Household Composition, Living Standards, and "Needs"

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Chapter 1

Introduction

1.1 Introduction

This study uses the 1987 ESRI Survey of Income Distribution, Poverty and Use of State Services and the 1994 Living in Ireland Survey to examine two issues of immediate relevance to Irish tax and social welfare policy. The first is how the living standards of different household types have been evolving in recent years. The second is the relationship between the "needs" of one household type versus another - for example a single adult versus a couple, or a couple with no children versus a couple with four children. Both issues are critical for the Inter-Departmental Working Group set up in 1998 to examine the treatment of married, cohabiting and one-parent households under the tax and social welfare codes. This study was undertaken in the first instance as a contribution to the work of that group, and is being published in order to inform the wider debate of these issues. In this introductory chapter we outline the issues to be addressed, and then look at how household composition has been changing over the period to provide the background for the remainder of the study.

The treatment of different types of household by the tax and social welfare systems has many different aspects, some currently the focus of considerable debate and others likely to become so in the medium term. The first point to be made is that there are significant differences between the income tax and social welfare systems in this regard. For example, a married couple has twice the personal allowance of a single person under the income tax code, but does not in general receive twice the social welfare payment of a single adult. Additional payments are made for children under the social welfare code, but for those in the income tax net no direct allowance is made for children. Couples who are cohabiting are also treated rather differently by the two systems. The range of structural issues to be considered then include how couples are best treated vis-a-vis single people, how cohabiting couples are treated vis-a-vis married couples, how those with and without children are treated, and how children in one versus dual-parent households are to be treated. Our aim here is not to

address such structural policy issues directly, but rather to help fill in some important parts of the context in which they are to be addressed.

1.2 Household Composition, Income and Poverty

The first part of the study focuses on trends in living standards by household type between 1987 and 1994. Comparisons between the 1987 and 1994 surveys allow us to examine first how the composition of Irish households has been changing, We then look at the way the incomes of these different household types have evolved, and how they have fared in terms of various non-monetary indicators of deprivation. This picture of how average income and poverty rates vary across different types of household, and how they have been changing, sets out the context in which tax and welfare policy operate. The impact of cash transfers and income tax on the relative position of the different household types, and how this has been changing, is then examined to see the direct role of these policy instruments.

1.3 The "Needs" of Different Household Types

The second element of the study focuses on the relationship between the "needs" of one type versus another. Existing research on household costs and equivalence scales in Ireland has relied either on analysis of detailed expenditure data from the Household Budget Survey, or on budget standards specifying and costing a consumption basket regarded as "needs". Here another approach will be investigated, via in-depth analysis of the relationship between household type and non-monetary deprivation indicators. This looks at how deprivation scores vary across households, controlling for a wide range of other potential determinants of deprivation scores - such as income, location, age, labour force status, career trajectories, and availability of savings - and attempts to distinguish the impact of household type.

1.4. *Trends in Household Composition*

The 1987 and 1994 ESRI household surveys have been described in detail elsewhere, together with validation in terms of representing the overall population in

private households, and this will not be repeated here.[1] We begin by looking at the way household composition changed between the 1987 and 1994 ESRI surveys, using a summary categorisation of households which distinguishes the following household compositions:

> 1 adult
> 2 adults
> 3 or more adults
> 1 adult and child(ren)
> 2 adults and 1 child
> 2 adults and 2 children
> 2 adults and 3 children
> 2 adults and 4 or more children
> 3 or more adults and child(ren).

A child is defined here as anyone aged under 18 years of age.

We see from Table 1.1 that there were significant changes in the profile of sample households over the period. The percentage in households of one adult only rose markedly, from 17% to 22%. The percentage in households of two adults without children rose rather less sharply, by 2 percentage points, with a decline of similar magnitude in households of three or more adults without children. Households with one adult and one child or more doubled, though this still only brought them from 2% to 4% of all households. There was a particularly sharp fall in the proportion of households comprising two adults and 4 or more children, but the percentage in each of the other two adults with child(ren) categories also fell from 1987 to 1994. Overall, two adults with children households fell from 36% to 28% of the sample between 1987 and 1994. Three adult households with children remained stable. In total, households with children fell from 52% to 46% of all households.

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[1] See Callan, Nolan et al (1989) for a detailed description of the 1987 survey, and Callan et al (1996) for a corresponding description of the 1994 survey.

