Savings Certs etc.**	200	901	22
National Instalment Savings	38	108	35
Prize Bonds	25	78	32
Government Securities	94	340	28

+Based on balance sheet aggregates

*At banks, building societies, POSB and TSB

**Savings certificates and index-linked savings bonds

That our sample seems to capture such a low proportion of total holdings is somewhat disappointing, but to be expected in the light of experience abroad with survey data. In fact the discrepancies are not materially larger than have been experienced by the main survey work in the US and the UK. Table 3.2 displays the comparisons that can be made with the two main US surveys, carried out for the Federal Reserve Board in 1963 and 1983. Only when augmented by a special non-random sample of high-income households did the 1983 FRB survey identify a much higher proportion of the household assets.

Although sample surveys are prone to underreporting, the main alternative source of cross-sectional information which has been used in other countries – i.e., information about estates collected by the tax authorities (cf. Shorrocks, 1982) – is equally problematical. While non-response is much less of a problem for the larger estates, and response bias may be less, estate duty tends to miss households with small wealth holdings, and of course it provides little complementary information other than age and sex of the dead person.

²⁵£1.4 billion is the total outstanding at end-1986 in Savings Certificates and Index-Linked Savings Bonds; National Instalment Savings; and Prize Bonds plus the nominal holdings (not market value) of Government Stock by the Personal Sector at June 1987 as reported in *Central Bank Quarterly Bulletins*.

The source of the underestimate can be broken down as follows. First, above average asset holdings by (a) those who refused to respond to the survey as a whole and (b) those who refused to answer the asset questions (non-respondents). Second, false zeros (non-reporters) for (a) all asset items or (b) some asset items. Third, underreporting of non-zero asset holdings.

Table 3.2: *Underreporting of Financial Assets in Sample Surveys*
International Comparison

Selected assets	(Crossed-up sample as % of independent estimate of total)				
	ESRI	FRB (1963)	FRB (1983)	FRB Augmented	Oxford
1 Savings Deposits	41	50	44	44	24-52
2 Savings Certs etc	22	57	38	40	50
3 Other Government Debt	28	24	29	39	
4 Equities		47	46	78	
All Financial Assets		51	57	73	

Notes: The two FRB studies are the surveys of the financial characteristics of consumers carried out by the Federal Reserve and other agencies of the US Government in 1963 and 1983. The latter survey was augmented by a special supplementary oversampling of high-income households.

The Oxford Savings Survey (Hill, Klein and Straw, 1955) was conducted in 1953.

Asset definitions are comparable only in a broad sense:

- 1 Oxford: lower figure is building society a/cs; higher is bank and post office
- 2 US surveys refer to US Savings bonds.
- 3 US Surveys refer to Other Federal Obligations
- 4 US Surveys: "Corporate Stock"
- 5 The high percentages for total financial assets in the FRB surveys result from overstatement of some assets offsetting understatement in others.

US studies (Ferber, 1965; Ferber *et al.* 1969a and b) suggest a definite pattern of underreporting of wealth in US surveys. Based on a sample of households for whom asset information was known from bank records, they report that failure to report ownership of an asset is by far the most important source of error on average. For savings accounts, for example, 1 in 3 of holders reported no holdings to the US survey. On the other hand, the average amounts reported by those who acknowledged holdings were almost exactly equal to the true average holdings, with overstatement of small accounts being offset by understatement of large. The second most

important source of error was the fact that non-respondents were much more likely to have substantial savings account balances than respondents: those with savings balances greater than \$5,000 (in 1963) were twice as likely to refuse to respond as those with less than \$1,000.

While we do not know if this pattern of underreporting extends to the ESRI sample, it is worth bearing these findings in mind when interpreting the evidence in our sample. In particular, it may be best to pay more attention to households who report some holdings than to those who report none. Predicting the total financial holdings of non-reporters from an equation relating household characteristics to holdings of reporters (thereby assuming that all respondents have some holdings) results in a 50 per cent increase in grossed-up total holdings in our sample.²⁶ To the extent that the missing assets relate to non-reporters and non-respondents, results relating portfolio choice to household characteristics need not be biased if they are based on information from reporters only.²⁷

²⁶Furthermore, this does not make any allowance for the possibility that the 205 non-respondents to the asset section of the questionnaire, and the 1,246 non-respondents to the overall survey, could have had above-average wealth holdings.

²⁷This, of course, contrasts with questions about the distribution of the total stock of assets between, for example, high income and low income households. The answers to such questions would probably be biased by non-response and non-reporting, as was the case in the US studies to which reference has been made.

Chapter 4

THE PATTERN OF HOUSEHOLD PORTFOLIOS

Main Characteristics (Table 4.1)

A general perspective of the characteristics of the sample is presented in Table 4.1.

Financial assets form only about 8 per cent of total wealth (as defined here): most of remainder is either housing (55 per cent) or farmland (25 per cent). More details about the non-financial elements is contained in Nolan (1991b). Of the financial assets, fully two-thirds are in the form of deposits at financial institutions (not including current accounts or notes and coin), and three-quarters in the forms we have described as "basic".

Over two-thirds (68.7 per cent) report some financial assets. It should be recalled once more that, for present purposes, financial assets do not include current accounts at banks or notes and coin. A considerably smaller percentage (56.5 per cent) report bank deposits (other than current accounts), and 45.5 per cent report small savings (e.g., Savings certificates, POSB or prize bonds). Note that this implies that two-thirds of holders of either deposits or small savings have only one or the other and not both.²⁸

Of particular interest are the three categories of more sophisticated assets: gilts, equities and "bonds". A rather small proportion of households report holdings of these sophisticated assets. Only 7.0 per cent of the sample reported any of them, with the greater proportion of these having equities (4.8 per cent). As shown in Table 4.6, very few households indeed hold all three categories of sophisticated asset, gilts, equities and bonds. Of those holding sophisticated assets, only 1 in 5 have holdings in more than one of the three categories; those who have more than one have equities and either gilts or bonds.²⁹

²⁸Cf. Table 4.7. The number of households holding different combinations of assets is set out in Table 4.6 (for the three sophisticated assets) and Table 4.7 (for basic and sophisticated assets).

²⁹No household reported having both gilts and bonds but no equities.

Table 4.1: *Household Financial Assets*

	<i>Basic Assets</i>			<i>Sophisticated Assets</i>			<i>All</i>	
	<i>Deposits</i>	<i>Small Savings</i>	<i>Any/All</i>	<i>Gilts</i>	<i>Equities</i>	<i>Bonds</i>		<i>Any/All</i>
1 % of households	56.5	45.5	68.3	1.4	4.8	2.3	7.0	68.7
2 mean holding	4.13	0.72	3.89	7.15	10.60	15.72	13.78	5.28
3 median holding	1.25	0.03	0.98	2.00	1.35	10.00	3.00	1.25
4 median income	13.80	14.13	13.36	18.34	20.96	17.80	19.44	13.36
5 median assets	1.66	1.18	1.25	20.15	8.10	22.76	12.26	1.25
6 share of top 10%	21.8	27.9	22.5	32.1	43.7	14.5	30.3	24.4
7 share of top 2%	8.4	7.2	8.2	1.4	17.2	2.1	9.1	8.5
8 % of financial	67.0	8.5	75.4	2.9	11.5	10.2	24.6	100.0
9 % of total	5.5	0.7	6.1	0.2	0.9	0.8	2.0	8.1

1 Percentage of households holding this asset

2 Mean holding for holders (£000)

3 Median holding for holders (£000)

4 Median household income of holders (£000 per annum)

5 Median financial assets of holders (£000)

6 Per cent of reported holdings held by top 10% of income distribution

7 Per cent of reported holdings held by top 2% of income distribution

8 Per cent of total financial assets held in this form

9 Per cent of total assets (including housing, farmland and businesses) held in this form

Table 4.2: *Household Assets: Types of Assets*

	Basic Assets			Sophisticated Assets			All Assets		
	% holding	mean	median	% holding	mean	median	% holding	mean	median
INCOME DECILE									
Bottom	49.5	2,576	410	2.4	(2,114)	(570)	50.5	2,627	410
2	48.2	3,843	875	3.6	(6,608)	(3,750)	48.2	4,342	915
3	51.9	2,132	625	2.1	(9,750)	(7,500)	51.9	2,525	635
4	56.7	2,813	625	2.7	(2,598)	(350)	56.7	2,938	628
5	57.4	3,170	655	4.4	15,835	2,700	58.0	4,323	675
6	71.6	2,733	875	5.0	14,862	6,000	71.6	3,771	875
7	75.0	2,926	875	4.6	6,905	1,750	75.3	3,342	875
8	80.8	3,674	1,255	8.4	11,565	4,000	81.4	4,846	1,282
9	80.9	5,051	1,275	12.8	14,783	4,000	81.2	7,366	1,762
Top	87.1	6,561	2,000	17.1	18,303	3,000	87.6	10,092	2,300
AGE									
0-25	47.4	1,939	1,398	0.0			47.4	1,939	1,398
25-34	61.1	2,302	625	6.4	3,872	1,200	61.5	2,687	630
35-44	66.5	2,936	675	7.2	14,821	1,000	66.8	4,524	960
45-54	73.4	3,005	652	7.0	7,550	2,500	74.1	3,697	832
55-64	71.5	5,020	1,255	6.8	18,748	4,134	71.8	6,782	1,265
65-74	71.1	5,496	1,315	8.5	20,768	10,000	71.1	7,986	1,568
75+	61.2	4,850	2,000	5.8	12,828	5,000	61.2	6,067	2,005
SOCIO-ECONOMIC GROUP									
Farmers	68.9	3,714	1,250	7.8	4,796	1,350	69.5	4,218	1,255
Prof/Managerial	86.1	6,526	2,000	17.2	22,796	7,250	86.5	11,024	2,100
Intermediate*	68.0	3,064	840	4.8	9,409	2,500	68.2	3,717	875
Low skill**	52.6	2,823	625	2.3	9,834	1,000	52.7	3,240	625
LAB FORCE STATUS									
Retired	70.8	6,122	1,858	9.3	27,340	16,000	70.8	9,731	2,000
Self-employed	74.4	4,725	1,270	9.7	11,658	1,688	75.0	6,199	1,430
Home duties	53.1	3,719	1,035	3.6	13,830	3,400	53.1	4,660	1,055
Employee	77.7	3,049	888	7.7	7,910	2,000	78.2	3,808	1,112
Ill	49.0	2,665	475	2.0	(20,225)	(20,000)	49.0	3,508	475
Unemployed	41.7	1,080	150	0.7	(6,442)	(6,442)	41.7	1,185	150
TENURE									
Own outright	71.4	5,144	1,270	8.7	15,904	4,750	71.8	7,034	1,375
Own w/mortgage	76.1	2,786	825	7.7	10,783	2,000	76.3	3,864	900
Rented	64.4	3,295	1,362	4.1	(8,083)	(8,500)	65.1	3,771	1,540
Local Authority	38.7	1,010	255	0.2	(1,200)	(1,200)	39.0	1,011	260

*Intermediate non-manual and skilled manual

**Semi-skilled or unskilled manual

() denotes cell-size less than 10.

Table 4.3: Household Assets: Specific Assets

	% Holding					Mean Holding					Median Holding				
	Small		Gilts	Equities	Bonds	Small		Gilts	Equities	Bonds	Small		Gilts	Equities	Bonds
	Deposits	Savings				Deposits	Savings				Deposits	Savings			
INCOME DECILE															
Bottom	35.4	33.0	0.9	0.9	0.5	3.5	0.1	(1.2)	(0.1)	(8.0)	1.3	0.02	(1.2)	(0.1)	(8.0)
2	36.8	30.0	0.9	2.3	0.9	4.8	0.3	(1.5)	(3.0)	(17.5)	1.9	0.02	(1.5)	(3.0)	(17.5)
3	39.0	31.0	0.0	0.8	1.4	2.6	0.3		(5.2)	(12.0)	0.9	0.02		(5.2)	(11.5)
4	46.1	35.2	0.0	2.4	0.3	3.1	0.5		(1.8)	(7.8)	1.3	0.02		(0.2)	(7.8)
5	46.3	34.6	1.3	2.7	1.3	3.6	0.5	(19.7)	(4.9)	(22.0)	1.3	0.02	(18.2)	(1.2)	(18.0)
6	57.2	45.0	0.6	1.9	2.8	3.1	0.4	(0.7)	(5.3)	(22.7)	1.3	0.02	(0.7)	(0.4)	(24.0)
7	63.7	48.8	0.9	3.5	1.2	2.9	0.7	(2.3)	4.6	(12.0)	0.9	0.03	(1.0)	1.1	(14.0)
8	68.0	57.0	1.7	6.7	2.6	3.6	0.9	(12.8)	8.0	(8.2)	1.3	0.03	(3.3)	1.3	(5.0)
9	70.6	56.0	2.7	8.4	4.4	5.1	0.9	3.7	14.7	12.6	2.0	0.03	3.0	1.2	10.0
Top	76.5	65.8	3.2	12.6	5.4	6.4	1.3	7.2	14.7	19.0	2.0	0.03	1.0	2.0	10.0
AGE															
0-25	47.4	21.0	0.0	0.0	0.0										
25-34	54.0	34.5	0.9	4.6	1.1	2.4	0.4	(2.4)	2.1	(11.9)	0.6	0.02	(2.3)	0.8	(8.0)
35-44	53.4	46.0	1.1	6.1	0.9	3.3	0.4	(2.1)	16.1	(6.2)	1.3	0.03	(1.1)	1.0	(7.0)
45-54	60.2	47.8	0.9	4.8	2.2	3.3	0.4	(14.9)	3.3	10.5	1.1	0.02	(2.2)	1.0	5.0
55-64	58.6	51.8	1.6	4.6	2.9	5.4	0.8	6.2	15.8	15.7	2.0	0.02	1.8	2.0	12.5
65-74	57.5	50.3	2.0	4.5	4.5	5.4	1.6	9.7	13.5	21.3	2.0	0.03	1.8	6.5	12.0
75+	51.8	35.3	2.2	3.1	2.2	5.6	0.3	(4.0)	(9.7)	(15.8)	2.1	0.02	(4.1)	(1.3)	(10.0)
SOCIO-ECONOMIC GROUP															
Farmers	56.7	45.0	1.4	6.7	1.4	4.3	0.3	(8.4)	2.1	(8.7)	1.8	0.02	(2.0)	1.0	(5.0)
Prof/Manager	71.3	68.0	3.5	11.5	6.4	6.5	1.4	3.2	22.1	19.5	2.0	0.05	1.8	5.0	10.0
Intermediate*	56.6	42.8	0.7	2.7	2.1	3.2	0.6	12.2	4.3	11.8	1.3	0.03	3.0	0.8	6.0
Low skill**	42.7	32.3	0.0	1.2	0.4	3.2	0.4	(9.0)	(0.4)	(40.0)	0.9	0.02	(1.0)	(0.5)	(40.0)

Table 4.3: Household Assets: Specific Assets – continued

	<i>% Holding</i>					<i>Mean Holding</i>					<i>Median Holding</i>				
	<i>Deposits</i>	<i>Small Savings</i>	<i>Gilts</i>	<i>Equities</i>	<i>Bonds</i>	<i>Deposits</i>	<i>Small Savings</i>	<i>Gilts</i>	<i>Equities</i>	<i>Bonds</i>	<i>Deposits</i>	<i>Small Savings</i>	<i>Gilts</i>	<i>Equities</i>	<i>Bonds</i>
LAB FORCE STATUS															
Retired	58.4	47.9	2.2	4.4	6.0	5.9	1.8	8.5	22.8	23.0	2.0	0.04	3.6	9.8	15.5
Self-employed	60.7	51.3	2.4	8.3	1.6	5.4	0.5	5.8	10.3	8.9	2.0	0.03	1.6	1.0	5.0
Home duties	43.7	32.1	1.4	1.4	1.1	4.3	0.3	(19.4)	(0.4)	(19.7)	1.3	0.02	(3.4)	(0.2)	(10.0)
Employee	66.4	52.8	0.9	5.4	2.2	3.1	0.6	2.9	7.5	8.1	1.3	0.03	2.2	1.6	5.0
Ill	37.8	28.7	0.0	0.5	1.5	3.3	0.3		(0.9)	(26.7)	0.9	0.02		(0.9)	(20.0)
Unemployed	30.2	25.4	0.0	0.3	0.4	1.1	0.4		(0.2)	(12.6)	0.4	0.02		(0.2)	(12.6)
TENURE															
Own outright	57.8	50.1	1.9	5.6	3.4	5.5	0.9	9.0	10.6	18.0	2.0	0.03	2.0	1.3	11.0
Own w/mortgage	64.7	51.2	1.3	5.5	1.8	2.9	0.5	2.9	11.2	9.7	1.1	0.03	2.0	1.4	7.0
Private Rented	57.5	32.9	0.0	3.4	1.4	3.5	0.2		(5.7)	(10.0)	2.0	0.02		(7.0)	(10.0)
Local Auth	30.5	18.4	0.0	0.2	0.0	1.2	0.1		(1.2)		0.6	0.02		(1.2)	

*Intermediate non-manual and skilled manual

**Semi-skilled or unskilled manual

() denotes cell-size less than 10.

Table 4.4: *Disposition of Wealth by Income Decile*

	<i>Mean percentage of wealth held in</i>					<i>Mean percentage of financial assets held in</i>			
	<i>Deposits</i>	<i>Small Savings</i>	<i>All Basic Assets</i>	<i>Soph. Assets</i>	<i>All Fin Assets</i>	<i>Deposits</i>	<i>Small Savings</i>	<i>All Basic Assets</i>	<i>Soph. Assets</i>
Decile:									
Bottom	2.9	0.1	3.0	0.1	3.1	93.5	3.2	96.8	3.2
2	7.3	0.2	7.5	0.6	8.1	90.1	2.5	92.6	7.4
3	4.5	0.4	4.9	0.9	5.8	77.6	6.9	84.5	15.5
4	5.0	0.8	5.8	0.2	6.0	83.3	13.3	96.7	3.3
5	4.7	0.7	5.4	1.9	7.3	64.4	9.6	74.0	26.0
6	5.1	0.6	5.7	2.0	7.7	66.2	7.8	74.0	26.0
7	4.7	0.9	5.6	0.8	6.4	73.4	14.1	87.5	12.5
8	5.8	0.8	6.6	1.7	8.3	69.9	9.6	79.5	20.5
9	7.2	1.2	8.4	4.6	13.0	55.4	9.2	64.6	35.4
Top	5.8	0.9	6.7	3.4	10.1	57.4	8.9	66.3	33.7

Example: Households in the seventh decile of income distribution have 4.7% of their total wealth in deposits; this represents 73.4% of their financial assets.

Table 4.5: *Financial Asset Holdings: Sample Deciles*

<i>(In thousands of pounds)</i>		<i>All</i>	<i>Financial</i>	<i>Sophisticated</i>
		<i>Households</i>	<i>Asset</i>	<i>Asset</i>
			<i>Holder</i>	<i>Holder</i>
No. of households	=	3,089	2,121	217
Decile:				
Bottom		0.00	0.02	1.2
2		0.00	0.10	2.2
3		0.00	0.32	4.2
4		0.03	0.63	7.0
5		0.25	1.25	12.2
6		0.65	2.00	17.5
7		1.40	3.36	23.0
8		3.75	5.83	34.6
9		7.54	13.09	64.0
Top		301.90	301.90	301.9

Example: 60 per cent of all households report financial assets of less than £650.
 Of the 2,121 households reporting any financial asset holdings, 70 per cent report less than £3,360.
 Of the 217 households holding any of the "sophisticated" assets, 80 per cent report less than £34,600

Table 4.6: *Sophisticated Assets Pattern of Asset Choice*

<i>Assets</i>	<i>No. of</i>	<i>Assets</i>	<i>No. of</i>
<i>Held</i>	<i>Households</i>	<i>Held</i>	<i>Households</i>
GEB	3	GEB	3
GE	19	GE*	22
G B	0	G*B	3
EB	19	*EB	22
G	20	G**	42
E	106	*E*	147
B	50	**B	72
Any	217	Any	217
Not G	175	G and/or E	167
Not E	70	G and/or B	111
Not B	145	E and/or B	197
Only one	176	Any two	38

Note: G=Gilts; E=Equities; B=Bonds

Example: 22 households reported holdings of equities and bonds, of whom 19 had no gilts.