Table 1.1: Households in 1987 and 1994 Surveys by Summary Type

Household type	% of all households	
	1987	1994
1 adult	16.6	22.0
2 adults	18.1	20.0
3 or more adults	13.3	11.6
1 adult and child(ren)	2.3	4.1
2 adults and 1 child	7.7	6.2
2 adults and 2 children	11.1	9.6
2 adults and 3 children	8.9	7.8
2 adults and 4 or more children	8.5	4.8
3 or more adults and child(ren)	13.7	14.0
All	100.0	100.0

It is particularly useful for present purposes to go beyond this summary categorisation to a more detailed classification, distinguishing elderly from non-elderly adults and disaggregating more finely by numbers of adults and children. Table 1.2 shows the profile of the 1987 and 1994 samples, now in terms of 27 such composition types. We see that the increasing importance of one-person households reflects an increase in both elderly persons living alone and in single non-elderly adults aged 18-64. For two-adult households, the trend over time is more complex. There has been only a small increase in the proportion of households comprising two elderly persons, a larger increase in the proportion comprising two non-elderly adults, and a decline in the proportion comprising an elderly and a non-elderly adult living together. There has been little change in the importance of households of three, four or five non-elderly adults without children, and a small fall in the proportion of other households comprising similar-sized households of non-elderly and elderly adults living together. The dominant underlying factors in the increasing importance of households without children are thus the increase in both single elderly and single non-elderly households.

Turning to households which do contain children, Table 1.2 shows an increase over time in the importance of each of the three 1-adult with children households distinguished - that is, 1 adult with 1 child, 1 adult with 2 children, and 1 adult with three or more children. In 1994 each of these accounted for about 11/2% of all households. The table also shows a fall in the proportion of each of the 2-adult with

children household types, but with the most pronounced decline being for 2 adults and 4 children and 2 adults and five or more children. Households with 3 or more adults together with children, in various configurations, did not show marked change between 1987 and 1994.

Table 1.2: Households in 1987 and 1994 Surveys by Detailed Type

Household type	% of all households	
	1987	1994
1 elderly (65 or over)	9.1	11.4
2 elderly	4.8	5.6
1 adult (18-64)	7.5	10.6
2 adults	8.5	10.6
3 adults	4.2	3.9
4 adults	2.3	2.3
5 or more adults	1.2	1.0
1 adult and 1 elderly	4.8	3.8
1 adult and 2 elderly	1.5	1.2
2 adults and 1 elderly	2.0	1.6
other adults and elderly	2.0	1.3
1 adult and 1 child	0.7	1.4
1 adult and 2 children	0.7	1.2
1 adult and 3 or more children	0.8	1.5
2 adults and 1 child	7.4	6.0
2 adults and 2 children	11.0	9.5
2 adults and 3 children	8.9	7.7
2 adults and 4 children	5.2	3.1
2 adults and 5 or more children	3.3	1.7
3 adults and 1 child	1.7	2.4
3 adults and 2 children	1.7	2.0
3 adults and 3 or more children	1.9	1.7
4 adults and 1 child	1.5	1.9
4 adults and 2 or more children	2.2	1.8
5 or more adults and children	2.1	2.1
adult, elderly and child(ren)	3.1	2.4
All households	100.0	100.0

1.5 Summary

This study aims to use the 1987 ESRI Survey of Income Distribution, Poverty and Use of State Services and the 1994 Living in Ireland Survey to examine two issues of immediate relevance to Irish tax and social welfare policy. The first is how the living standards of different household types have been evolving in recent years. The second is the relationship between the "needs" of one household type versus another - for example a single adult versus a couple, or a couple with no children versus a couple with four children.

We have seen in this introductory chapter that there were significant changes in the profile of sample households over the period. The percentage in households of one adult only rose markedly, from 17% to 22%, with an increase in the importance of both elderly and non-elderly adults living alone. Households comprising two adults with children fell from 36% to 28% of the sample between 1987 and 1994, with a particularly sharp fall in the proportion of those households with 4 or more children. Households with one adult and one child or more doubled, though this still only brought them from 2% to 4% of all households Overall, households with children fell from 52% to 46% of all households.

Chapter 2

Household Composition and Income

2.1 Introduction

The household composition types to be employed in the study have been introduced in Chapter 1. We look in this chapter at how average income varied across these household types, and how this pattern changed between 1987 and 1994. Section 2.2 deals with income before any adjustment for household size. Section 2.3 focuses on what is termed equivalised income, which attempts to take household size and composition into account in measuring the standard of living a given level of income can provide.