Table 4.7: *Financial Asset Holders Pattern of Asset Choice*

<i>Assets Held</i>	<i>No. of Households</i>	<i>Assets Held</i>	<i>No. of Households</i>
DSR	144	DSR	164
DS	876	DS*	1,040
D R	25	D*R	189
SR	18	*SR	182
D	680	D**	1,745
S	348	*S*	1,406
R	10	**R	217
Any	2,121	Any	2,121
Not D	376	D and/or S	2,111
Not S	715	D and/or R	1,773
Not R	1,904	S and/or R	1,441
Only one	1,038	Any two	919

Note: D=Deposits; S=Small Savings; R=Sophisticated

Example: 189 households reported holdings of deposits and some sophisticated assets, of whom 25 had no small savings.

The median holding of financial assets is just £1,250, about the same figure applying for median holdings of basic assets. The median holding of sophisticated assets is £3,000. Mean holdings, at about £5,300 for all of financial assets and £3,900 for basic assets are, of course, much larger than the medians in each case. The size distribution even among those reporting holdings is very skewed: only about 22 per cent of holders (fewer than 15 per cent of the total sample) report financial assets above the mean.³⁰

As might be expected, both mean and median holdings vary considerably from asset to asset, with the largest applying to unit-linked or similar bonds (median holdings of £10,000) and the smallest to small savings, where median holdings are just £25 – mean holdings about £720.

The median income for those holding sophisticated assets, at over £19,000, is considerably higher than that for all financial asset holders (£13,000). The divergence is even more marked for asset holdings: median financial assets of sophisticated-asset holders is £12,000 – about ten times the median assets of all financial asset holders.

Although, as mentioned, both mean and median holdings are higher for bonds than for any other asset category, bond holdings are less concentrated among high income households than are other assets. The

³⁰Further information about the size distribution of asset holdings is contained in Table 4.5.

households of the top income decile hold only 14.5 per cent of the outstanding stock of bonds, whereas they hold as much as 44 per cent of equities and 32 per cent of gilts, and over 20 per cent of basic assets.

The size distribution of bank deposit holdings is, perhaps, of particular interest because of their homogeneity and general importance among financial assets. These are quite concentrated, with fully one half of all household bank deposits being held by 7 per cent of those households reporting financial assets, i.e., those with holdings of above £15,000. One quarter of household bank deposits are held by 2 per cent of the households, i.e., those with holdings of more than £25,000.

Breakdown by Household Characteristics (Table 4.2)

Table 4.2 presents a breakdown of basic and sophisticated assets by various household characteristics. In each case the table shows the percentage of the households with the given characteristics reporting holdings of each type of asset, and the mean and median holdings of holders. The precise way in which these characteristics were measured is detailed in Annex 2.

The *first panel* of Table 4.2 shows holdings by income decile of the household.³¹ As might be expected the percentage reporting holdings of financial assets increases steadily with income: only about one-half of the bottom 30 per cent of the income distribution report having financial assets, compared with something approaching 90 per cent of the top income decile (cf. Figure 4.2). Even though these data do not include current bank accounts, it seems likely that the latter figure should really be closer to 100 per cent.

Although the bottom decile has the lowest mean holdings, and the top decile the highest, mean holdings of all financial assets do not increase uniformly with increasing income decile: this is evident from Figure 4.1. This finding is not surprising, since we know that, for example, older people are not equally represented in all income categories.

Far more of the higher income households report holdings of sophisticated assets: more than 1 in 6 of the top income decile, compared with 7 per cent of the total sample and about 3 per cent of the lower half of the income distribution (Figure 4.4). Though many cells in the lower part of the distribution have too few observations for reliable inferences about mean holdings (fewer than ten cases), it is noteworthy that some of the middle deciles report quite substantial holdings of sophisticated assets (cf. Figure 4.3). Once again, factors other than income clearly need to be taken into account.

³¹This is the actual income: not adjusted for household composition.

Figure 4.1

Financial Assets by Income Decile

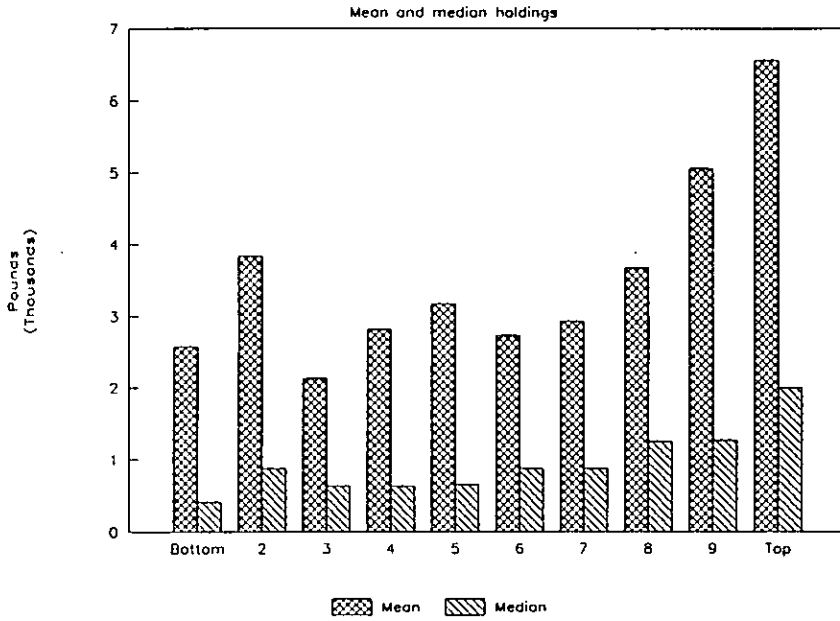


Figure 4.2

Financial Assets by Income Decile

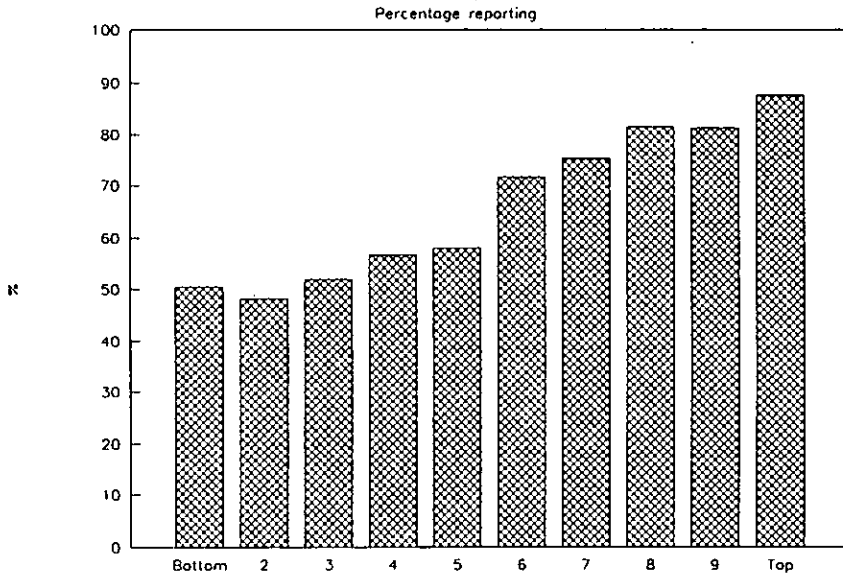


Figure 4.3 Sophisticated Assets by Income Decile

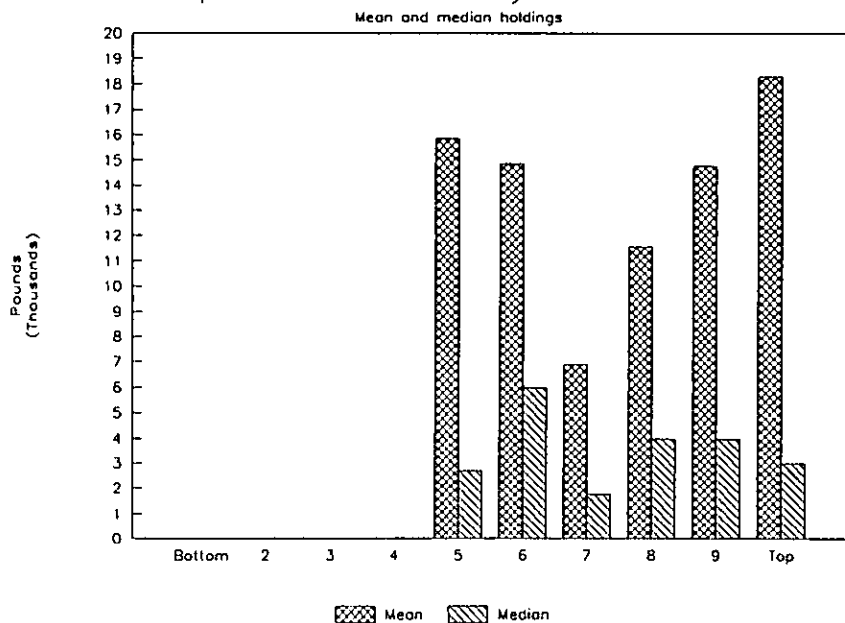
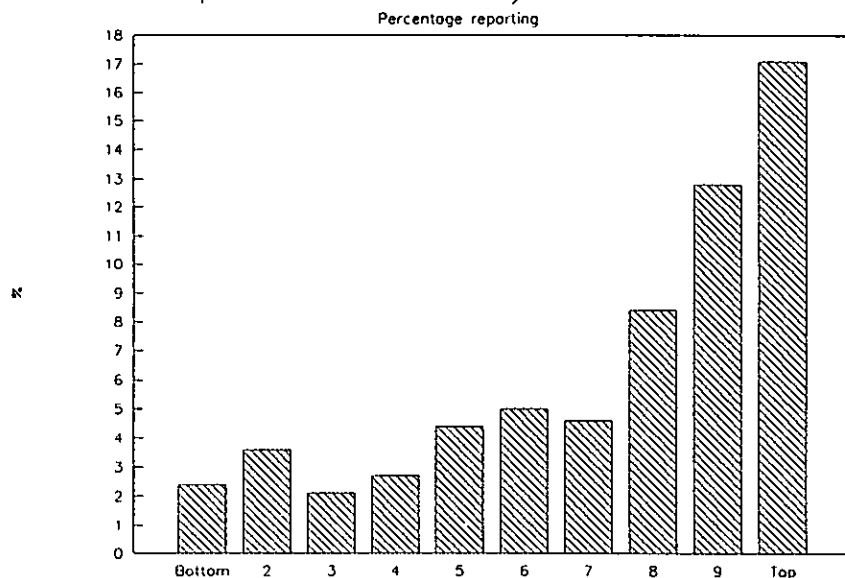


Figure 4.4 Sophisticated Assets by Income Decile



The *second panel* of Table 4.2 refers to age. There is some evidence (most clearly seen in Figure 4.6; see also Figure 4.5) of the hump-shaped profile of asset-holdings with age that would be predicted by the life-cycle model of savings, with accumulation of assets into middle age followed by dissaving after retirement.

Turning to the *third panel*, listing the four categories of socio-economic group (Figure 4.9), it is not surprising that the professional and managerial class report much higher holdings of total financial and sophisticated assets; in both cases their mean holdings are more than twice those of any of the other three categories. Farmers have the second highest mean holdings of all financial assets, but their mean holdings of sophisticated assets are lower than those of the remaining two groups.

The labour force status of households forms the basis of the *fourth panel* of Table 4.2 and of Figures 4.7 and 4.8. Here the unemployed are the outliers: only 42 per cent report financial assets at all, and a half of these have holdings less than £150. The mean holdings for the unemployed with financial assets are about £1,200, less than a quarter of the overall mean. Very few of the unemployed (or of the ill and disabled) have sophisticated assets. The category with the highest mean holdings are the retired.

From the *fifth panel* of Table 4.2 it is evident that outright home ownership (not mortgaged) is associated with much higher mean financial assets and sophisticated assets than other forms of tenure (Figure 4.10). In contrast, those renting from local authorities have very low mean financial assets (less than £900), and almost none of them hold sophisticated assets.

For each sub-category³² of households, there is a wide gap between mean and median holdings of both basic and sophisticated assets – the mean being more than three times the median in the bulk of cases. This indicates the high concentration of financial asset holdings.

More Detailed Asset Classification (Table 4.3)

Percentages holding each of the five categories of asset, together with median holdings are presented in Table 4.3. No detailed account of the contents of this table will be presented in the text; a number of features stand out. First, a rather smaller proportion of households in each category have small savings than have deposits. The proportion holding small savings varies from 18 per cent (local authority tenants) to 68 per cent (professional and managerial), whereas the proportion holding deposits varies from 30 per cent (the unemployed and local authority tenants) to 76 per cent (top income decile). The median holdings of small savings are in all cases very low indeed – usually about £20 representing a few prize bonds. Mean holdings of small savings are generally higher by a multiple of tens.

³²Except for one cell which contained just a single case.

Figure 4.5

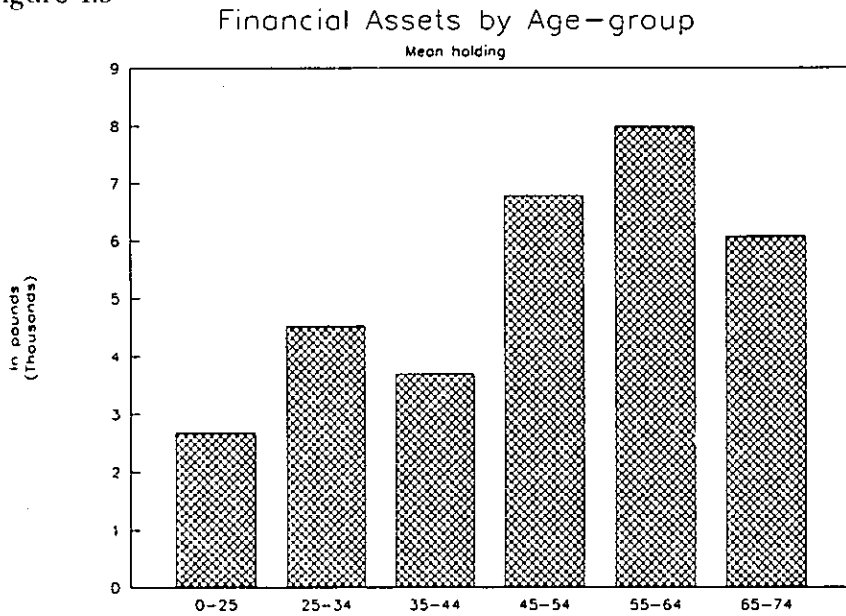


Figure 4.6

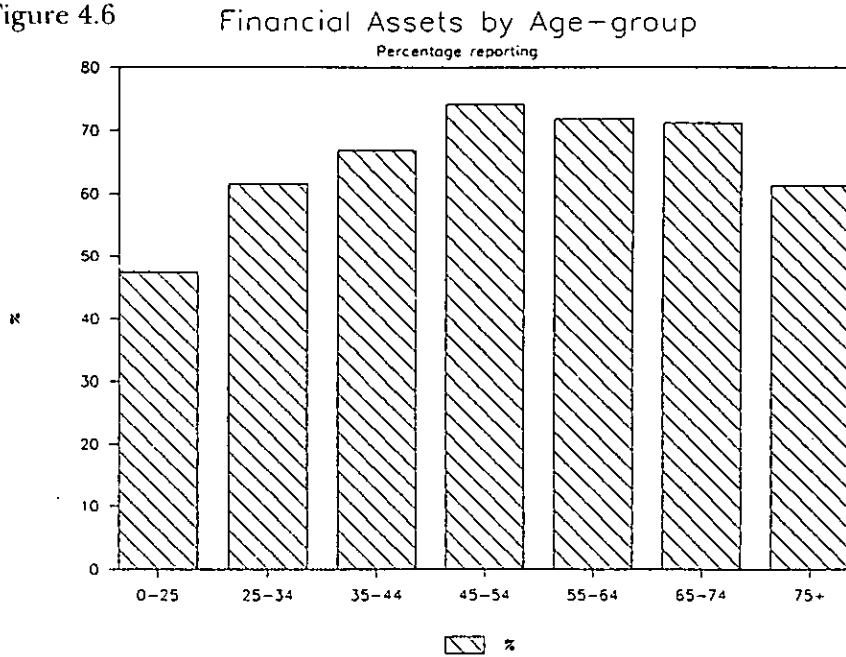


Figure 4.7 Financial Assets by Labour Force Status

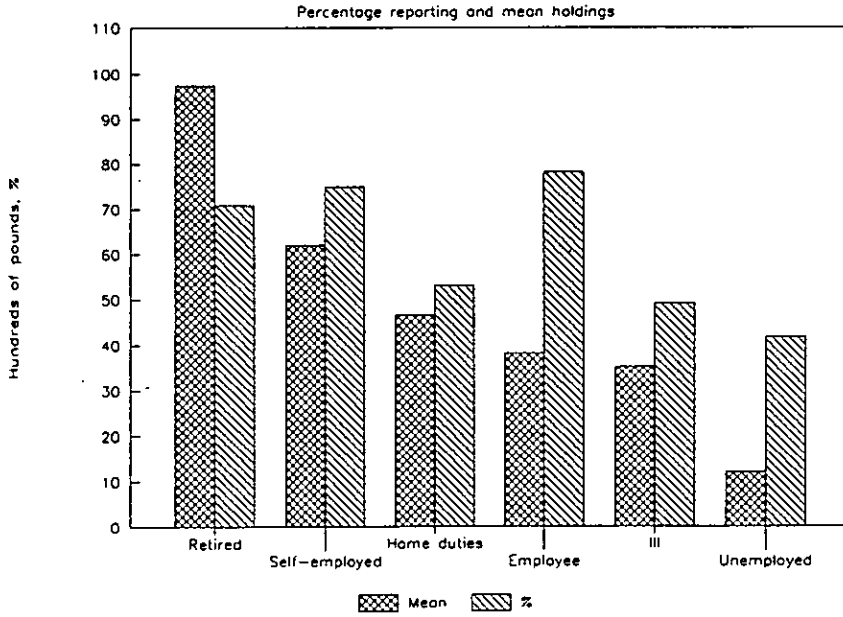


Figure 4.8 Sophist. Assets by Labour Force Status

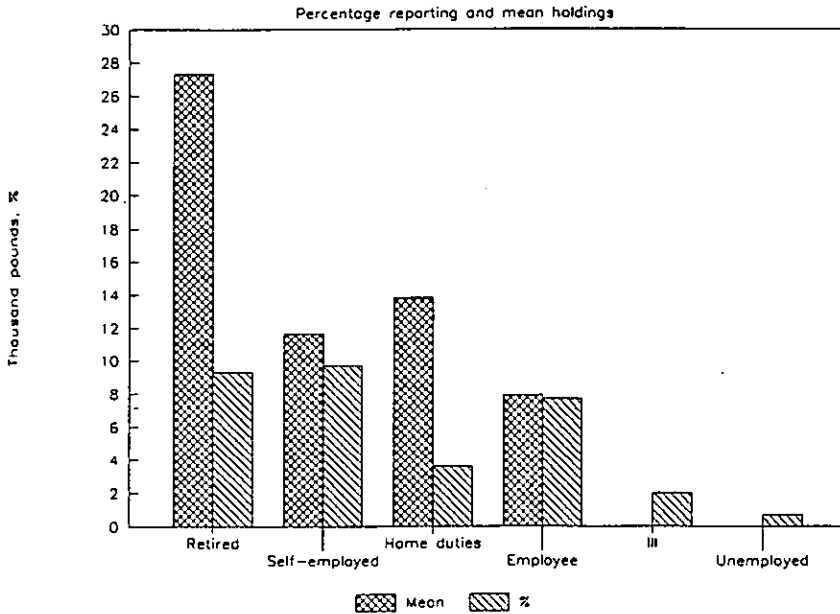


Figure 4.9
Financial Assets by Socioeconomic Group

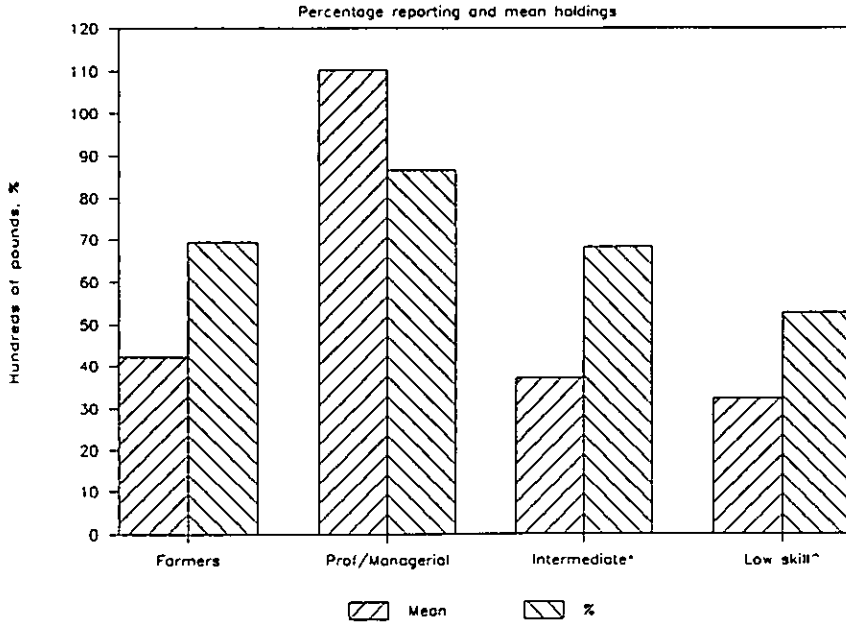
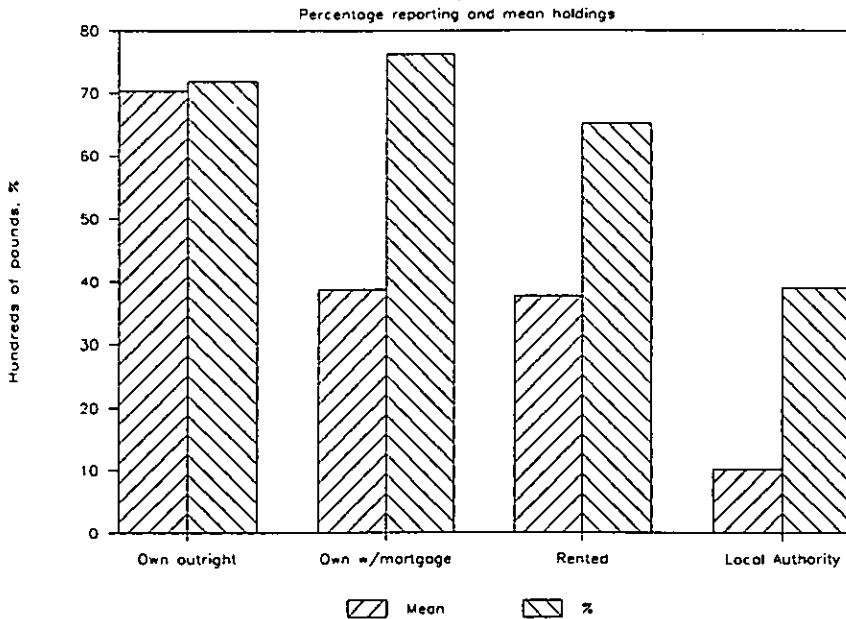


Figure 4.10
Financial Assets by Tenure of Home



Apart from deposits and small savings, most of the remaining cells in Table 4.3 contain only a few observations, so the medians cannot be taken as reliable. Nevertheless, it is clear that bonds do not attract small investments: the median bond holdings for any household category are at least £5,000.

Tabular analysis of this kind can only examine one factor influencing portfolio choices at a time. In order to take account of several possible economic and sociological characteristics at once, it is necessary to turn to regression and other statistical techniques.

Chapter 5

MODELLING THE PORTFOLIO CHOICE OF HOUSEHOLDS

Methodological Approach

The task addressed in this section is to arrive at a coherent statistical model describing how the structure of household portfolios tends to vary with the household characteristics on which data are available. The major recent papers that have conducted econometric analysis of a single cross-section of household financial asset holdings are Feldstein (1976), Friend and Blume (1975), Shorrocks (1982) and Uhler and Cragg (1971). We draw on their methodology in what follows.

Note that, whereas explaining trends in *aggregate* holdings of financial assets requires information on the yields and other characteristics of the assets, *the attempt to discover from a single cross-section what factors influence different households to hold different quantities of financial assets is based wholly on household characteristics.* If more than one cross-section is available, and especially if there is panel information on the evolving asset-holdings of a given sample, the combination of household and asset characteristics can be very informative. Indeed, that combination has been the basis for most recent international research on household financial asset holdings. However, the present study is limited to a single cross-section and so variations in asset yields do not enter into consideration.³³

The main candidate explanatory variables used are total wealth, financial assets,³⁴ income and age category. In addition, the following dummy variables are considered: urban/rural, sex, four socio-economic

³³Actually, the sample on which this study is based was interviewed over a period of several months in 1987 when financial market conditions were by no means static. Interest rates in February 1987, when the main interviewing started, were much higher than at the end of the main interview period in July. Thus, choosing the three month interbank rate as a sensitive indicator of market conditions, this rate fell from 14.25 per cent at end-February to 10.44 per cent at end-June. However, we treat the sampling period as a single point in time, and pay no attention to these interest rate variations. The problem may not be very acute because several of the questions specifically asked for the "usual level" of asset holdings over a twelve month period.

³⁴Except at the node (A) where this is the dependent variable.

groups, and the main labour force categories (notably the employed and self-employed). It is worth recalling that the inclusion of a dummy variable as significant indicates that households falling into that class tend to have different portfolios even after accounting for their deviation from the overall average in wealth, age, and income.

One conventional approach would be to run regression equations for the value of each asset held, including all available explanatory variables in each equation. Such an approach has a number of drawbacks: the statistical significance of most included variables is inevitably low, and it is hard to interpret the results. Results of that approach are not reported in this paper.

Instead we adopt a more structured approach, using regression strategies to eliminate irrelevant explanatory variables. Variables are deleted from the list of candidates if they are not statistically significant,³⁵ and the equation is re-estimated without them. As is well known, this carries its own risks, including the possible omission of relevant variables and overestimating the importance of those variables which survive in the equation.

The Decision Tree

We assume³⁶ that households choose their portfolio on the basis of a decision tree as schematised in Chart 1. Households make different choices at each node depending on their characteristics. We focus on three key nodes: *A*, *B*, and *C*.

At the apex of the decision tree is the choice (marked *A*) of how to allocate household wealth between financial and non-financial assets. Note that, for the present, the "total wealth" variable whose allocation into financial and non-financial components is explored includes only non-human wealth and is net of mortgages and farm borrowings. For about two-thirds of the sample ($N=2,121$) this node is relevant in that some financial assets were chosen.

³⁵The criterion for inclusion of a variable in the reported least-squares regressions was that the ratio of estimate to standard error should exceed 1.9. This is a more demanding criterion for inclusion than maximisation of R^2 and should minimise spurious inclusion of irrelevant variables. Each of the reported Tobit regressions corresponds to a reported least-squares regression without further deletion of variables.

³⁶This assumption of a decision tree helps to address the problem of incomplete portfolios discussed by Uhler and Cragg (1971) and by King and Leape (1984). Also, like the latter, we use Tobit estimation to avoid potential bias from the use of a sample with incomplete portfolios.

Chart 1

DECISION TREE FOR PORTFOLIO ALLOCATION

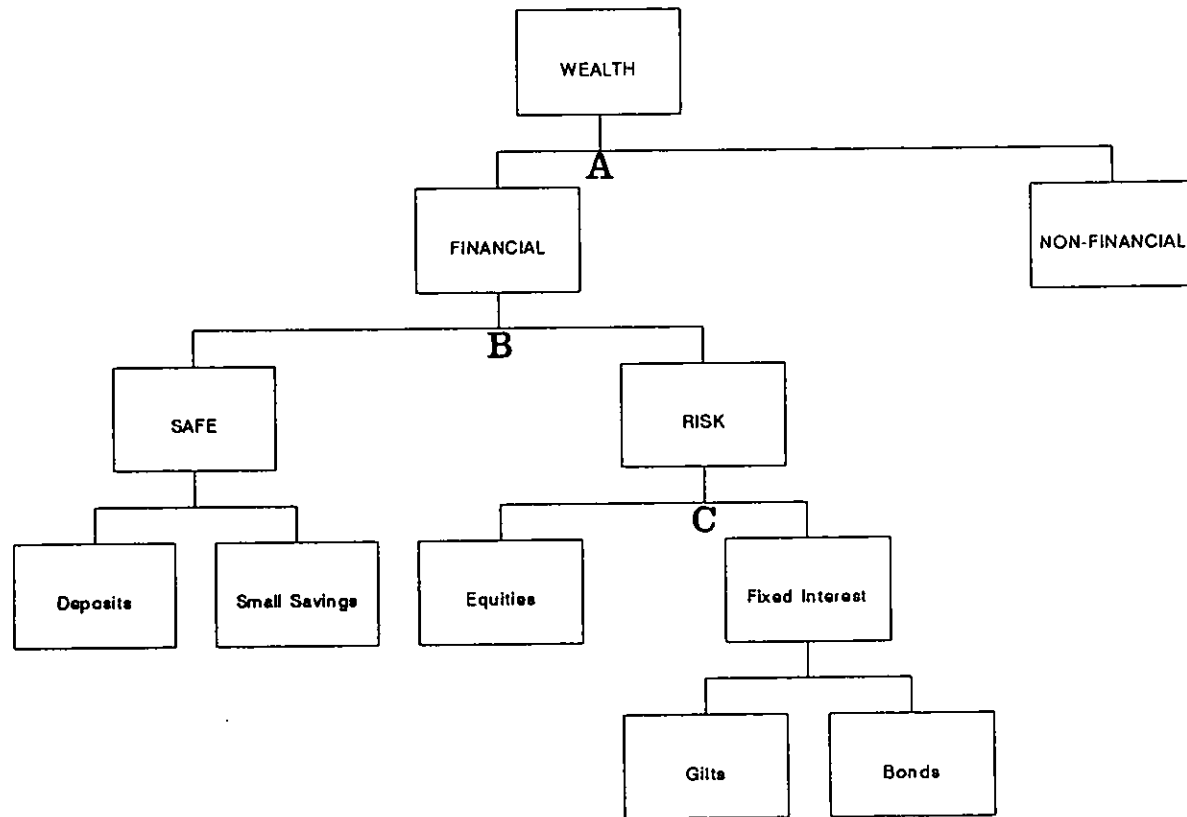


Chart 1

Having decided the scale of financial wealth, the next decision node (marked *B*) is the allocation between what we have termed "basic" and "sophisticated" assets. Only about one-tenth of households reporting financial asset holdings held any sophisticated assets, so it is necessary to use special estimation procedures which take account of the high probability that no sophisticated assets at all will be held. At this node and the next, we have used the size of the financial asset portfolio as well as our measure of total wealth in inferring the impact of changes in wealth.³⁷ From Table 4.8, we can see that only one-tenth (N=217) of the 2121 households reaching this node sample chose some sophisticated assets.

The third node of special interest (marked *C*) is that relating to the allocation of sophisticated asset holdings between equity and the rest. (We term the non-equity sophisticated assets "fixed" although they include unit-linked bonds which are indirect claims on equities as well as on fixed-interest securities). Table 4.6 shows that, of the 217 households that reached this node, 147 chose some equities and 114 chose some fixed interest. Almost all households at this node (195 of them) were "plumpers" who chose only one of the two options available. Some of the results reported here merge nodes *B* and *C*.

The two other (unlabelled) nodes in the tree, are for allocation of basic assets between deposits and small savings and that for allocation of the fixed interest sophisticated funds between gilts and bonds. In both cases these represent nodes where the households reaching the node often "plumped" for one or the other. This is especially true for the allocation between gilts and bonds: of the 114 holding either gilts or bonds, 42 had gilts and 72 bonds; only 3 households chose both. Gilts and bonds may therefore be close substitutes. Of the 2,111 households allocating "basic" assets, 1,745 held deposits and 1,406 small savings; over 40 per cent of deposit holders hold no small savings, while over 1 in 4 small-savings holders hold no deposits.

A. Allocation between financial and non-financial wealth

Regression table A (to be found at the end of the report)³⁸ presents several equations explaining the holdings of financial assets in terms of total wealth and other variables. Equation A1 has the level of financial assets as the explanatory variable, while the others use the percentage

³⁷Thus in the text and the figures the reported impact of wealth is the sum of the estimated coefficients of total wealth itself and that of financial assets.

³⁸All the regression tables (A to C) and the associated figures (R1-R7) are grouped together at the end of the report.

share of financial assets in total wealth. Equation A2 is confined to the households who actually report some financial assets, in contrast to Equation A3 and the other equations which include all households, and in which about one-third of the households report no financial assets. For technical reasons relating to this truncated distribution of the dependent variable, ordinary least squares regressions are not considered satisfactory in circumstances such as this with so many observations clustering at zero. An alternative estimation procedure, known as Tobit,³⁹ has been devised to cope with this sort of situation. We present the alternative Tobit estimate corresponding to A3 as Equation A4.

Wealth is clearly an important explanatory variable for the level of financial asset holdings, and its effect is not a simple ("linear") one of proportionality, as is evident from the fact that it remains significant in explaining the ratio of financial assets to wealth in Equations A2 and A3. The Tobit Equation A4 indicates that the wealth variables may not, however, be as important as they seem from the least squares regressions.

The estimated impact of wealth from the least squares and Tobit Equations is illustrated in Figures R1 and R2, relating to Equations A2 and A4 respectively. Though the precise level and slope of the predicted share of financial assets in total wealth from these two equations differ somewhat, the general story is similar: the share of financial assets declines with wealth over the relevant range.

Income and age (entering as an interaction term with income) both help to explain total financial asset holdings (Equation A1). However, when we turn instead to explain the share of total wealth in financial form age is no longer significant (Equations A2-A4). The effect of income on financial assets holdings is positive in Equations A3 and A4, and also positive in A1 except for younger household heads. This could be interpreted as offering some evidence for the existence of liquidity constraints: even at the same level of overall wealth, households with a high flow of income are able to accumulate financial assets to a greater extent. However, we will present an alternative interpretation of the income coefficient in the next section, suggesting that it is here as a proxy for tax effects (Equation A5).

³⁹ A detailed account of the Tobit model is contained in Chapter 6 of Maddala (1983). This method, which is an alternative to the so-called Heckman procedure to approaching the same problem, requires a fairly complex iterative procedure and is not very widely employed in the literature. We used the software *Limdep*, developed by William H. Greene, to obtain these estimates.

Urban dwellers and the professional and managerial group (socio-economic group 2) tend to hold more of their wealth in financial form; the self-employed tend to hold less.

B. Allocation between basic and sophisticated assets

Regression Table B presents the most appealing equations which we found to explain the allocation of financial assets between basic and sophisticated assets. All the equations in this table are based on the 2,121 households who reported some financial assets. Once again the problem of truncation of the dependent variable arises. Indeed the problem is more acute here because only about 1 in 10 of the sample hold any sophisticated assets at all. Equation B2 is the Tobit estimate corresponding to the explanatory variables of Equation B1 (which is estimated by ordinary least squares), and it can be seen that the point estimates are, in this case, substantially different.

The size of the whole financial asset portfolio has a very significant non-linear effect on the share of sophisticated assets in both Equations B1 and B2. In addition, total wealth has an independent effect. As is illustrated in Figure R3, the effect of increasing financial assets is to lower the share of basic assets held in the portfolio. Actually, the Tobit equation produces a very strong effect here, and actually predicts that the entire portfolio will be held in basic assets for portfolio sizes less than about £35,000, and entirely in sophisticated assets for portfolio sizes in excess of about £85,000. The sensitivity of this estimated responsiveness to wealth is implausible; of course the predictions of these equations cannot be taken too precisely, given that the standard errors of the coefficients are substantial and that the equations themselves account for less than one-fifth of the total variation in the sample.

Once again income is a factor in the equations, entering both linearly and interacting with age. Except for very young households, the net effect of increases in income is to increase the share in basic assets. Older households tend to have relatively more basic assets.

The professional and managerial socio-economic group tend to hold a more sophisticated portfolio, but the self-employed tend to hold more basic assets.⁴⁰

The choice of how much to hold in the form of equities can also be considered with the sample of all households reporting financial asset holdings. Equations B4 and B5 refer to this decision (also considered again

⁴⁰Note that a difference in the behaviour of the self-employed might be expected in so far as they do not have claims on pension funds. Employees' pension rights, even though not measured in this study, will tend to affect the remainder of their portfolio choice.

at node *C* below). Not surprisingly, we find that larger financial portfolios tend to have more equities. The predicted effect is non-linear and is plotted in Figure R4, along with the corresponding plot for other sophisticated assets. While the predicted share of other sophisticated assets (fixed interest) grows in the relevant range of portfolio sizes, it grows less quickly than that of equities.

Increasing total wealth and income are also associated with a higher share of equities in the overall financial asset portfolio. Older households tend to hold less equities. The professional and managerial socio-economic group hold more, and the self-employed less of their financial assets in the form of equities.

C. The share of equities in sophisticated asset holdings

We turn now to node *C*, where the number of households is much smaller (217). Regression Table C presents a satisfactory equation for the share of equity in sophisticated assets. Because about one-third of this subsample report no equities, a Tobit equation is reported along with the ordinary least squares, though in this case the estimates are not so very different.

The effect of portfolio size is significant and non-linear here too. Figure R5 reveals that the effect depends a lot on the portfolio size. A larger portfolio tends to be associated with a lower ratio of equities to other sophisticated assets over most of the relevant range, but for very large portfolios this effect is reversed. This finding is not fully consistent with the equation for equity shares estimated at node *B* above; there remains some ambiguity.

Total wealth has an independent effect. Wealthier households tend to have a lower equity-to-other-sophisticated-assets share, as do younger households and the professional and managerial group.

Briefly summarising these estimates, we can make a number of general remarks. First, the wealth of households does influence their portfolio allocation decisions. Though contrary to the classic US study of Friend and Blume (1975), this finding is not implausible.⁴¹ Second, age is also a factor, though generally interacting with income or asset levels in its impact on portfolios. Third, socio-economic factors are important; the portfolios of urban households, of the professional and managerial group and of the self-employed in particular are notably different from others, even after taking account of differences in their age, wealth and income.

⁴¹It agrees with the findings of King and Leape (1984) for the US.

Chapter 6

ECONOMIC SIGNIFICANCE OF THE ESTIMATES

Introduction

There is a variety of possible uses to which these cross-section models of portfolio behaviour can be put. Some involve taking the estimated models literally and simulating the consequences of changes in the explanatory variables. For example, the impact of changing demographic trends can easily be predicted from the models. We work through another example below by expanding the models to take account of tax effects. But the estimates can also be used to make inferences that have implications beyond simply forecasting asset shares. Specifically we now turn to examine the conclusions that may tentatively be drawn about the nature and degree of risk aversion exhibited by Irish households.

The discussion of this issue depends on drawing a dividing line between “safe” and “risk” assets. In this chapter we identify this dividing line with that already drawn between “basic” and “sophisticated”, though this is clearly not perfectly satisfactory. After all, the “sophisticated” bonds include assets whose nominal value at maturity is guaranteed by financial institutions of undoubted soundness. On the other hand, the real value of all of the financial assets being considered is somewhat variable. It may also be remarked that the three “sophisticated” assets include assets with larger fixed transaction costs. In defense of the terms used, we argue that the fact that even those “risk” assets whose value is guaranteed cannot be realised at short notice before maturity without capital loss places holders in a risky situation. At any rate, even if some of our “safe” assets do entail risk, and even if some of our “risky” assets are not very risky, the dividing line we have chosen seems definitely better than any available alternative.