2.2. Household Composition and Income

We now examine the average income of households in each of the samples, by composition type. Table 2.1 shows mean disposable household income when households are categorised by the summary composition types employed in Chapter 1. Unsurprisingly, mean incomes in each year vary widely across the household composition types: in 1987, for example, average income ranges from about £80 per week for a single adult up to £300 per week for a household of three or more adults.

Table 2.1: Mean Disposable Income by Summary Household Composition Type

Household type	Mean income		as % of reference type	
	1987	1994	1987	1994
1 adult	78.79	119.62	50.5	48.1
2 adults	156.04	248.53	100	100
3 or more adults	301.61	415.20	193.3	167.1
1 adult and child(ren)	97.61	141.36	62.6	56.9
2 adults and 1 child	201.59	307.73	129.2	123.8
2 adults and 2 children	198.54	326.33	127.2	131.3
2 adults and 3 children	209.57	319.55	134.3	128.6
2 adults and 4 or more children	209.81	310.12	134.5	124.8
3 or more adults and child(ren)	297.14	430.52	190.4	173.2
All	198.06	280.18		

What is of primary interest here is how the pattern of relativities between different household types has changed between 1987 and 1994. In order to bring this out, the table also shows the mean income of each type expressed as a percentage of the mean for a reference type, which we take to be a household of two adults without children. (One could simply compare household type mean incomes with the overall mean in each year, but the latter is itself affected by the changing composition of the samples inn terms of household type: taking a particular type as reference point gets over this problem, though the choice of reference group is itself rather arbitrary). These figures show for example that in 1987, 1-adult households had a mean income exactly half that of two-adult households, and households with three or more adults had an average income of almost twice the two-adult mean. Households of two adults with children had mean income about one-third higher than two-adults without children, but there was little variation by number of children. Households of a single adult with children had mean income of less than two-thirds the mean for two adults.

Comparing 1987 with 1994, the ranking of household types by mean income is unchanged, but some substantial changes have taken place in the scale of the income differences between them. In summary, the reference two-adult group saw a more rapid rise in mean disposable income than most of the other household types. This means first that one-adult households have fallen further from the mean for the two-adult group, and this is even more true of single adults with children - for whom mean income has fallen from 63% to 57% of the two-adult mean. Households comprising two adults with children have still higher mean incomes than two adults without children, but the gap has narrowed in the case of three of the four groups involved, the exception being two adults with two children. By 1994, two adults with four children had mean income only 25% higher than two adults without children. Households with three or more adults, whether with or without children, each remained well above the reference group but the differential was not as wide in 1994 as it had been in 1987.

To get behind these changes we once again employ the more detailed household type categorisation from Table 1.2, with mean disposable incomes for these household types shown in Table 2.2. The variation in mean income across categories is now even greater. In 1987 the range was from £66 per week for a single elderly person up to £466 for five or more non-elderly adults living together, and in 1994 it was even wider, from £85 for a single elderly person up to £650 for 5 or more adults

with children. Distinguishing between elderly and non-elderly adults is clearly important given the major differences in mean incomes it reveals. Now taking a household of two non-elderly adults as reference point, the table also shows how mean incomes for other groups related to the mean for that category in each year.

Table 2.2: Mean Disposable Income by Detailed Household Composition Type

Household type	mean income		as % of reference type	
	1987	1994	1987	1994
1 elderly (65 or over)	66.06	85.40	35.7	27.7
2 elderly	114.73	164.85	62.0	53.4
1 adult (18-64)	94.26	156.58	50.9	50.7
2 adults	185.01	308.68	100	100
3 adults	272.15	407.92	147.1	132.1
4 adults	398.79	475.90	215.6	154.2
5 or more adults	466.31	593.48	252.0	192.3
1 adult and 1 elderly	146.04	204.24	78.9	66.2
1 adult and 2 elderly	190.56	302.74	103.0	98.1
2 adults and 1 elderly	213.87	319.73	115.6	103.6
other adults and elderly	336.07	439.88	181.6	142.5
1 adult and 1 child	92.40	112.04	49.9	36.3
1 adult and 2 children	101.50	118.19	54.9	38.3
1 adult and 3 or more children	98.97	187.95	53.5	60.9
2 adults and 1 child	204.19	311.81	110.4	101.0
2 adults and 2 children	199.23	327.66	107.7	106.2
2 adults and 3 children	209.89	320.27	113.4	103.8
2 adults and 4 children	213.07	310.18	115.2	100.5
2 adults and 5 or more children	204.70	309.99	110.6	100.4
3 adults and 1 child	262.50	357.30	141.9	115.8
3 adults and 2 children	251.10	360.08	135.7	116.6
3 adults and 3 or more children	261.61	339.34	141.4	109.9
4 adults and 1 child	316.08	456.83	170.8	148.0
4 adults and 2 or more children	294.90	417.21	159.4	135.2
5 or more adults and children	419.95	652.26	227.0	211.3
adult, elderly and child(ren)	247.08	383.84	133.5	124.3
All households	198.10	280.24		