Readers who are not satisfied that this dividing line truly distinguishes safe from risky assets may prefer to read this chapter as illustrating a methodology rather than as implying any definite empirical conclusions for Ireland.

Risk Aversion and Portfolio Choice: Theoretical Background

We often suppose that there are diminishing returns to accumulation of wealth. Such diminishing returns are equivalent to risk aversion in that losing, say, £200 is more than twice as bad as losing £100. Thus no risk-

averted will accept a mathematically fair gamble. Accordingly, a risky asset is valued less than a sure asset with the same mean or expected return.

In order to take account of these diminishing returns, the conventional economic theory of portfolio choice in risky situations postulates that individuals act as though they were maximising the expected value or mean not of future wealth, but of a utility function of future wealth. The shape of the utility function depends on the investor's preferences. A risk averse investor has a concave utility function (that is: one which increases with wealth but at a diminishing rate). The greater the curvature of the utility function, the greater the degree of diminishing returns, and accordingly the greater the degree of risk aversion. The usual measure of curvature used is based on the ratio of the second derivative of the utility function to the first. This is the coefficient of absolute risk aversion C_A :

$$C_A = - \frac{\delta^2 U}{\delta W^2} / \frac{\delta U}{\delta W} \quad (1)$$

Casual empiricism, backed up by numerous experiments, suggests that C_A itself decreases with wealth. This motivates the other measure of curvature: the coefficient of relative risk aversion C_R , which may be rather less dependent on wealth:

$$C_R = - W \frac{\delta^2 U}{\delta W^2} / \frac{\delta U}{\delta W} \quad (2)$$

The usefulness of C_R becomes evident from the following simple model.⁴² Suppose an investor with initial wealth W has the opportunity of investing in a risk-free asset paying R (after tax), and a risky asset paying x with mean μ and variance σ^2 (also after tax). She will choose the share α of her portfolio in the risky asset to maximise the expected value of future utility, which can be approximated⁴³ by:

$$\mathcal{E}U(W(R+\alpha(x-R))) = U(W) + U'(W) \cdot (R+\alpha(\mu-R)) + U''(W) \cdot W^2 \alpha^2 \sigma^2 \quad (3)$$

Taking the first derivative of this expression and equating to zero gives a condition for the maximum:

$$\alpha = \frac{\mu - R}{\sigma^2} / C_R \quad (4)$$

⁴²This derivation is similar to that presented by Friend and Blume (1975).

⁴³Using a Taylor's series expansion.

If C_R is constant (independent of wealth), then an investor faced with a choice between a safe and a risky asset will place the same proportion of her wealth in the risky asset, no matter what her initial wealth. In short, the wealth elasticity of demand for risky assets is unity if C_R is constant.

But if C_R diminishes with increasing wealth, then the share of wealth placed in the risky asset will depend positively on the investor's initial wealth, and *mutatis mutandis* for increasing C_R .

A wealth tax will affect portfolio allocation just like any other exogenous change in wealth. Thus, these considerations suggest that a wealth tax will not influence the share of private wealth devoted to risky assets if C_R is constant but that a wealth tax would increase the share of wealth devoted to risky assets if C_R were to diminish with increasing wealth.

So far as an income tax is concerned, the position, even in such a simple model, is somewhat more complicated.⁴⁴ On the one hand, income taxation reduces the expected value of future wealth. On the other hand, the income tax shifts some of the risk of the investment to the Government. Generally speaking, we can conclude in simple models that the latter effect will dominate, so that increased income taxation will tend to encourage more risk-taking unless C_R is very rapidly diminishing in wealth.

Measuring Risk Aversion

We have just seen that, in simple models, the impact of taxation on risk-taking in the economy depends on the degree of risk-aversion and how it varies with wealth. Many other predictions and prescriptions of economic theory relating to investment and savings also hinge on household risk aversion. For instance, in simple models of lifetime saving, whether an increase in the interest rate raises or lowers household saving cannot be predicted on theoretical grounds alone,⁴⁵ but depends on the empirical question of how risk-averse households are.

Our cross-section portfolio information provides, in principle, a way of exploring risk aversion. Thus recalling that in Equation (4) above the rates of return are net of tax, we can rewrite (4) as:

$$\alpha = (1 - \tau) \frac{\mu^0 - R^0}{\sigma^2} / C_R \quad (5)$$

⁴⁴There is a clear discussion of the issues in Atkinson and Stiglitz (1980).

⁴⁵Some evidence on that particular question can be obtained by examining aggregate savings directly; for Ireland such examination has been somewhat inconclusive to date, Cf. Honohan (1982a).

where the superscript ⁰ denotes before-tax returns. If the before-tax mean and the variance are the same for each household, Equation (5) can be manipulated to show that, for each household, C_R should be inversely proportional⁴⁶ to that household's chosen share of risk assets, reduced by the household's tax rate:

$$C_R = \frac{\mu^0 R^0}{\sigma^2} \frac{1 - \tau}{\alpha} \quad (6)$$

Recalling again the caution with which the classification into risk and safe assets should be treated, we present Equations B6 and B7 in Regression Table B as the basis for forming this estimate. Both total wealth and financial asset holdings enter significantly, the latter in a non-linear manner. Computing the predicted value of C_R and plotting for different levels of financial assets yields Figure R6.

The least squares equation B6 indicates a declining C_R .⁴⁷ The Tobit equation is harder to interpret, as it predicts that some households would prefer negative holdings of risk assets, and others negative holdings of basic assets; this means, for example, that it generates negative computed values for risk aversion. In the wealth range where this is not a problem (as plotted in Figure R6), the Tobit also indicates a declining C_R .⁴⁸

There are many reasons for questioning the reliability of these estimates. First, they are based on a division into basic and risky assets the problems of which have already been noted. Second, the exclusion of many assets from the analysis may bias the figures in an unknown direction. Thus, though they are the first estimates that have been obtained for Ireland, they should be taken more as illustrative of the method than providing reliable measures.

⁴⁶The constant of proportionality is the so-called "market-price of risk", i.e., the increase in yield required by the market to compensate for an increase in portfolio variance.

⁴⁷If we take a figure of about 3 as the market price of risk (following Friend and Blume, 1975) we conclude that the coefficient declines to a value of around 4 at large values of financial assets. The coefficient is notoriously difficult to estimate precisely, but it should be mentioned that 4 would be a fairly high value for the coefficient by international standards, many estimates centring around 0.3.

⁴⁸ C_R for Equation B7 is plotted only for the values of financial assets for which Equation B2 predicts a feasible portfolio share.

The Effect of Taxation on Risk-taking

An extensive international literature has considered the important question of whether income and wealth taxation encourages or discourages risk-taking. As mentioned above, definite conclusions can be drawn from simple theoretical models. Thus, wealth taxation results in reduced risk-taking provided the coefficient of relative risk aversion is decreasing; income taxation results in increased risk-taking unless the elasticity of demand for risk assets with respect to wealth is very large.⁴⁹ (Note that these simple theoretical results discussed above tend to run against the conventional wisdom that income tax would discourage risk-taking while wealth tax would encourage it.)

Our estimated models of portfolio selection allow us to place Ireland in these categories. We find decreasing relative risk aversion and a positive, but generally not too large, wealth elasticity of demand for risk assets. If this is correct, wealth taxation would reduce risk-taking and income tax increases it in Ireland.

However if, in order to add realism, one departs from the very simple assumptions of the less sophisticated theoretical models (for example by enlarging the range of assets and specifying taxation more exactly), evaluating the impact of income tax on the riskiness of the overall portfolio requires more information than just the dependence of coefficients of risk aversion on wealth. Indeed, the very nature of the tax breaks that are available to investors may influence the degree of risk-taking in a complex manner.

As an alternative, therefore (and following Feldstein, 1976), we can examine the impact of taxation directly on the portfolio choice using our sample data.

The marginal tax rate is a property of the tax unit rather than the household. The tax unit facing each household has been estimated on the basis of its income and composition, and the tax rate for the unit containing the household head is taken to be the relevant one for the purposes of the present analysis.⁵⁰ Using this tax rate variable as an additional explanatory variable in the modelling of portfolio choice allows us to provide a preliminary answer to the question of how the tax system affects household portfolio choice in Ireland.

⁴⁹It would be sufficient, but certainly not necessary, for the coefficient of *absolute* risk aversion to be decreasing.

⁵⁰Actually, an appreciable proportion of household financial assets are owned by tax units other than the head of household. However, we have not duplicated the analysis breaking down the households into tax units.

Unfortunately, the complexity of the Irish income tax system as it affects the net return from different assets means that, with the asset breakdown at present available, we cannot separate taxable and non-taxable asset income very clearly. The tax status of the yield on the assets in the "bonds" category is complex; many of these being related to life assurance contracts. Deposit interest is taxable, and the basic rate of income tax (35 per cent in 1987) is in fact deducted at source. However, it is widely believed that many higher-band taxpayers have not in fact declared their interest income to the tax authorities. Therefore it is not clear that the marginal tax rate actually applies to deposit interest. Yields on the small savings media are free of income tax. Other income is in general taxable, but yields on equities may often be realized by a household in the form of a capital gain, which attracts a lower rate of tax.

Nevertheless, it is of interest to see whether the tax rate seems to be correlated with particular patterns of household portfolio choice. Equations A5, and B3 throw some light on this question.

For the choice between financial and non-financial wealth, Equation A5 reveals that higher tax rates are correlated with a higher share of financial assets. We already know from Equation A4 that income is also significant. However, inclusion of both income and tax rate results in income becoming insignificant, while tax rate remains significant. This suggests that the income term may be acting (at least partly) as a proxy for the tax rate in Equations A1-A4.

Equation B3 shows that the tax rate enters non-linearly in explaining the share of basic assets in total financial assets. The estimated coefficients are such that households at the standard tax rate hold the same portfolio as those paying zero rate. At higher tax rates households hold less of what we have termed "basic assets". The tax system could be seen therefore as encouraging holdings of the riskier assets. This conclusion, though tentative, is in line with the deduction from theory and the estimate that the coefficient of relative risk aversion is declining in wealth.

Chapter 7

HOUSING IN THE HOUSEHOLD PORTFOLIO

Introduction

This study is primarily concerned with the *financial* assets of Irish households, rather than wealth held in other forms such as houses, businesses, land and other property. We examine the relationship between financial assets and total wealth including that held in these other forms, but then concentrate on detailed analysis of the role of financial rather than non-financial assets. This focus has adopted for the reasons outlined in Chapter 2, principally reflecting our belief that issues specific to these assets can be addressed with profit using the data available to us. In terms of the context in which this analysis of financial assets is to be seen, though, it is also useful in this chapter to look more briefly at these other assets, in particular housing, which is the single most important form in which wealth is held by most Irish households and on which valuable information was also obtained in the 1987 ESRI household survey. As explained in Chapters 2 and 3, it is not possible to include here (or in most similar studies internationally) future pension entitlements or human capital, which ideally might be counted in a comprehensive measure of households' aggregate wealth.

Housing in Total Household Wealth

Financial assets make up only a relatively small proportion of the total wealth of most households, in Ireland as elsewhere. As Chapter 4 shows, even households towards the top of the income distribution hold only about 10 per cent of their total gross wealth on average in the form of financial assets such as deposits, small savings, gilts, equities or bonds.⁵¹ Total wealth as measured there includes the value of residential property (for owner-occupiers), farm land, unincorporated businesses and other property. The precise information obtained in the ESRI sample on which the estimates for these forms of wealth-holding are based is described, and

⁵¹ See Table 4.4. This does not include current accounts, term loans and life-assurance related assets analysed in Chapter 8, but their inclusion does not change the overall pattern.

the likely reliability of these estimates assessed, in Nolan (1991b). Table 7.1 shows the composition of these non-financial wealth holdings by income decile, from which it is seen that housing is consistently the most important form of wealth-holding throughout the income distribution, followed by farm land. Wealth in the form of housing – measured as the market value of the house less the estimated amount outstanding in mortgage debt – accounts for 55 per cent of total wealth of sample households, and for between 55 per cent and 66 per cent of the wealth of households in the bottom 90 per cent of the income distribution. Even for those in the top decile, where financial assets and particularly wealth in the form of unincorporated businesses are relatively important, housing still accounts for 41 per cent of total wealth. While farm land is also a significant proportion of total wealth throughout the distribution, then, it is particularly interesting to look in detail at the role of housing in household wealth-holding in Ireland.⁵²

Table 7.1: *Composition of Wealth Holdings by Income Decile*

<i>Deciled:</i>	<i>House</i>	<i>Business</i>	<i>Farm Land</i>	<i>Other Property</i>	<i>Financial Assets</i>	<i>All</i>
	<i>Per cent</i>					
Bottom	54.5	3.1	38.3	0.8	3.1	100.0
2	57.0	0.5	27.5	6.9	8.1	100.0
3	65.3	1.2	23.3	4.4	5.8	100.0
4	58.2	0.9	32.7	2.2	6.0	100.0
5	53.1	6.4	31.2	2.1	7.3	100.0
6	57.4	3.8	23.1	8.1	7.7	100.0
7	66.4	4.4	20.3	2.2	6.4	100.0
8	60.1	3.3	25.5	2.6	8.3	100.0
9	58.5	5.9	17.9	4.3	13.0	100.0
Top	41.0	19.6	23.8	5.3	10.1	100.0
All	55.0	7.0	25.7	4.1	8.1	100.0

⁵² The distributional pattern and household characteristics associated with the other types of non-financial assets – that is land, businesses and other property – are examined in Nolan (1991b) Chapters 5, 6 and 8 respectively.

Owner-Occupation in Ireland

The importance of housing as a form of wealth-holding in Ireland reflects a level of owner-occupation which is very high compared with many other developed countries. Almost 80 per cent of households in the 1987 ESRI sample were owner-occupiers, while the Household Budget Survey also carried out in that year found 77 per cent of households to be owner-occupiers. The most recent Census of Population figure, for 1981, is 74 per cent, and an increase over the 1980s appears plausible given for example the extent of tenant purchase of local authority housing. As Table 7.2 shows,⁵³ it is significantly higher than even the UK, Canada and the USA, which with owner-occupancy rates of about 60-65 per cent are generally taken as examples, among advanced industrialised societies, of a situation where owner-occupancy is particularly prevalent. In countries such as Germany, France or The Netherlands, by contrast, less than half of all households are owner-occupiers. Housing provided by the public sector for rental is quite important in the Irish case, with 15 per cent of the ESRI sample in such housing. What is striking about the Irish case, then, is that owner-occupancy is so important and the private rented sector so small

Table 7.2: *International Owner-occupancy Rates, Around 1981*

<i>Country</i>	<i>Percentage Owner-occupied</i>
Australia	70
Canada	62
Germany	37
France	47
Italy	59
The Netherlands	44
Sweden	57
Switzerland	30
United Kingdom	59
United States	65
Ireland	74

Source: Saunders (1990) Table 1.5, p. 18. Ireland: 1981 *Census of Population*, Vol. 8, Table 12, p. 67.

⁵³ This comparison is based on data for the early 1980s, corresponding to the most recent Census figure for Ireland. While levels of owner-occupation have risen in, for example, the UK since that date, the comparative position of Ireland as one of the highest rates of owner-occupation would not be altered.

relative to other countries – only 6 per cent of sample households were in private rented accommodation.⁵⁴ The extent of owner-occupancy is influenced by the size of the agricultural population in Ireland, which is relatively high (15 per cent of sample households had a farm), since – as in most EC countries – almost all farm households are owner-occupiers. However, even among non-farm households the level of owner-occupation is high compared with other countries.

This reflects the explicit State policy goal in the Irish case, adopted over many years, of encouraging owner-occupation. The ways in which this has been implemented include the fiscal subsidisation of house purchase and support for the house-building industry in a variety of ways. Focusing here on the incentives facing households, the fact that mortgage interest has been afforded relief for income tax purposes, while rent has not, represents the single most important and long-standing fiscal encouragement of house purchase rather than rental. With mortgage interest payments deductible from taxable income, those on the higher tax rates in particular in effect have the net cost of servicing a mortgage heavily subsidised by the Exchequer. While this has been curtailed somewhat in recent years, with ceilings imposed on the amount of interest allowable, it remains a major factor. House purchase has also been encouraged in recent years by measures such as grants or interest subsidies for first-time buyers, grants for those leaving local authority housing to purchase privately, and the selling of local authority houses to tenants on favourable terms.⁵⁵ The fact that the tax treatment of capital gains and wealth transfers as applied to the family home are relatively favourable is also an important influence on the incentives facing households when choosing between different forms of saving.

⁵⁴ The corresponding figure in the 1987 Household Budget Survey is 9 per cent. The ESRI survey may understate the percentage of households in private rented accommodation, because the sample was drawn from the Electoral Register which may underrepresent students and other mobile flat-dwellers. Both the ESRI and the CSO surveys may also be affected by the difficulties in obtaining interviews with such households. The general tenure pattern in the surveys is however consistent with evidence from other sources.

⁵⁵ When building societies provided most mortgage finance, public and policy attention may also have tended to focus more on mortgage interest rates than on deposit interest rates, and there may have been a tendency to try to minimise increases in these rates to the benefit of those with mortgages. However, sources of finance are now more diverse and the market for deposits is much more competitive and less amenable to such pressures.

House Ownership and Wealth Among Irish Households

Influenced by these policies, then, owner-occupation is the dominant tenure choice in Ireland and housing plays a crucial role as a form of wealth holding, which can be examined in some detail on the basis of the 1987 survey. For this purpose it is necessary to have information for owner-occupiers on both the market value of the house itself and the outstanding mortgage debt, since the asset held by the household in this form is what can be realised by the sale of the house net of the amount which would be needed to clear the mortgage if any. Households in the sample were asked to provide an estimate of the market value of the house, and the interviewers were also asked to make such an estimate. Callan (1991) compares the two, and found them to be similar except at very high house values, where the respondents' estimates tended to be higher and may be better-informed. Evidence from other countries also suggests that owner-occupiers' valuations of their own property are likely to be reasonably accurate. On this basis we rely here on respondents' own estimated house values. (Further information on the validation of the house value data using other sources is also presented in Callan (1991).) Detailed information was also obtained on the mortgage(s) being paid by the household, if any. On the basis of the term, starting-date, type and size of loan and level of repayments, an estimate can be made of the capital amount outstanding. Estimates of gross house value and net housing wealth can therefore be made for each household.

About 55 per cent of the households which were owner-occupiers (accounting for 45 per cent of all households) owned their house outright, whereas 45 per cent (35 per cent of all households) were owner-occupiers but had a mortgage. Table 7.3 shows the distribution of these owner-occupiers, by house value and net housing wealth, in 1987 terms. For all owner-occupiers, the average valuation was £30,600. About one-quarter of owner-occupiers were in houses valued at less than £20,000, one-third were in the £20,000-£30,000 range, 28 per cent were between £30,000 and £50,000 and 8 per cent were in houses valued at over £50,000. Given the extent to which house prices fluctuate over time, it is to be emphasised again that these refer to valuations in 1987. The average net of outstanding mortgage debt was only slightly lower, at £26,100, since outstanding debt was only £4,500 on average. This conceals wide variation, though, with a majority of owner-occupiers having no mortgage debt, and considerable variation in the amounts involved for those who do have a mortgage. In terms of equity in the sense of net housing wealth, then, 43 per cent of owner-occupiers had less than £20,000, 29 per cent had between £20,000 and £30,000, 14 per cent had between £30,000 and £50,000, and 6 per cent had more than £50,000.

Table 7.3: *Owner-occupiers by House Value, Before and After Deduction of Outstanding Mortgage*

<i>Mortgage Bands</i>	<i>House Value</i>	<i>House Value Net of Outstanding Mortgage</i>
£10,000 or less	7.0	14.3
£10,000 – £15,000	7.5	13.0
£15,000 – £20,000	16.5	15.8
£20,000 – £25,000	14.4	14.6
£25,000 – £30,000	17.9	14.3
£30,000 – £35,000	9.1	7.1
£35,000 – £40,000	10.0	7.1
£40,000 – £50,000	9.4	7.5
£50,000 or more	8.2	6.2
All	100.0	100.0

The relationships between current income, owner-occupation, house values and net housing wealth are explored in Table 7.4. We see that owner-occupation is the dominant tenure type throughout the income distribution. The lowest proportion of owner-occupiers is found not at the bottom of the distribution but in the third and fourth deciles, largely because farm households are relatively important right at the bottom whereas local authority housing is relatively important for those in deciles three and four. For those who are owner-occupiers, the average gross house value does not vary over the bottom three deciles, at about £23,500, but then rises steadily, if undramatically, to reach £44,000 for the top 10 per cent. The percentage with an outstanding mortgage in fact also rises with income, though, with only one-fifth or less of those towards the bottom compared with 60 per cent or more of those towards the top having a mortgage. Among those who do have a mortgage, the average amount outstanding is also higher for those in the top half of the income distribution. As a result, the variation across the income distribution in net housing wealth among owner-occupiers is considerably smaller than that in gross house values, with average housing wealth virtually constant at about £23,000-£24,000 for the bottom 70 per cent of the income distribution.

The extent of owner-occupation and net housing wealth is also related to characteristics such as age and social class. A relatively small proportion of households headed by someone aged under 25 are owner-occupiers, and the percentage of owner-occupiers who have a mortgage is much higher in the 25-34 and 35-44 age groups than for older household heads. However, house values are lower on average for the elderly than for those under 65. As a result, mean net housing wealth is highest for households

where the head is aged between 45-64. In terms of social class, the proportion of owner-occupiers is relatively low for the manual social classes – though even for the unskilled manual class 62 per cent were owner-occupiers. Among owner-occupiers, mean net house values are also considerably higher for the professional/managerial classes (about £30-£40,000) than for the manual ones (about £22,000). This is narrower than the gap in gross house values, because outstanding mortgage debt is a good deal higher for households in the professional/managerial classes.

Table 7.4: *Percentage Owner-occupiers, Mean House Value and Outstanding Mortgage for Owner-occupiers by Current Income Decile*

Decile	All Households % of Owner-occupiers	Owner-occupiers Only			
		Mean Gross House Value	Outstanding Mortgage	Mean Amount Outstanding for those with Mortgage	Mean Net House Value
		£	Per cent	£	£
Bottom	78.8	23,331	11.4	7,526	22,475
2	73.8	23,921	19.4	3,977	23,149
3	59.0	23,906	22.2	7,814	22,192
4	67.4	24,578	37.3	6,678	22,095
5	71.9	27,072	42.6	8,527	23,441
6	83.9	29,203	47.4	10,624	24,178
7	88.7	30,918	59.9	10,479	24,653
8	83.4	35,583	58.5	11,526	28,842
9	92.7	37,564	65.5	12,923	29,120
Top	90.1	43,857	50.7	13,190	37,171
All	78.9	30,598	43.0	10,519	26,081

Having outlined the importance of owner-occupation and housing wealth in Ireland, and looked at the relationship between owner-occupation, house value, debt outstanding, and key household characteristics, we now turn to a more formal analysis of these relationships.

Can the Demand for Other Assets be Analysed Independently of Housing?

The importance of housing in the overall household portfolio leads to the question of whether it is legitimate to proceed, as we have done in the previous chapters, to analyse financial asset choice separately from the question of the demand for housing. We touched on this question in the

introductory chapter, but it is worth looking a little closer at practice in this regard in the literature.

Can the financial portfolio of those assets which we have identified be analysed separately, i.e., without taking account of the remainder of the wealth portfolio? Essentially this is an empirical question. In technical terms, to proceed with separate analysis of the financial portfolio amounts to the assumption that the household's preferences as between these financial assets are *separable* from the rest of the wealth portfolio. Intuitively what is required is that differing levels and composition of the remainder of the wealth portfolio should not alter the proportions in which the financial portfolio is structured. The same type of assumption is employed in all kinds of demand analysis to delimit the scope of study, even where data on the other assets or goods might be available.

Most of the papers on portfolio selection, and almost all of the papers in the small literature considering a single cross-section of asset holdings make this assumption. Thus Uhler and Cragg (1971) did not employ the data they had on the composition of non-financial non-human wealth in estimating the determinants of the degree of diversification of the household portfolio. Likewise, Feldstein in his benchmark (1976) study of personal taxation and portfolio composition made "no attempt to explain the holding of such non-financial assets as real estate or unincorporated business nor the extent and type of the individual's indebtedness", nor were components of non-financial wealth used as explanatory variables. Shorrocks (1982) does attempt to explain the share of housing and other non-financial forms of wealth, but he too makes the separability assumption and assumes that the shares of the various elements of financial wealth are not dependent on the mix of non-financial wealth components. In each of these studies, total non-human wealth (including housing, etc.) was employed as an explanatory variable, as we do in this study.

Some other papers did focus on aspects of non-financial wealth. Friend and Blume (1975), while retaining the separability assumption, noted that analysis of the share of risk assets in total wealth depended empirically on whether or not housing wealth was included in the measure of wealth. This would certainly be a relevant consideration if the analysis of Chapter 6 on risk aversion were to be carried any further.

King and Leape (1984) based their analysis on a mean-variance model with constraints on short sales; this implied that portfolio shares might depend on the subset of assets which was actually held in the portfolio, and thus that separability might not hold. Their equations explaining asset demand included explanatory dummy variables for the categories of assets included in the portfolio (but not for the amounts held).

It is worth noting that omission of specific assets would be a far more controversial matter if we were attempting to test theories of the determination of asset prices. Indeed, as was first highlighted by Roll (1977), the question of inclusiveness of the portfolio would then be central.

We did carry out some tests to see whether the assumption of separability actually holds in our data set. Specifically, we added the housing share as an explanatory variable to Equation B1 and re-estimated by two-stage least squares. Regardless of which of the four housing share definitions (see below) was used, the additional variable was wholly insignificant, with t-statistics of less than 0.2. This suggests that the separability assumption may be valid.

Regression Analysis:

Because housing is such a large part of measured non-financial wealth, it is not surprising to find that the main determinants of the share of housing wealth are mostly the same as the determinants of the share of financial wealth.

We report the main features of the regression relationships which we found in Regression Table G, which may be compared with Regression Table A. We did not explicitly explore possible interactions between the demand for housing and subcomponents of financial wealth since, with cross-section data, the usefulness of such an exercise would be limited. Instead, the focus of interest here is the distinction between gross housing wealth (including the value of the mortgage) and net housing wealth, where the value of the mortgage is subtracted from the value of the house. The concept of gross wealth (including the value of mortgage and other debt) also comes into play.

Thus the variables of interest are

shval	=	Gross housing wealth as a share of total (net) wealth;
shval2	=	Gross housing wealth as a share of gross wealth;
nshval	=	Net housing wealth as a share of total (net) wealth;
nshval2	=	Net housing wealth as a share of gross wealth.

We also have to pay attention to the question of including cases where these ratios are zero; apart from one Equation (G3) zero cases are excluded in the regressions of Table G.

In addition to demographic, prosperity and life-cycle indicators, taxation status is likely to be an important predictor of gross housing wealth because of the important variation in the after tax cost of mortgage

borrowing. Net of the mortgage, there is no strong presumption of a tax effect of the share of housing in wealth.

For some of the explanatory variables, the estimated impact on housing share has the same sign in each of our regressions. Thus farmers (socio-economic group 1) have an unambiguously lower share of wealth in the form of housing (about 20 per cent lower) as do the self-employed. In the case of the self-employed, it may be presumed that this relationship reflects the fact that non-pension financial wealth held in anticipation of retirement is likely to be higher among the self-employed.⁵⁶ In contrast, membership of the professional and managerial group *per se* increases the share of housing, albeit by a fairly small amount. If anything, female heads of household hold relatively more of their wealth in the form of housing.

Except where the zero observations are included, the marginal impact of wealth on each of the ratios is negative: the non-linear term (wealth squared) is not big enough to offset the linear term at wealth levels below several million pounds. The size of the effect is largest in the case of gross wealth: in G1, a 10 per cent increase in wealth from the mean level of £50,000 will reduce the share of housing by almost 4 percentage points, implying about a 30 per cent marginal propensity to invest in housing – less than half the average propensity. This confirms the observation that other forms of wealth (farmland and business wealth) become relatively more important in the typical portfolio the larger the portfolio.

Although income enters both directly and interactively with age, the marginal effect of income at the mean of the sample is very small.

For *gross housing*, the marginal impact of age is negative (except when the zero responses are included as in G3); for *net housing*, the marginal impact of age is positive. The latter result is consistent with the life-cycle effect of inheritance and of paying-off mortgages. The former result is more surprising and suggests, perhaps, an historical trend towards a greater share of housing.

As predicted, the tax rate has a positive effect on gross housing, but an insignificant effect on net housing. Though statistically significant, the estimated effect here is not very large: thus from G1 and G4 we would conclude that an increase in the marginal tax rate of the household from 25 to 50 per cent increases mortgage borrowing for housing by an amount equivalent to 7 per cent of total net wealth. Still, to be able to pinpoint this effect at all from such a data set confirms its importance; the magnitude of the true effect might differ substantially from what our model is able to detect.

⁵⁶Recall that pension wealth is not included in our data.

Finally we turn to the interpretation of the equation with zero observations included. This seems to differ so much from the other equations that the hypothesis under which the estimation has been carried out; i.e., that the behaviour of zero reporters is continuous with that of those with positive reported holdings, is not born out. Thus, the tenure decision is probably based on different considerations to the value-of-house decision, conditional on a house being owned.

This seems to be about as far as we should try to take the question of housing choice as an aspect of portfolio selection in the context of the present data set.

Conclusion

While housing is the single most important form of asset for Irish households, the determinants of housing tenure choice, as well as the size, location and cost of housing obviously include quite different factors to those relevant to most form of financial wealth – largely because the benefit of home-ownership is not primarily measured in terms of financial yield. Still, financial aspects are not unimportant, and we have been able to detect a significant impact of a household's marginal income tax rate on its propensity to borrow to acquire more expensive housing.

Chapter 8

OTHER ASSETS: DEBT, CURRENT ACCOUNTS AND ASSURANCE

Introduction

So far, the financial assets covered by our analysis have included deposit accounts, gilts and equities, Government small savings schemes, and lump-sum investments in deposit or investment bonds, unit linked funds, etc. But our analysis has not taken account of current (cheque book) accounts or recurring premium life-assurance related assets. In addition, although mortgage debt and farm loans were netted out in arriving at the measure of total wealth used in the course of the analysis, term loans were not taken into account. We now go on to make use of information obtained in the household survey on these three areas – current accounts, life-assurance related assets, and term loans. Although some complex issues arise in making use of this information, it allows a more complete picture of household financial assets to be presented.

Current Accounts

Current accounts are not included in the analysis of the earlier chapters above because of particular problems of interpreting the data. Complications arise because of the overlap between personal and business accounts for the self-employed, because joint accounts may be held by household members, and because of the sharp fluctuations in current account balances. In the 1987 survey (described in Chapter 3) the question on current accounts sought to obtain enough information to allow these complications to be taken into account.

Respondents were asked first whether they had a current (i.e., cheque book) account for personal use, or for combined business and personal use (accounts solely for business purposes were excluded). Those who did so (with personal and combined business/personal separately identified) were then asked about the usual balance in their account (or the net balance on all accounts if the respondent had more than one). Those whose account was “usually” in credit were asked the usual amount they were in credit, and those who were usually overdrawn were asked the amount they were usually overdrawn. (In each case respondents were presented with a pre-specified set of ranges or categories and asked to say

which corresponded to the usual balance/overdraft.) Those where joint accounts were involved were then identified, and the usual balance/overdraft in the joint accounts sought.

Most adults in the household sample were asked the full range of questions about assets, including this question about current accounts. About 24 per cent of the individual respondents said they had a current account purely for personal use and 6 per cent said they had an account for combined business and personal use. So about 80 per cent of the current accounts on which the analysis will be based are purely personal. About 69 per cent of the reported accounts usually had a credit balance, 4 per cent said they had a usual balance of zero, and 2.7 per cent were usually in overdraft. The average reported balance in the accounts in credit was £565, while the average overdraft was considerably larger at -£2,420. It is worth noting that combined business/personal accounts which were in overdraft tended to be much larger than purely personal overdrafts, with an average overdraft of -£4,573 for the former compared with -£1,408 for the latter. Combined business/personal accounts represented 32 per cent of all overdrafts and 64 per cent of those where the usual overdraft was more than £2,000. While combined business/personal accounts which were usually in credit also had higher balances on average than purely personal accounts, the gap was very much less, with an average balance of £935 in combined accounts compared with £507 in purely personal ones.

In Chapter 3, the sample responses were compared with externally-known statistics to assess the representativeness and reliability of the sample where possible. It was seen that, while financial assets were underrepresented in the survey, this was not surprising given the experience of surveys elsewhere. Much of the underrepresentation of particular assets may arise due to the inability of general household surveys to adequately reflect the very top of the distribution, holding a high proportion of the total.

Some external information is available which can be used as a benchmark in assessing the current account information provided in the sample, though, as in the case of other financial assets, it is far from ideal. The Central Bank publish data on the total balances held in non-government current accounts, and in 1986-87 (to which the survey applies) the total involved was about £1.05 billion.⁵⁷ Much of this is in business and other non-household accounts, though. About 40 per cent of

⁵⁷This and other Central Bank data are drawn from the *Central Bank Quarterly Bulletin*, especially the Summer 1987 issue, Tables C3, C6 and C7.

deposits in current and deposit accounts combined (of residents) are held by the personal sector. The personal sector share in current account balances alone is not published. If we take a figure of about 40 per cent to apply to current accounts, then the total balances held in personal current accounts in 1986/87 may have been about £0.42 billion. Grossing-up the reported sample responses for those who said they had current accounts usually in credit would suggest a figure for the population of about £0.26 billion. (About £0.6 billion of this is in what are reported to be combined business/personal accounts.) This suggests that about half of all credit balances in current accounts are reflected in the sample.

In the case of overdrafts, external data are published on the sectoral breakdown of total advances rather than on overdrafts alone. In 1986/87 total non-government credit in the form of overdrafts amounted to about £1.65 billion. About 20 per cent of all advances by licensed banks were to the personal sector, but much of this was in the form of house mortgage and budgeting finance: only about 10 per cent of all advances were to the personal sector for non-housing purposes. Such a figure for all advances may tell us little about the sectoral composition of overdrafts. If 10-20 per cent of all overdrafts were to the personal sector, the total outstanding to the personal sector in 1986/87 would have been in the range £0.16 to £0.33 billion. The grossed-up sample figure for overdrafts reported in the 1987 survey is about £0.45 billion, of which a substantial proportion – about £0.27 billion – is in combined business/personal rather than purely personal accounts.

While there are many difficulties in making a comparison between sample and external figures for current accounts, then, the results suggest that such accounts are, if anything, better represented in the sample than other financial assets. The reasons why underrepresentation of financial assets in such surveys arises, and the implications for analysis, are discussed in detail in Chapters 3 and 4.

The primary objective of our analysis has been to examine household rather than individual asset holdings. Using the information provided by individual respondents on their current accounts, the total amount "usually" held in current accounts by all members of each household was calculated. In doing so particular care was taken to avoid double-counting of joint accounts where both holders provided information about the account. The fact that some members may be in overdraft while others have credit balances means that the two will, in some cases, offset one another in arriving at the household total. Personal and combined business/personal accounts will also be added together where both are present.

In Chapter 4 the percentage of households holding particular financial assets, and the mean and median holdings for those who do so, were presented. For example, it was seen that 56 per cent of households in the sample held deposits in banks, building societies, etc., with mean holding of about £4,000 and median holding of £1,250. Analysing the responses on current accounts, Table 8.1 shows that 40 per cent of households reported having a current account. Distinguishing those usually in credit from those usually in overdraft, 29 per cent of households had at least one current account and were usually (net) in credit; 11 per cent had an account usually in overdraft. Although less than one-third of households with current accounts were usually in overdraft, the amounts involved were large relative to credit balances on average. Whereas the average amount on credit balances was £725, the average overdraft was £3,775. Thus the mean holding across all households with current accounts was negative, at -£575, while the median holding was £150.

We now look at the characteristics of households with current accounts. The fact that some of the reported current accounts, and especially some of the large overdrafts, are combined business and personal rather than purely personal, has already been emphasised and will affect our interpretation of the results. Table 8.2 shows the percentage of households reporting at least one current account, and mean and median balance/overdraft, by the set of household characteristics used in our earlier analysis. Accounts usually in credit and usually overdrawn (net) are also shown separately. Looking first at households with a usual credit balance, the percentage of households holding an asset of this type rises with household income, from about 15 per cent towards the bottom of the distribution to about 45 per cent towards the top. Households where the head is in the professional or managerial social classes, self-employed or an employee, or not in Local Authority housing, also have a relatively high probability of having a credit balance on current account. The average amount involved for households with a credit balance is relatively high for the retired/elderly and those who own their houses outright.

Table 8.1: *Household Assets: Current Accounts*

	<i>Usually in Credit</i>	<i>Usually Overdrawn</i>	<i>All Current Accounts</i>
Per cent of all households	28.4	11.5	39.9
Mean holding (£)	725	-3,775	-575
Median holding (£)	250	-800	150

Table 8.2: Household Assets: Current Accounts by Household Type

	Usually in Credit			Usually Overdrawn			All Current Accounts		
	% Holding	Mean	Median	% Holding	Mean	Median	% Holding	Mean	Median
INCOME DECILE									
Bottom	17.0	720	400	10.8	-5,095	-2,000	27.8	-1,546	150
2	15.9	787	150	5.9	-1,861	-625	21.8	70	75
3	12.9	550	150	3.1	(-1,033)	(-400)	16.0	240	112
4	13.3	417	150	9.9	-2,612	-800	23.2	-875	25
5	20.8	988	250	8.7	-5,607	-875	29.5	-960	100
6	28.4	1,077	150	7.5	-3,495	-712	35.9	122	75
7	30.0	583	250	11.6	-1,508	-300	41.3	-6	125
8	36.4	795	250	12.2	-3,623	-500	48.5	-316	150
9	47.1	483	250	16.3	-1,653	-800	63.5	-66	150
Top	43.6	818	360	22.3	-6,403	-2,000	65.8	-1,625	75
AGE									
0-25	21.0	(335)	(112)	2.6	(-1,250)	(-1,250)	23.7	158	75
25-34	27.5	510	150	13.8	-2,113	-500	41.3	-368	50
35-44	27.3	445	175	17.1	-3,718	-875	44.4	-1,158	75
45-54	30.5	598	225	13.1	-3,674	-625	43.6	-688	75
55-64	30.0	920	250	11.0	-6,234	-1,962	41.0	-1,010	150
65-74	29.0	1,056	300	6.5	-2,954	-450	35.6	320	250
75+	21.9	926	400	3.1	-1,464	-525	25.0	627	337
SOCIO-ECONOMIC GROUP									
Farmers	26.5	1,073	400	17.7	-5,872	-2,500	44.2	-1,705	150
Prof./Managerial	52.9	811	250	19.9	-3,725	-862	72.8	-428	150
Intermediate*	26.1	499	150	8.4	-2,233	-500	34.5	-168	75
Low Skill**	13.7	678	150	4.2	-1,186	-150	17.9	240	150
LAB FORCE STATUS									
Retired	29.0	1,188	400	2.2	-673	-150	31.2	1,057	300
Self-employed	33.7	1,030	400	24.6	-6,346	-2,000	53.3	-2,080	75
Home duties	16.0	412	200	4.7	-1,785	-75	20.6	-89	150
Employee	36.1	430	150	13.0	-1,393	-475	49.2	-52	75
Ill	11.2	572	250	4.1	(-1,260)	(-462)	15.3	84	150
Unemployed	8.5	606	100	2.4	(-1,425)	(-150)	10.8	162	50
TENURE									
Own outright	30.2	940	250	11.8	-5,344	-1,250	42.2	-817	150
Own w/mortgage	34.1	487	150	16.4	-2,274	-625	50.6	-410	75
Rented	31.5	560	250	5.0	(-822)	(-288)	37.0	356	150
Local Authority	5.5	336	150	5.5	(-662)	(-662)	6.0	253	150

*Intermediate non-manual and skilled manual.