The results show that in 1987 single elderly adults had an income of only 36% of that reference point, and those of two elderly persons had about 62%. Households comprising one non-elderly adult without children had about half the reference group mean, which was also the case for those of one adult with children. Households of two

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non-elderly adults with children had mean incomes about 10-15% higher than the reference group of similar households without children. In households with more than two non-elderly adults, mean income increases with the number of adults.

Focusing on changes between 1987 and 1994, we see that the mean income of virtually all other household types fell as a proportion of the reference group mean, the only exception being single non-elderly adults. The position of the elderly compared with the reference group deteriorated markedly. The mean income of a single elderly person fell from 36% to 28% of the reference group mean, and that of two elderly persons fell from 62% to 53%. There was no change in the position of households comprising one non-elderly adult compared with two, with the former having exactly half the income of the latter in each year. However households of three or more non-elderly adults without children saw the gap between them and either one-adult or two-adult households narrow. Turning to households with children, the mean income of single adults with one or two children declined sharply as a proportion of the mean for the two-adult reference group, though this was not true for one adult and three or more children. Mean income for two-adult households with children consistently fell sharply compared with two-adults without children, so that by 1994 there was little difference between the two. Households of three or more adults with children also saw the differential between their mean income and that of two adults without children decline sharply.

2.3. Household Composition and Equivalised Income

In using income to make comparisons between the living standards or welfare levels of different types of household, it makes sense to try to take into account the fact that a given income level will allow a small household to attain a higher living standard than a large one. This could be done simply by dividing household income by the number of household members, to get income per head. However, there may be economies of scale in living together which this fails to capture. The common approach is therefore to employ equivalence scales to make the adjustment, with actual household income being divided by the number of equivalent adults in the household to produce equivalent or equivalised income. For example, counting the first person in the household as 1, each other adult might be given a value of 0.7 and

each child a value of 0.5. The total number of equivalent adults in a household of two adults and two children would then be 2.7. Such a household with disposable income of £200 per week would then have income per head of £50 but a higher equivalent income of (200/2.7)=£74. This reflects the fact that by sharing accommodation, buying food in larger quantities and so on, the larger family reaps economies of scale and attains a higher standard of living than its income per head would suggest.

Studies such as Buhman *et al* (1988), Coulter, Cowell and Jenkins (1992) and Hagenaars, de Vos and Zaidi (1994) have shown the extent to which the scale used can affect the distribution of income and the poverty status of different household types. A variety of equivalence scales has been used in research on Ireland and in cross-country studies. In the second part of this study we will review the methods employed for estimating equivalence scales, discuss the range of opinions about the best strategies, and describe an estimation method we will ourselves explore. At this point, however, it is worth demonstrating what the application of some commonly-used scales produces in terms of mean equivalised income for different household types.

For this purpose we use two sets of scales. With the first, where the first adult in the household is given a value of 1, each other adult is attributed a value of 0.66 and each child is attributed a value of 0.33. This reflects approximately the relativities implicit in Irish social welfare safety-net support in 1987, and is one of the scales we have used in previous research on poverty and living standards in Ireland. The second, recently used in comparative income inequality and poverty research for Eurostat, is called the "modified OECD" scale. With this scale, each additional adult is attributed a value of 0.5 and each child 0.3. By using these two scales we capture the sensitivity of the results to varying the assumed "needs" of extra adults and children, returning below to the thorny issue of whether more precise estimates of the appropriate value for such scales for Ireland can be derived.