**Semi-skilled or unskilled manual.

() denotes cell-size less than 10.

Turning to overdrafts, the percentage of households with a current account usually in overdraft is highest at the top of the income distribution, for the middle-aged, for the self-employed and for those who are in owner-occupied housing with a mortgage. The average amounts involved are highest for farmers and other self-employed – again related to the fact that business and personal finances are difficult to distinguish for many self-employed.

Including current accounts in the financial assets and liabilities of households covered by the analysis is, therefore, particularly important for certain types of household. Looking at all current accounts whether credit or overdraft, we see that about two-thirds of households towards the top of the income distribution, compared with about one-quarter of those near the bottom, have current accounts. Similarly, a high proportion of employees and the self-employed, the professional/managerial social class, and those in owner-occupied housing have such accounts. For many, though, the amounts involved are not large. Those right at the bottom, or the top, of the current income distribution, the self-employed, and the middle-aged, are particularly likely to have substantial net overdrafts on average.

Term Loans

Respondents to the individual questionnaire were also asked whether they were making repayments on hire purchase agreements or loans from banks or finance companies, for example, on a car or household appliances, or on a term loan. (Mortgage debt was separately examined and was included in the calculation of net house value and total net wealth in our earlier analysis.) For those who stated that they were, details were sought of the amount borrowed, size of repayments being made, and the number of repayments already made and still to be made. From this information the amount outstanding on these loans can be estimated – that is, the amount which it would be necessary to pay (at the date of interview) to clear the loan, rather than what was borrowed, or what will be paid over the remaining life of the loan. It is this estimate of the loan outstanding which is most relevant to the total current stock of assets and liabilities, and it will be the focus of our analysis.

About 19 per cent of the households in the sample were making repayments on such term loans/hire purchase agreements. The average amount outstanding for these households was £1,380 and the median was £825, so significant liabilities are involved in many cases. About 40 per cent of the households involved owed less than £500, a further 35 per cent owed between £500 and £2,000, and most of the remainder owed between £2,000 and £5,000.

It is difficult to compare the survey responses on term loans/hire purchase with external data. Data are published by the Central Bank on the total advanced in the form of loans up to one year, term loans and hire-purchase agreements by licensed banks to Irish residents, and this came to about £6.00 billion in 1986/87. As in the case of overdrafts, though, much of this is not lending to the personal sector. Published data show that only about 10 per cent of total non-government advances by licensed banks to residents is non-housing lending to the personal sector, but this may not be a reliable guide for the subset of advances under consideration here. (In particular, more of hire-purchase lending may be to the personal sector.) The sample estimate of the total outstanding on terms loans, etc., for households implies a grossed-up figure for all households in the population of about £0.25 billion.

Table 8.3 shows the percentage of households having term loans and similar debt, and the mean and median amounts outstanding for these households, by the range of characteristics used earlier. The percentage with such debt rises with household income, from about 8 per cent at the bottom of the income distribution to 26 per cent at the top. The amounts involved are also higher on average towards the top of the distribution. There is also a clear relationship between age and the likelihood of having such a loan: about 35-40 per cent of households where the head is aged under 35, compared with only 5-7 per cent of those where the head is over 65, have term loan/hire purchase debt. The amounts involved tend to be highest for the middle rather than younger age groups though. A low proportion of farmers and a high proportion of employees and the unemployed have such debt, and a low proportion of the retired.

Life Assurance Related Assets

In earlier chapters the financial assets covered included once-off investments in deposit/investment/guaranteed income/growth bonds, or other unit-linked funds. Some of these may have a life assurance element in order to maximize the advantage of the favourable tax treatment of such assets. However, savings in the form of recurring life assurance premiums were not taken into account at that stage. Here we make use of information obtained in the survey on savings-related recurring premium life assurance policies to fill this gap.

The survey included a detailed question on life assurance (explicitly distinguished from mortgage endowment and mortgage protection policies). Respondents were asked whether they had any life assurance policy, or life assurance-linked savings' policy, on which they were paying more than £2 per week/£100 per year. For each policy, they were then asked:

Table 8.3 *Term Loans/Hire Purchase Agreements*

	<i>Percentage of Households With Loan</i>	<i>Mean Amount Outstanding</i>	<i>Median Amount Outstanding</i>
INCOME DECILE			
Bottom	8.0	863	525
2	8.2	1,088	709
3	9.4	690	331
4	15.0	713	311
5	19.1	1,089	385
6	25.3	1,058	684
7	20.6	1,434	898
8	22.1	1,325	758
9	24.8	1,636	1,260
Top	26.5	2,137	1,630
AGE			
0-25	42.1	781	496
25-34	35.0	1,167	685
35-44	26.1	1,443	925
45-54	19.1	1,599	895
55-64	15.0	1,604	1,190
65-74	7.4	1,195	652
75+	4.9	808	328
SOCIO-ECONOMIC GROUP			
Farmers	11.6	1,464	839
Prof./Managerial	22.5	1,903	1,367
Intermediate*	22.3	1,284	747
Low Skill**	17.0	984	346
LAB FORCE STATUS			
Retired	6.8	1,180	640
Self-employed	15.6	1,757	1,440
Home duties	8.7	1,340	662
Employee	28.1	1,397	982
Ill	18.4	1,300	364
Unemployed	24.8	879	354
TENURE			
Own outright	11.6	1,602	1,062
Own w/mortgage	29.3	1,474	993
Rented	18.5	1,657	1,454
Local Authority	21.8	526	333

*Intermediate non-manual and skilled manual.

**Semi-skilled or unskilled manual.

() denotes cell-size less than 10.

- (i) what type of policy it was – whether a life assurance linked savings/ investment plan, an endowment policy, an educational expenses plan, term assurance, or a whole of life policy;
- (ii) whether the policy was “with profits”;
- (iii) when the policy was taken out;
- (iv) the amount of the premium and the period it covered;
- (v) whether the premium is index-linked;
- (vi) the sum assured;
- (vii) whether the policy covers single or joint life.

The very detailed information sought provides a basis on which to assess, in approximate terms, the current value of the financial asset represented by the policy. In arriving at such an estimate, the amount “invested” in the form of premia over the life of the policy up to the date of interview, and the type of policy involved, form the key elements. For the types of policy which are, by their nature, primarily a form of saving/investment, namely the savings plans, endowment assurance, and educational expenses policies, we apply a rate of return to the amount invested over time. This rate is based on the return on Irish gilts over the period in question. (The first year’s premium is assumed to cover administration and other expenses of the assurance company, and the calculation of the return accruing begins in the second year.) In calculating the amount of the premium paid in each year over the life of the policy, whether the premium was index-linked or not is, of course, crucial – for index-linked policies the current premium is appropriately deflated by the CPI to arrive at the amounts paid in earlier years. In this manner an estimate of the current value of the investment, on the basis of a “reasonable” rate of return, is calculated for each policy.

In the case of whole of life policies, the sum assured will be paid out at death. This does represent a financial asset in current terms even though the date at which it will be paid is unknown (for example, it may be possible to borrow now against expected returns from such a policy). In estimating the current value of such policies, then, we used the sum assured to be paid at death, and the individual’s life expectancy based on current age and life tables. The amount assured was then discounted back from the expected pay-out date to its current value, using a 10 per cent

annual rate of return. In effect, then, the estimate of current value is the amount which would have to be invested now to produce the sum assured by the expected pay-out date given that rate of return. (Note that the surrender value of such policies and the sums that can be borrowed from the assurance company against the security of the policy may be considerably less than the amount calculated here.)

In the case of term assurance policies, no payment will accrue from the policy if the holder does not die within the term. Some estimate could be made of the probability of an individual dying within the term, given current age and the life of the policy. However, the amounts involved would be small in most cases. Term policies do not, in general, represent savings, producing an asset which can be converted into current purchasing power in the same way as life assurance-linked savings' policies or whole of life policies. Rather, they are generally for precautionary purposes. Thus we ignore the current asset value of such policies in this exercise.

About 18 per cent of the adult respondents in the sample said they had at least one life assurance policy. Of these, 81 per cent had one policy, 15 per cent had two, and 4 per cent had 3 or more policies. The breakdown of the policies by type was as follows:

	%
Life assurance-linked savings plan	41
Endowment assurance	26
Educational fees/expenses	2
Term assurance	10
Whole of life	20
Other	1

The average premium paid on these policies was about £300 per annum, with no great variation in average premium by type of policy except that the small number of educational expenses plans tended to have relatively high premium levels.

We are primarily interested in the financial asset represented by these life assurance-related investments, and their role in household asset holdings. Estimating the current value of each policy in the manner described and aggregating all policies held by members of a particular household, we arrive at an estimate of the holdings of each household of assets in this form. About 23 per cent of the households in the sample are found to have an asset of this type. The average value of savings in this form, for households which do hold such an asset, is £2,635, and the median value is £1,212. Of the households holding assets in this form, 43 per cent have a holding of less than £1,000; 22 per cent have between

£1,000 and £2,000; 21 per cent have between £2,000 and £5,000; 8 per cent have between £5,000 and £10,000 and 6 per cent have policies with estimated value of £10,000 or more.

Because of the nature of the published data and the assumptions which must be made in estimating the current asset value represented by life assurance policies, it is not possible to validate the sample aggregate by reference to such external data in this case.

Table 8.4 shows the relationship between holdings of this asset type and household characteristics. The percentage of households with such life assurance-related assets rises steadily with household income, from 6 per cent at the bottom of the income distribution to 39 per cent at the top. Households where the head is aged 25-54 are more likely to have such an asset than those with a younger or older head. Those in the professional/managerial social class, employees, and owner-occupiers with a mortgage also have relatively high proportions with this type of asset.

Impact on the Composition of Wealth Holdings

In Chapter 4, we looked at the way in which wealth holdings are made up of different types of assets for those at different points throughout the income distribution. We can now include the two additional types of financial assets, credit balances on current account and life-assurance related savings, in the analysis of the composition of financial asset holdings and gross wealth. We can now also examine the pattern of financial liabilities of households, covering mortgage debt, farm loans, term loans and overdrafts. This allows the analysis to be carried out with a more complete coverage of financial assets and liabilities and more satisfactory estimates of total household gross and net wealth.

Table 8.5 shows the composition of the financial assets held by households at different income levels, and the importance of each asset type in total gross wealth, that is, wealth before financial liabilities are deducted. Compared with the results in Chapter 4, financial assets are again seen to make up a relatively high proportion of total wealth towards the top of the income distribution. Further, "basic" assets still account for most of the financial assets held towards the bottom of the income distribution. However, the inclusion of current account balances and the life assurance-related savings has increased the importance of financial assets throughout the distribution. Recurring life assurance-related savings account for 10-15 per cent of total financial assets throughout the distribution. Sophisticated assets make up about 25-30 per cent of all financial assets towards the top of the income distribution, but substantially less than that for most of the remainder of the distribution.

Table 8.4 Household Assets: Life Assurance-Linked Savings

	<i>Percentage of Households With Asset</i>	<i>Mean Value</i>	<i>Median Value</i>
INCOME DECILE			
Bottom	5.6	2,544	865
2	8.2	4,031	2,311
3	7.3	1,162	447
4	13.6	1,992	1,120
5	17.4	1,499	759
6	22.2	1,505	643
7	26.2	2,145	1,113
8	32.6	3,150	1,080
9	33.5	3,278	1,587
Top	39.4	3,134	1,594
AGE			
0-25	21.0	(3,724)	(958)
25-34	30.6	1,502	844
35-44	32.3	2,607	1,368
45-54	25.9	2,957	1,590
55-64	18.9	3,870	1,366
65-74	11.8	1,964	1,051
75+	9.4	2,684	1,594
SOCIO-ECONOMIC GROUP			
Farmers	14.3	2,080	1,420
Prof./Managerial	35.2	3,918	1,395
Intermediate*	25.7	2,226	1,027
Low Skill**	13.7	2,157	828
LAB FORCE STATUS			
Retired	11.9	2,206	1,296
Self-employed	21.4	2,686	1,502
Home duties	11.6	2,694	932
Employee	34.7	2,755	1,245
Ill	16.3	2,775	1,034
Unemployed	12.5	1,701	446
TENURE			
Own outright	17.0	2,949	1,371
Own w/mortgage	35.9	2,549	1,244
Rented	13.0	3,629	1,566
Local Authority	13.6	1,386	533

*Intermediate non-manual and skilled manual.

**Semi-skilled or unskilled manual.

() denotes cell-size less than 10.

Table 8.5: *Disposition of Gross Wealth by Income Decile*

Decile	Deposits	Mean Percentage of Gross Wealth Held in:					
		Small Savings	Current Accounts	All "Safe" Assets	Sophisticated Assets	Life Assurance	All Financial Assets
Bottom	2.7	0.1	0.3	3.1	0.1	0.3	3.5
2	5.2	0.3	0.4	5.8	0.7	1.0	7.5
3	4.1	0.4	0.3	4.8	0.8	0.3	6.0
4	4.6	0.5	0.2	5.2	0.2	0.9	6.3
5	4.0	0.4	0.5	5.0	1.7	0.6	7.3
6	4.1	0.4	0.7	5.2	1.7	0.8	7.7
7	4.6	0.8	0.4	5.8	0.8	1.4	8.0
8	4.5	0.9	0.5	6.0	1.8	1.9	9.6
9	6.0	0.8	0.4	7.2	3.2	1.8	12.3
Top	5.1	0.9	0.4	6.4	3.3	1.3	10.9
All	4.7	0.7	0.4	5.8	2.0	1.2	9.0

Decile	Deposits	Mean Percentage of Financial Assets in:				
		Small Savings	Current Accounts	All "Safe" Assets	Sophisticated Assets	Life Assurance
Bottom	77.5	2.6	7.7	87.8	3.1	9.0
2	69.2	3.5	4.9	77.6	9.4	13.0
3	68.4	7.0	4.8	80.3	13.9	5.8
4	71.8	8.2	2.8	82.8	3.6	13.6
5	55.3	5.8	6.9	68.0	23.2	8.8
6	53.0	5.6	9.2	67.7	22.3	10.0
7	57.0	10.5	5.3	72.8	9.9	17.3
8	47.1	9.3	5.5	61.9	18.5	19.5
9	49.3	6.6	3.1	59.1	25.9	15.0
Top	46.9	7.9	3.4	58.2	30.0	11.8
All	52.6	7.4	4.6	64.7	21.8	13.4

We can now also look at financial liabilities of households. The liabilities on which data are now available for the sample are mortgage and other housing-related debt, farm loans, term loans/hire purchase agreements and current account overdrafts. Table 8.6 shows the composition of financial liabilities for households categorised by income decile, and the mean level of each type as a percentage of gross wealth also by income decile. Total financial liabilities as a percentage of net wealth are highest for deciles 6-9, and most of this is in the form of mortgage debt. The lowest income group has a distinctive pattern of liabilities, with mortgage debt

much less important than for other groups and farm loans and overdrafts much more important. This reflects the fact that a significant proportion of the lowest income group are farm households having a particularly bad year, owning their homes without mortgage but with substantial farm loans. Some of the self-employed with large overdrafts are also in this group. For much of the distribution, debt accounts for 70 per cent or more of total financial liabilities, term loans/hire purchase loans for about 6 per cent, and overdrafts for about 10 per cent.

Table 8.6: *Financial Liabilities by Income Decile*

<i>Decile</i>	<i>as a Percentage of Gross Wealth</i>				<i>Total Financial Liabilities</i>
	<i>Mortgage</i>	<i>Farm Loans</i>	<i>Term Loans/ Hire Purchase</i>	<i>Overdrafts</i>	
Bottom	1.1	3.2	0.2	1.2	5.7
2	2.1	0.4	0.3	0.3	3.1
3	3.7	0.4	0.3	0.1	4.4
4	4.5	0.7	0.4	0.8	6.4
5	5.1	1.1	0.5	1.2	7.9
6	7.5	1.1	0.6	0.6	9.9
7	10.5	0.6	0.7	0.4	12.2
8	8.0	3.8	0.5	0.8	13.2
9	9.2	0.7	0.7	0.5	11.1
Top	4.6	1.0	0.6	1.5	7.7
All	6.1	1.4	0.5	0.9	8.9

<i>Decile</i>	<i>as a Percentage of Total Financial Liabilities</i>			
	<i>Mortgage</i>	<i>Farm Loans</i>	<i>Term Loans/ Hire Purchase</i>	<i>Overdrafts</i>
Bottom	19.8	56.1	2.7	21.4
2	68.0	13.0	8.5	10.5
3	82.5	8.5	6.0	3.0
4	70.6	11.1	5.3	12.9
5	64.2	14.2	6.4	15.1
6	76.5	11.0	6.3	6.2
7	85.9	4.6	6.0	3.5
8	60.9	28.8	4.1	6.1
9	83.2	6.5	6.2	4.1
Top	59.6	13.4	7.6	19.3
All	68.9	15.2	6.0	9.9

Modelling Debt, Current Accounts and Assurance

As already discussed, there are several reasons for expecting greater difficulty in modelling portfolio decisions involving the assets and liabilities discussed in the previous chapter. For one thing, the data on debt and on current accounts certainly include a higher proportion of business-related assets and liabilities whose magnitudes are unlikely to be related to household characteristics in a predictable manner. So far as life assurance is concerned, the wealth embodied in endowment policies are likely to be treated in a different way to the other financial assets we have been considering, most of which have been substantially more liquid. Our prior expectation is that, for most households, the decision to take out an endowment policy is likely to be based on different criteria than the decision to acquire other types of financial asset.

Nevertheless, we now examine the degree to which the portfolio choice framework of Chapter 5 (above) remains applicable to the wider set of assets and liabilities. Chart 2 offers an expanded decision tree which provides a general framework within which most of our regressions can be understood.⁵⁸ The real apex (not shown in Chart 2) of the decision tree is gross wealth⁵⁹ (that is before netting out mortgage and farm-related debt) which is split between gross financial position (financial assets plus debt) and non-financial wealth net of debt (Node D – not shown in Chart 2). In turn the gross financial position is divided between debt (made up of overdrafts, term loans, farm-related debt and house mortgages) and the rest (Node E). At Node F, the decision is made between life assurance and other financial assets.⁶⁰ Node G represents the choice between “sophisticated” and “basic” assets, but this time the latter include credit balances on current bank accounts (which we will call “credit balances”) for short).

A. Allocation between financial assets and other gross wealth

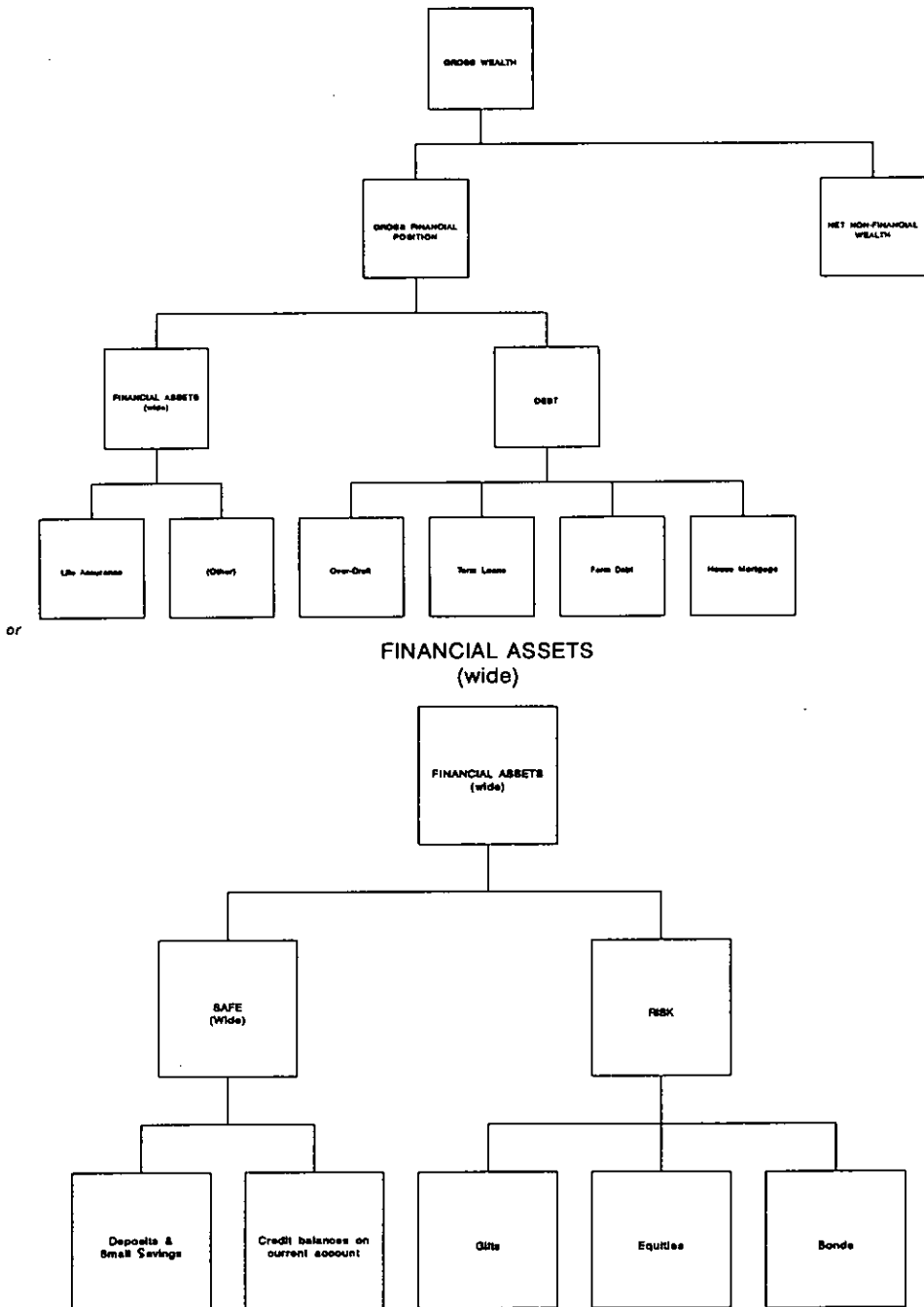
Looking first at the determinants of financial asset holdings, we have adapted the equations derived in Regression Table A above to the wider asset set of this chapter. Thus, telescoping Nodes D and E in the new decision tree, we arrive at Equations D1 to D4 (Regression Table D) corresponding to Equations A1 to A4.

⁵⁸Though, guided by the data, we do not restrict ourselves too narrowly to this tree.

⁵⁹An alternative, perhaps more natural, tree would have net wealth at the apex. Nothing essential hinges on the choice of this particular formulation, but it serves to motivate our equation explaining the ratio of debt to financial assets.

⁶⁰As discussed below, after some empirical experimentation, this seemed preferable to assuming that life assurance was a component of either the sophisticated group or the basic group.

Chart 2 DECISION TREE FOR WIDER CONCEPT OF FINANCIAL ASSETS



The variables that were significant in equations A1 to A4 remain significant with the expanded asset concepts, the signs and sizes of the coefficients are quite similar and the fit is better (except in D2). In view of these similarities, it is not necessary to dwell further on the equations.

B. The debt-wealth ratio

Node E identifies the debt-wealth choice, or equivalently household leverage. Two equations for this variable are provided in Regression Table F.

Again the importance of using Tobit estimates is revealed by the contrast between the two equations. In Equation F1, both total wealth and gross financial position have a significant non-linear impact, but in the Tobit, only the gross financial position enters significantly. The net effect of this variable at the mean is positive: a greater gross position is associated with a higher debt-to-wealth ratio. However the effect is small: an extra £1,000 in gross financial position is associated with less than 0.4 percentage points change in the ratio.

Conditional on age, income has a positive effect, but conditional on income, age has a negative effect on the debt ratio. As with the share of financial assets in gross wealth, urban households and those in the professional and managerial socio-economic group have a systematic tendency to a higher leverage. Finally sex has an important impact: the debt-gross financial position of women is about 18 percentage points below that of men, all other things being equal.

C. Life assurance

The determinants of life assurance holdings are rather different to those of other holdings. Wealth, income and socio-economic group do not have a significant impact on the share of life assurance assets in total financial assets. Equations E5 and E6 in Regression Table E illustrate the modest degree to which significant explanatory variables can be identified in our data. Urban households have higher life assurance assets, as have younger households (this despite the fact that younger households have had less years in which to build up their equity in contract).

A somewhat better degree of explanatory power is obtained for a Probit equation identifying the households with life assurance (regardless of the value of the assets involved). Again urban households are identified as more likely to have policies; however so far as age is concerned in this case it is older households who are more likely to have the life assurance. The size of financial assets has a non-linear effect, and at the mean this effect is negative, though at moderate levels of wealth, the effect is positive:

thus moderate levels of wealth generate the highest proportion of policy-holders.

D. Allocation between basic and sophisticated assets

Turning to Node G, there is a sharp contrast between our ability to model the "basic" versus "sophisticated" asset choice with the narrower set of assets in Chapter 5 above and the situation when life assurance and credit balances are included in the denominator. The fit deteriorates substantially whether or not we include those households which had no time deposits or small savings, as can be seen from Equations E1 and E2 in Regression Table E.

The key to the problem seems to be the fact that life assurance assets are not treated on the same basis as other assets by the households. The variance of the basic asset share is much higher now when life assurance assets are not included in the denominator. In effect, some households have much lower "basic" asset shares than would be predicted by an equation like B1 because they have substantial life assurance assets. That this is the problem is revealed by including the share of life assurance assets as an explanatory variable,⁶¹ as in Equation E3. Most of the variation in the share of "basic" assets is now explained by this term alone.

Because of this difficulty, reliance should, we feel, be placed on Equations B1 to B3 for analysis of "basic" asset choice.

For equities, this problem is not so acute, and Equation E4 even provides a better fit than B4.

Finally, we may mention that it was not possible to explain much of the variation in credit balances on current account, doubtless because these vary for reasons related to business activities of the households. Equation E8 is included for completeness, but is clearly of little assistance in explaining behaviour.

⁶¹And estimating by two-stage least squares to eliminate the simultaneous equations bias.

Chapter 9

CONCLUDING REMARKS

Some of the results which we have obtained are comfortingly predictable. Irish household portfolio choices vary systematically with household wealth, with wealthier households placing more emphasis on non-financial assets, and on "sophisticated" assets. The age of the household head is also a factor in the sophistication of the portfolio.

If capital markets were perfect, current income should not provide additional explanatory power. It does provide independent explanatory power in some of our equations, though whether this is due to market imperfections, or because our measure of total wealth is an imperfect one, is not clear. The role of income as a proxy for the tax rate has also been explored.

Some socio-economic factors are also relevant. For example, the self-employed hold less of their portfolio in financial assets, and have a less sophisticated financial portfolio. The opposite is true of the professional and managerial classes.

Taxation is an important influence on portfolio choice, and this can be detected in our work, even though the asset breakdown available does not allow a very detailed analysis of the nature of this effect. More generally we find that income tax tends to encourage risk-taking in choice of assets.

The purchase of recurring premium life assurance seems to be determined by rather different factors to those influencing the remainder of the household's financial portfolio. Wealth, income and even socio-economic group are not reliable predictors of the share of life assurance assets in total financial assets.

So far as the degree of household borrowings or leverage are concerned, we find that leverage increases with income, but declines with age. The sex of the household head is an important factor here: the leverage of households with female heads is far lower than that of other households.

Our first estimates of the coefficient of relative risk aversion, a key parameter for applying economic theory to policy analysis, suggest that it declines with increasing wealth.

It seems clear that further research in this area requires additional

sources of information in at least two different dimensions. For one thing, a single cross-section does not permit analysis of the responsiveness of household portfolios to changes in rates of return. It is for this reason that most of the international literature on household portfolio choice simply cannot be applied to the data set at hand. The ideal situation is to build up a panel of data over time, but even a single additional cross-section would help.

The other dimension in which more data collection would be required is in the sampling of high wealth households. Even the large sample which we have at our disposal includes too few high-wealth individuals to obtain really reliable results about the management of large portfolios. Because large household portfolios contain a relatively high fraction of household wealth, and particularly of assets other than bank deposits and Government small-savings, this is a serious deficiency. The solution could be disproportionate oversampling of households whose observed characteristics are likely to be correlated with wealth (as has been done in the United States).

Annex 1: The Questionnaire

That part of the questionnaire dealing with savings and assets is reproduced in this Annex.

ASK ALL RESPONDENTS

7. SAVINGS AND ASSETS

The last few questions deal with various forms of savings. This information is very important for the accuracy of the survey. Everything you tell me, including this information, is, of course, strictly confidential. If you prefer, you can complete this section of the questionnaire separately, and put it into an envelope which you can seal.

[INTV: DID RESPONDENT CHOOSE TO COMPLETE SEPARATE "CONFIDENTIAL SECTION 7"?

Yes 1 Fill in Interviewer Number, Area Code, Household Code and Person Number on the "Confidential Section 7" and give it to respondent to fill out.

No 2 Ask Q.7.1.]

7.1 First, could you look at this card [show Card H] and say which category corresponds to the total interest and dividends paid or credited to you in the last 12 months from all bank, building society, post office, and other accounts, and any national savings, government loans, stocks and shares?

[Category: a letter from A to N, or O]

7.2(a) Now thinking just of building society accounts, could you say which category corresponds to the total balance in your building society accounts at present?

[Category: A to N, or O]

(b) Thinking now of Post Office Savings Bank or Trustee Savings Bank accounts, which category corresponds to your total balance in these accounts at present?

[Category: A to N, or O]

(c) Now thinking of all other accounts, excluding cheque book accounts, but including all other accounts with banks, ACC, ICC, credit unions etc. which category corresponds to your total balance in these accounts at present?

[Category: A to N, or O]

(d) Looking again at the card, could you say which category corresponds to the usual total balance in all your accounts taken together, over the last 12 months?

[Category: A to N, or O]

(e) Are all of these accounts your own personal accounts, or is any of them a joint account?

All own accounts .. 1 [Go to Q.7.] One or more joint accounts .. 2

Thinking just of your joint account(s), which category corresponds to the total balance in the joint accounts at present?

[Category: A to N, or O]

THE FINANCIAL ASSETS OF HOUSEHOLDS IN IRELAND

- 7.3 Do you have at present, or have you had in the last 12 months, any money in Savings Certificates or Index-linked Savings Bonds?

Yes 1 No 2

	When did you purchase these savings certificates/savings bonds? (Including those cashed in during the last 12 months)		How much did they cost at that time?	How much did you receive by cashing in some or all of these certs/bonds during the past 12 months?
	Month	Year	£	£
Savings Certs	_____	_____	_____	_____
	_____	_____	_____	_____
Index-linked Savings Bonds	_____	_____	_____	_____
	_____	_____	_____	_____

- 7.4 Do you have at present, or have you had in the last 12 months, any money in National Instalment Savings? Yes 1 No 2

- (a) How much have you invested in National Instalment Savings at present (i.e. how much have you paid in)? £ _____
- (b) How much did you pay in over the last 12 months? £ _____
- (c) How much, if anything, did you receive from cashing in National Instalment Savings Agreements in the last 12 months? £ _____

- 7.5 Do you have any money in prize bonds at present? Yes.. 1 No.. 2

About how much? £ _____

- 7.6(a) Do you have at present, or did you have in the last 12 months, any money invested in government or other official stocks?

Yes 1 No 2

What is your estimate of the value of the stocks you hold at present?
£ _____

How much did you receive by way of dividends in the last 12 months?
£ _____

- (b) Do you, or did you in the last 12 months, own any shares or securities?

Yes 1 No 2

What is your estimate of the value of the shares and securities you hold at present?
£ _____

How much did you receive by way of interest or dividends in the last 12 months?
£ _____

- 7.7 If you have children under 15 or in full-time education, is there more than £100 invested in their names which was not included with your savings?

Yes 1 No 2

IF YES How much is invested in their names at present?

£ _____

- 7.8 Have you made any once-off or lump sum investments in deposit, or investment bonds, guaranteed income bonds, growth bonds, or other unit linked funds?

Yes 1 No 2 Go to Q.7.9

(a) Can you tell me approximately how much your investment is worth at the moment (encashment value)? [NOTE: Probe for approximate reply]

£ _____ Go to (b) Don't Know.. DK

When did you purchase the bond(s)?		How much did you invest at that time?
Month	Year	£ _____
_____	_____	£ _____
_____	_____	£ _____
_____	_____	£ _____

(b) Do you get a regular payment from this scheme?

Yes 1 No 2

How much is this regular payment?

£ _____ in last 12 months

OR _____ % of the value of the investment

- 7.9 ASK ALL (a) (If self employed or farmer) Apart from the accommodation your household occupies and any houses or land included in your business/farm, do you own any other houses, land or other property?
- (b) (All others) Apart from the accommodation your household occupies, do you own any houses, land or other property?

Yes 1 No 2 Go to Q.7.10

What do you estimate is the present market value of the property?

Total value £ _____

Do you have a mortgage on any of this property? Yes.. 1 No .. 2
Go to 7.10

Original amount of mortgage £ _____ Year taken out _____

- 7.10 Have you ever inherited or received a gift of

	Yes	No
(a) a house or other property	1	2
(b) all or part of a business or farm	1	2

When did you inherit this property/business? Month _____ Year _____

What was the market value of your inheritance at that time? £ _____

(c) Apart from property, business and farms, have you in the last 5 years received an inheritance or gift worth more than £500?

Yes 1 No 2

When? Month _____ Year _____

How much? £ _____

- 7.11 Do you have a current (i.e. cheque book) account for personal use, or combined business and personal use (i.e. not solely for business purposes)?

Yes, personal... 1 Yes, combined business/personal... 2 No.. 3

Is the usual balance on your cheque book account (or the net balance on your cheque book accounts, if you have more than one) in credit, or overdrawn?

In credit 1

Overdrawn 2

Could you look at this card and say which category corresponds to the usual balance in your cheque book account(s)?

[Show Card H]

(category A-N, or O)

Could you look at this card and say which category corresponds to the usual overdraft in your cheque book account(s)? [Show Card H]

(category A-N)

Is a joint current account included in this usual balance?

Yes..... 1 No 2

Is the joint account usually in credit or overdrawn?

In credit ... 1 Overdrawn ... 2

What is the usual balance/overdraft? [Show Card H]

(category A-N, or O)

- 7.12 Apart from what we've already talked about, do you have any other property or savings worth more than £500?

Yes 1 No 2

(a) What? _____

(b) How much is it worth? Total value in £ _____

END OF INTERVIEW: Thank respondent for co-operating.

Annex 2: Definitions of Variables

Here a detailed description is provided of the definition and measurement of the characteristics used to categorise households in Chapters 4, 7 and 8, and in the regression analysis of Chapters 5, 7 and 8.

Income:

Disposable income of each adult in the household was measured in the survey and aggregated, together with income from farming which was measured separately, into the household total. Using equivalence scales, household equivalent income was then calculated, households were ranked, and decile position was derived (i.e., whether the household was in the bottom 10 per cent, next 10 per cent, etc.). The equivalence scales employed were those broadly implicit in social welfare payment rates, where if the household head is attributed the value of 1, additional adults take the value 0.66 and each child takes the value 0.33 (see Callan, Nolan *et al.* 1989).

Socio-economic Group:

Socio-economic groups were distinguished on the basis of the occupation of the household head, using the 11 socio-economic group categories employed by the Central Statistics Office. These were grouped into four categories, for the purposes of analysis, as follows:

- (1) CSO category 0 (farmers) and 1 (other agricultural and fishermen);
- (2) CSO category 2 (higher professional), 3 (lower professional) and 4 (self-employed with employees);
- (3) CSO category 5 (salaried employees), 6 (intermediate non-manual), 7 (other non-manual) and 8 (skilled manual);
- (4) CSO category 9 (semi-skilled) and 10 (unskilled manual).

Tenure:

Four tenure categories were distinguished:

- (1) Owned outright without mortgage outstanding;
- (2) Owned outright with mortgage outstanding (including tenant purchase schemes);
- (3) Private rented;
- (4) Local Authority rented.

Labour Force Status:

The following categories were used for the current labour force status of the household head:

- (1) Employee (working at least one hour per week for pay);
- (2) Self-employed (including farmers);
- (3) Unemployed (including first-time job seekers);
- (4) Ill (including away from work due to illness but intending to seek work, and long-term ill/disabled);
- (5) Retired;
- (6) Engaged in home duties.

Tax Rate:

The tax rate facing each tax unit – i.e., single person or couple with dependent children – was calculated on the basis of their allowances and gross income. The rate facing the unit containing the household head was taken to be the most relevant one for analysis of portfolio choice.

Regression Tables

Regression Table A: Allocation Between Financial and Other Wealth

Equation no.	A1		A2		A3		A4		A5	
Dependent variable:	<i>finass</i>		<i>sfin</i>		<i>sfin</i>		<i>sfin</i>		<i>sfin</i>	
Explanatory vars:										
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	-1,701	(3.6)	17.71	(7.0)	6.26	(3.3)	-7.47	(2.8)	-8.76	(3.3)
wealth	1,222	(23.3)	-2.87	(13.0)	-0.69	(6.0)	-0.18	(1.1)	-0.17	(1.1)
wealth squared	-8.13	(13.9)	0.061	(10.4)	-0.003	(2.5)	-0.003	(1.6)	-0.004	(0.2)
income	-8.44	(4.0)			0.006	(2.5)	0.016	(5.3)		
age x income	2.33	(5.2)								
urban	1,525	(3.2)	7.29	(5.5)	6.14	(5.9)	7.35	(5.1)	6.95	(4.8)
sex			7.60	(4.1)	4.09	(3.0)	3.71	(2.0)	2.61	(1.4)
soc.econ.gp.1	4,651	(7.5)								
soc.econ.gp.2	3,818	(6.2)			2.92	(2.1)	6.20	(3.3)	5.09	(2.7)
self employed	-3,496	(4.1)	-4.95	(2.2)	-4.56	(2.3)	-4.87	(1.9)	-5.29	(2.0)
tax rate									0.24	(6.6)
R-bar squared	0.205		0.128		0.043					
Log-likelihood							-20,976		-20,969	
No. of obs	3,089		2,121		3,089		3,089		3,089	
Method	LS		LS		LS		Tobit		Tobit	

finass = holdings of financial assets in £000.

sfin = share of financial assets in total wealth.