Table 2.3 shows the mean equivalised disposable income for the summary household types which each of these equivalence scales produce for 1987 and 1994, and once again these means expressed as percentages of that for the two-adult household group. We see for example that in 1987 this suggests that, with either of the equivalence scales, households comprising a single adult had a lower standard of living on average than two-adult households. Depending on the scale chosen, single-

adult households had between 76%-84% of the mean income of two-adult households, having adjusted income to take their differing sizes into account. Two-adult households with one child had a slightly higher average standard of living than two-adult households without children with these scales, however. This reflects the fact that the mean income of the former was about 30% higher than the latter in 1987, and this was more than enough to compensate for the extra "costs" of the child incorporated into these equivalence scales.

Table 2.3: Mean Equivalised Disposable Income by Summary Household Composition Type, 1987 and 1994

| Household type | Mean equivalised income | | | | as % of reference type | | | |
| | 1987 | | 1994 | | 1987 | | 1994 | |
	1/0.66/ 0.33	1/0.5/0 .3	1/0.66/ 0.33	1/0.5/0 .3	1/0.66/ 0.33	1/0.5/0 .3	1/0.66/ 0.33	1/0.5/0 .3
1 adult	78.8	78.8	119.6	119.6	83.8	75.7	79.9	72.2
2 adults	94.0	104.0	149.7	165.7	100	100	100	100
3 or more adults	109.5	129.0	154.5	181.7	116.5	124.0	103.2	109.6
1 adult and child(ren)	53.6	57.2	73.4	78.1	57.0	55.0	49.0	47.1
2 adults and 1 child	98.4	109.7	150.9	168.1	104.7	105.5	100.8	101.4
2 adults and 2 children	83.3	92.8	136.8	152.4	88.6	89.2	91.4	92.0
2 adults and 3 children	76.5	85.3	114.3	128.2	81.4	82.0	76.3	77.4
2 adults and 4 or more children	63.1	70.8	90.4	102.2	67.1	68.1	60.4	61.7
3 or more adults and child(ren)	77.6	92.6	115.0	137.3	82.6	89.1	76.8	82.8
All	85.4	95.3	128.9	142.8				

This was not the case for two-adult households with 2, 3 or 4 or more children: Table 2.3 shows that in 1987 each of these groups had mean equivalised income well below that for two-adult households. Households comprising one adult with children had a substantially lower mean than these two-adult households with children. Only households comprising three or more adults without children had higher mean equivalised income than the two-adult group we have taken as reference point. The choice between the two scales shown here does make some difference to the relativities between the different groups. Larger households are better off and smaller ones less well off with the modified OECD scale than the 1/0.66/0.33 scale, because the latter assumes higher "costs" are associated with additional household members/lower economies of scale. This makes the gap between a single adult and a two-adult household wider with the modified OECD scale, but has very little impact

on the relativities between two-adult households with and without children. Obviously alternative equivalence scales could be applied and might produce different results: we return to this question in the second part of the study.

At this point however we are particularly interested in the way the relative position of different groups changed between 1987 and 1994, which will not depend on the choice of equivalence scale since the same scale is being applied in each year. Examination of Table 2.3 brings out once again the deterioration in the position of single adult households, single adults with children, and most two-adult households with children compared with two adult households. The figures for 1994 show households of two adults and one child having exactly the same average living standard as two adults without children. Two adults with two children still have a lower standard than two adults but are slightly closer than in 1987, while the gap between two adults with three and particularly four or more children and the reference group widened significantly. By 1994 households of two adults and four or more children had mean equivalent income of only about 60% of the mean for two adults without children. For households of one adult with children the position was even worse, their mean equivalised income falling to below half that of the reference group with either of the equivalence scales.

In applying such scales, one has to decide what age cut-off to use in attributing the lower costs associated with a "child". Generally, the cut-off employed for this purpose both in Irish and international comparative poverty/inequality research has been 14 years of age, and that cut-off underlies the results in Table 2.3.[2] The assumption being made in effect is that the "needs" or costs associated with those aged between 14 and 18 are closer to those of adults than to younger children. This again is an issue we investigate empirically below, but at this point it is worth illustrating how much difference the choice of cut-off can make. For this purpose Table 2.4 shows mean equivalised income in 1987 by summary household type using the two sets of equivalence scales, with the "child" value applied to under-14s and

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[2] The choice of age cut-off in grouping households to make comparisons across different composition types is a separate one, and depends on the purpose of the analysis: with most of those under 18 years of age now dependants, and treated as such by the social welfare system, this seems the most appropriate age to distinguish children in categorising households by type, and is followed throughout.

alternatively to under-18s. This reveals that using the older age cut-off would indeed increase the mean equivalised income of households with children, but would not substantially alter the general picture presented in Table 2.3. We therefore continue to apply the "child" value to those under 14 throughout the remainder of this part of the study, to allow comparability with previous results on for example risks of poverty.