Regression Table B: Allocation Between Basic and Sophisticated Assets

Equation no. Dependent variable	B1 sbasic*		B2 sbasic		B3 sbasic		B4 sequi**		B5 sequi		B6 rra+		B7 rra	
Explanatory vars:														
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	100.28	(155.0)	256.30	(23.0)	249.65	(19.8)	-0.51	(1.0)	-172.02	(12.2)	0.39	(1.2)	-93.18	(14.5)
wealth	-0.25	(3.6)	-2.45	(5.2)	-2.36	(4.9)	0.31	(5.7)	3.23	(6.3)	0.17	(3.9)	1.63	(5.5)
income	-1.42	(4.1)	-11.60	(4.6)	-6.60	(2.2)	1.51	(5.6)	14.09	(5.1)				
age x income	0.27	(3.5)	2.01	(3.6)	1.36	(2.3)	-0.29	(4.8)	-2.6	(4.1)				
financial assets	-6.40	(13.5)	-30.77	(10.1)	-30.01	(9.9)	0.91	(2.4)	17.7	(5.5)	3.72	(12.3)	18.38	(9.8)
fin assets squared	0.13	(5.1)	1.01	(7.3)	0.98	(7.2)	0.07	(3.8)	0.51	(3.6)	-0.09	(5.5)	-0.62	(7.2)
soc.econ.gp.2	-3.77	(3.8)	-27.95	(3.7)	-22.23	(2.8)	2.79	(3.6)	26.86	(3.1)	2.10	(3.3)	19.76	(4.1)
self-employed	5.48	(3.9)	45.15	(3.5)	45.21	(3.5)	-3.79	(3.5)	-45.17	(3.1)	-3.22	(3.6)	-25.33	(3.1)
tax rate					-1.19	(2.2)								
tax rate squared					0.03	(2.9)								
R-bar squared	0.185						0.108				0.143			
Log-likelihood			-1,601.4		-1,596.3				-1,130.8				-1,510.1	
No. of Obs.	2,121		2,121		2,121		2,121		2,121		2,121		2,121	
Method	LS		Tobit		Tobit		LS		Tobit		LS		Tobit	

*sbasic is percentage share of financial assets held in basic assets.

**sequi is percentage share of financial assets held in equities.

+rra is ssafe reduced by household tax rate.

Regression Table C: *Allocation of Sophisticated Assets*

<i>Dependent variable: Equation no.</i>	<i>Share of equities in sophisticated assets</i>			
	<i>C1</i>		<i>C2</i>	
Explanatory vars:				
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	81.02	(5.2)	137.67	(4.5)
wealth	1.243	(3.2)	2.33	(2.7)
age	-9.07	(3.5)	-16.49	(3.3)
financial assets	-15.12	(3.8)	-26.28	(3.7)
fin assets squared	0.338	(3.4)	0.6263	(3.1)
age x fin assets	1.55	(2.2)	2.21	(1.7)
soc.econ.gp.1	23.2	(2.6)	38.7	(2.2)
soc.econ.gp.2	-9.89	(1.5)	13.9	(1.2)
employee	13.3	(1.6)	18.7	(1.2)
R-bar squared	0.228			
Log-likelihood				
No. of obs.	217		217	
Method	LS		Tobit	

Regression Table D: Allocation Between Financial and Other Wealth (Wide Series)

Equation no. Dependent variable	D1 <i>tinass*</i>		D2 <i>tfin**</i>		D3 <i>tfin</i>		D4 <i>tfin</i>	
Explanatory vars:								
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	-1,910	(3.9)	14.44	(6.0)	8.85	(4.5)	-1.86	(0.7)
gross wealth (+)	1,302	(24.5)	-1.40	(10.6)	-0.82	(7.1)	-0.37	(2.5)
gr with squared	-9.10	(15.3)	0.10	(7.1)	0.005	(3.5)	-0.000	(0.2)
income	-10.58	(4.9)			0.005	(2.1)	0.014	(4.7)
age x income	3.07	(6.7)						
urban	1,500	(3.1)	9.46	(7.5)	7.64	(7.2)	9.29	(6.9)
sex			6.44	(3.6)	3.27	(2.3)	2.54	(1.4)
soc.econ.gp.1	-5,001	(7.8)						
soc.econ.gp.2	4,185	(6.6)			3.06	(2.1)	5.35	(3.0)
self-employed	-3,669	(4.2)	-4.99	(2.3)	-4.60	(2.3)	-4.62	(1.9)
R-bar squared	0.229		0.104		0.055			
Log-likelihood							-1,348.3	
No. of Obs.	3,089		2,310		3,089		3,089	
Method	LS		LS		LS		Tobit	

**tinass* = holdings of wide financial assets (= *finass* + credit current accounts + life assurance).

***tfin* is percentage share of wide financial assets in gross wealth.

+gross wealth does not net out mortgage and farm debt, also includes all of "*tinass*" (see * above).

Regression Table E: Allocation Between Basic and Sophisticated Assets; Assurance and Current Accounts

Equation no.	E1		E2		E3		E4		E5		E6		E7		E8	
Dependent variable	tsafe*		tsafe		tsafe		tequi**		tlass+		tlass		nlass++		tcap#	
Explanatory vars:																
	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)	Coeff	(t-stat)
constant	89.45	(71.3)	94.91	(73.3)	100.27	(128.1)	-0.08	(0.2)	30.33	(14.0)	7.00	(1.1)	31.40	(14.0)	8.30	(12.7)
wealth			-0.30	(2.6)			0.21	(5.5)							0.46	(6.5)
income	-4.71	(7.3)	-4.43	(7.5)			0.83	(9.3)								
age(++)									-4.07	(9.3)	-14.36	(10.1)	2.63	(11.1)		
age x income	0.92	(6.7)	0.76	(5.9)			-0.19	(4.2)								
financial assets (t)	-5.28	(6.3)	-5.36	(6.9)	-5.79	(16.1)	0.89	(3.2)					2.15	(6.9)	-3.74	(6.4)
fin assets sqd (t)	0.11	(2.5)	0.13	(3.2)	0.09	(4.5)	0.08	(5.1)					-0.008	(5.0)	0.12	(3.7)
soc.econ.gp.2	-2.72	(1.5)	-4.02	(2.4)	-2.14	(2.7)	2.38	(3.9)							1.76	(1.4)
self-employed							-2.87	(3.4)								
urban	-7.18	(5.0)	-5.14	(3.7)					6.82	(5.2)	24.57	(5.9)	33.12	(5.7)		
share life ass (endo)					-1.04	(24.8)										
R-bar squared	0.067		0.099		0.823		0.124		0.051						0.027	
Log-likelihood											-1,566.7		-1,312.5			
No. of Obs.	2,310		2,121		2,310		2,310		2,310		2,310		2,310		2,310	
Method	LS		LS		2SLS		LS		LS		Tobit		Probit		LS	

*tsafe is percentage share of wide financial assets held in safe assets.

**tequi is percentage share of wide financial assets held in equities.

+tlass is percentage share of wide financial assets held in life assurance.

#tcap is percentage share of wide financial assets held in credit balances on bank current accounts.

++ in equation E7, this variable is actually age squared.

financial assets (t) is wide concept = finass + credit balances on current account + life assurance

Regression Table F: *Influences on Debt*

<i>Equation no.</i>	<i>F1</i>		<i>F2</i>	
<i>Dependent variable</i>	<i>udebt*</i>		<i>udebt*</i>	
Explanatory vars:				
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	41.52	(13.6)	27.23	(6.1)
gross wealth (w)	-0.41	(2.2)	-0.08	(0.3)
gr wth squared	0.007	(3.6)	0.005	(1.7)
income	0.10	(14.8)	0.13	(13.7)
age x income	-0.024	(16.1)	-0.030	(14.1)
debt + wd finass**	0.430	(6.7)	0.627	(7.0)
debt + ass sqd	-0.001	(5.2)	-0.001	(5.6)
urban	8.45	(5.2)	14.55	(6.3)
sex	-11.92	(5.4)	-17.62	(5.4)
soc.econ.gp.2	3.99	(2.0)	1.61	(0.6)
R-bar squared	0.165			
Log-likelihood			-1666.1	
No. of Obs.	2,310		2,310	
Method	LS		Tobit	

*udebt = share of debt in sum of wide financial assets plus debt (= $t_{inass} / (t_{inass} + debt)$).

**utl = share of term loans in sum of wide financial assets and debt.

Regression Table G: *The Share of Housing*

Equation no.	G1		G2		G3		G4		G5	
Dependent variable:	<i>shva 1</i>		<i>shva 12</i>		<i>shva 12</i>		<i>nshva 12</i>		<i>nshva 12</i>	
Explanatory vars:										
	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>	<i>Coeff</i>	<i>(t-stat)</i>
constant	144	(13.0)	96.9	(60.4)	65.6	(18.0)	89.80	(33.2)	84.9	(40.9)
wealth*	-7.55	(13.1)	-3.24	(37.3)	0.20	(1.0)	-1.75	(11.6)	-2.73	(24.3)
wealth* squared	0.057	(8.7)	0.019	(19.4)	-0.012	(5.3)	0.006	(3.3)	0.014	(10.9)
income	0.21	(7.6)	0.008	(1.9)	-0.019	(2.1)	-0.025	(3.6)	-0.067	(12.7)
age x income	-0.05	(9.3)	-0.002	(2.3)	0.009	(4.6)	0.007	(4.9)	0.015	(14.6)
urban	30.5	(5.4)	7.97	(9.8)	-8.52	(4.5)	-0.46	(0.3)	1.28	(1.2)
sex	-18.5	(2.5)	-19.9	(1.9)	-6.31	(2.6)	-6.72	(3.8)	2.17	(1.6)
soc.econ.gp.1	-21.3	(3.0)	-24.1	(22.6)	-28.9	(11.4)	-28.3	(15.4)	-20.90	(15.1)
soc.econ.gp.2			1.50	(1.5)	8.55	(3.5)	3.38	(1.9)	0.64	(0.5)
self employed			-9.33	(6.9)	-12.0	(3.6)	-11.92	(4.9)	-0.49	(2.8)
tax rate	0.32	(2.0)	0.05	(2.0)	0.22	(4.2)	0.03	(0.7)	-0.003	(0.1)
R-bar squared	0.174		0.640				0.221		0.428	
Log-likelihood					-2,203					
No. of obs	2,533		2,533		3,089		2,801		2,530	
Method	LS		LS		Tobit		LS		LS	

shva1 = share of gross housing assets in total (net) wealth

shva12 = share of gross housing assets in gross wealth

nshva1 = share of net housing assets in total (net) wealth

nshva12 = share of net housing assets in gross wealth

*the wealth variable is total (net) wealth in equations G1 and G4; gross wealth in the others.

Regression Figures

Figure R1

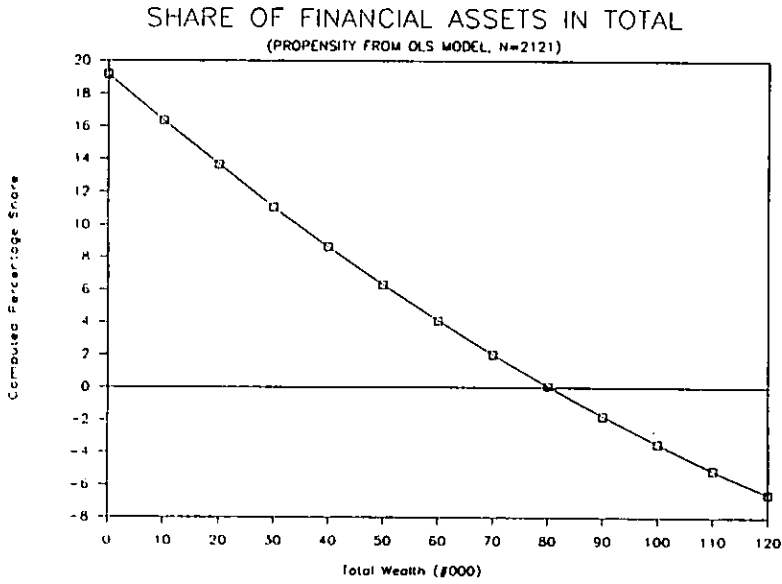


Figure R2

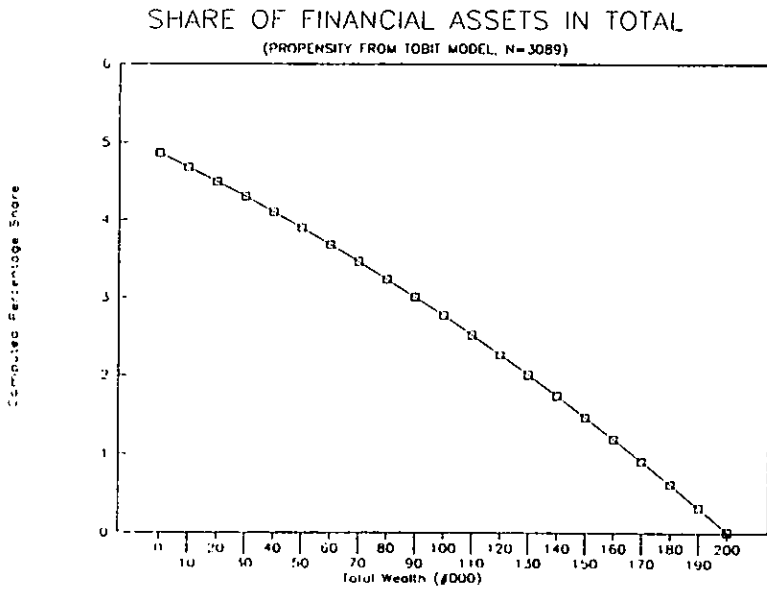


Figure R3

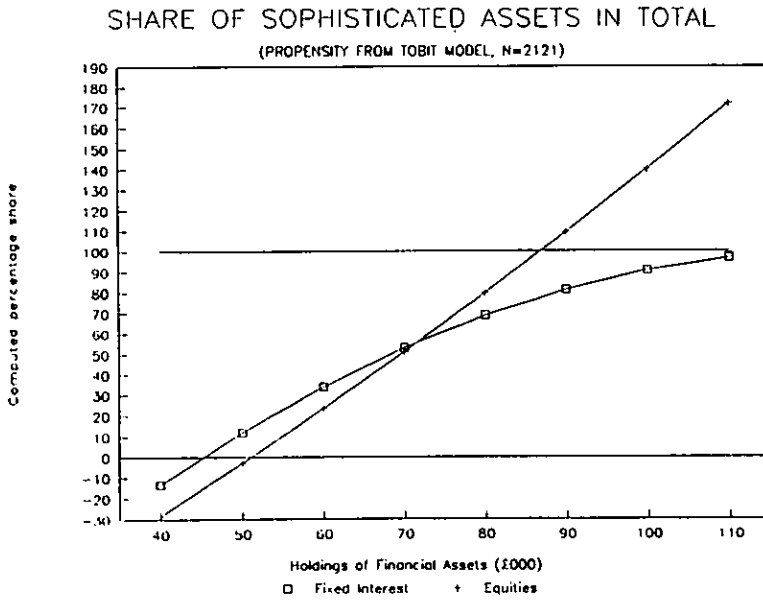


Figure R4

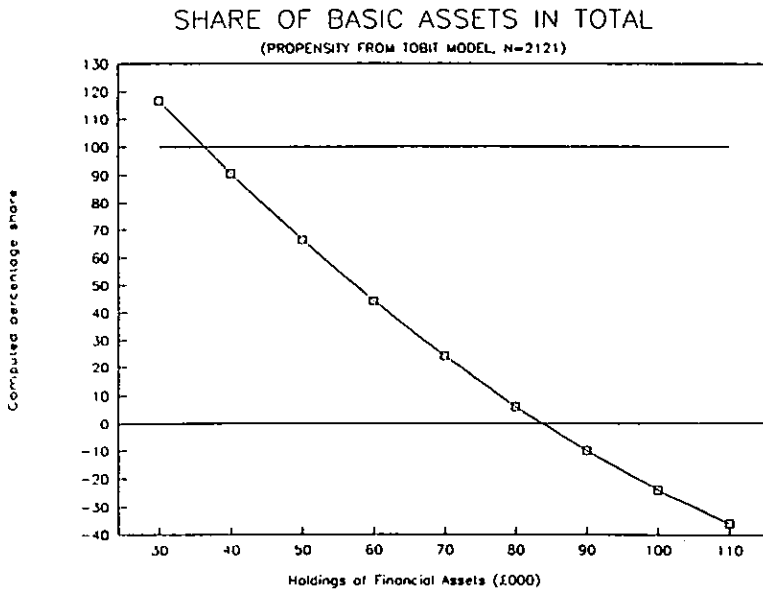


Figure R5

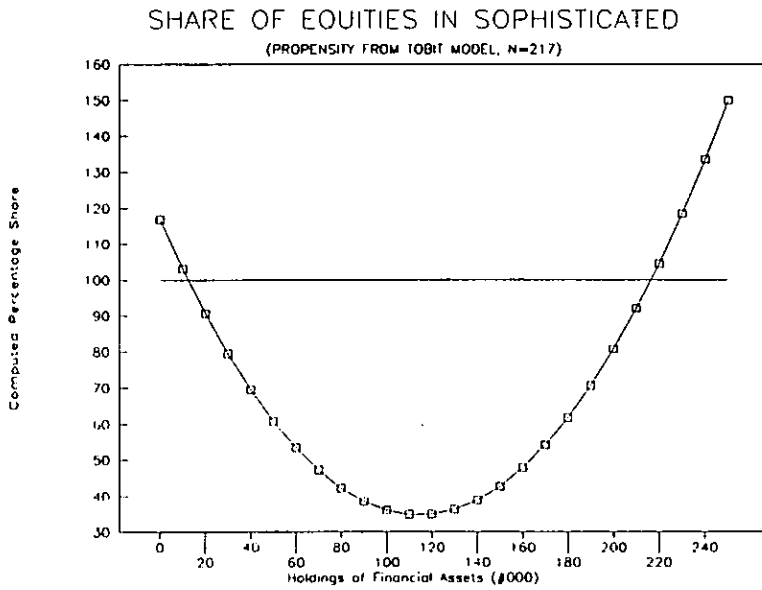


Figure R6

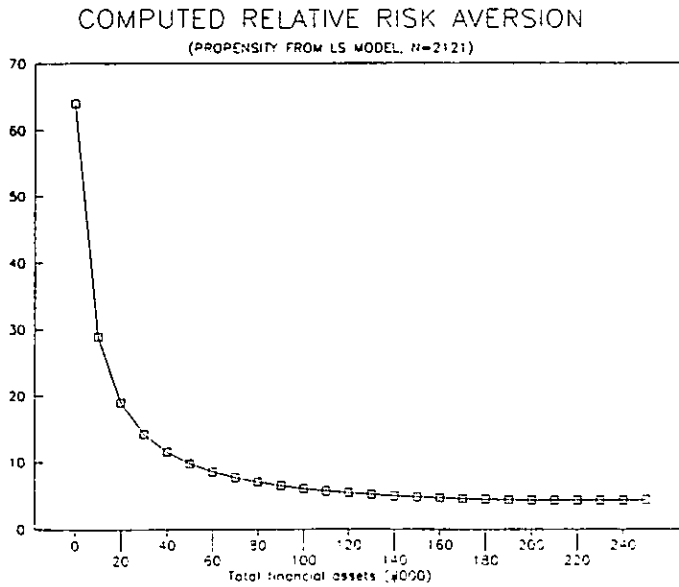
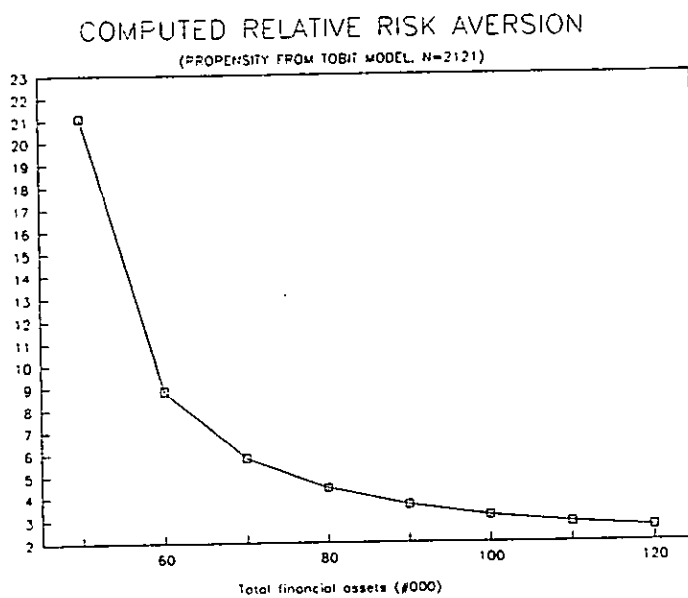


Figure R7



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