Table 2.4: Mean Equivalised Disposable Income by Summary Household Composition Type, 1987

| Household type | Mean equivalised income | | | |
| | 1/0.66/0.33 | | 1/0.5/0.3 | |
	child value to < 14	child value to < 18	child value to < 14	child value to < 18
1 adult	78.8	78.8	78.8	78.8
2 adults	94.0	94.0	104.0	104.0
3 or more adults	109.5	109.5	129.0	129.0
1 adult and child(ren)	53.6	58.8	57.2	60.9
2 adults and 1 child	98.4	101.3	109.7	112.0
2 adults and 2 children	83.3	85.6	92.8	94.5
2 adults and 3 children	76.5	79.1	85.3	87.3
2 adults and 4 or more children	63.1	66.7	70.8	73.6
3 or more adults and child(ren)	77.6	84.1	92.6	98.1
All	85.4	87.4	95.3	96.9

We now move on to the comparison of equivalised income across detailed rather than summary household types, shown in Table 2.5 for the 1/0.66/0.33 scale and in Table 2.6 for the modified OECD equivalence scale. Looking first at 1987, Table 2.5 shows households comprising one elderly person having very similar living standards (on this measure) to those of two elderly couples. Both of these are lower than that of one non-elderly adult, which is lower again that two non-elderly adults. Households of two adults and one child are very close to two non-elderly adults without children, but two-adult households with more children are a good deal lower. The household types with lowest mean equivalent income are two adults and 5 or more children, and one-adult households with children.

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Table 2.5: Mean Equivalised Disposable Income by Detailed Household Composition
Type, 1987 and 1994, Equivalence Scale 1/0.66/0.33

Household type	mean equivalent income		as % of reference type	
	1987	1994	1987	1994
1 elderly (65 or over)	66.1	85.4	59.3	45.9
2 elderly	69.1	99.3	62.0	53.4
1 adult (18-64)	94.3	156.6	84.6	84.2
2 adults	111.4	186.0	100.0	100.0
3 adults	117.3	175.8	105.3	94.5
4 adults	133.8	159.7	120.1	85.9
5 or more adults	115.7	149.0	103.9	80.1
1 adult and 1 elderly	88.0	123.0	79.0	66.1
1 adult and 2 elderly	82.1	130.5	73.7	70.2
2 adults and 1 elderly	92.2	137.8	82.8	74.1
other adults and elderly	101.9	135.8	91.5	73.0
1 adult and 1 child	60.3	81.3	54.1	43.7
1 adult and 2 children	59.6	63.9	53.5	34.4
1 adult and 3 or more children	42.9	73.7	38.5	39.6
2 adults and 1 child	99.9	153.0	89.7	82.3
2 adults and 2 children	83.6	137.4	75.0	73.9
2 adults and 3 children	76.6	114.6	68.8	61.6
2 adults and 4 children	67.7	97.0	60.8	52.2
2 adults and 5 or more children	55.9	78.2	50.2	42.0
3 adults and 1 child	89.7	125.1	80.5	67.3
3 adults and 2 children	74.9	108.0	67.2	58.1
3 adults and 3 or more children	66.9	85.4	60.1	45.9
4 adults and 1 child	90.4	129.3	81.1	69.5
4 adults and 2 or more children	70.3	99.7	63.1	53.6
5 or more adults and children	86.2	135.6	77.4	72.9
adult, elderly and child(ren)	69.8	110.1	62.7	59.2

Focusing now on changes between 1987 and 1994, we see again the deterioration in the relative position of the elderly, and of households with children, compared to one or two-adult households without children. By 1994 an elderly person living alone has mean equivalent income of only 46% of two non-elderly adults, and two elderly people are at little over 50%. All the categories of two-adult households with children are now well below the mean for two adults without children, and two adults with 5 or more children now have only 42% of the mean of two adults without children. Households of one adult with children are at a similar level or below. Finally, whereas in 1987 households of three or more adults without children had higher mean equivalent income than two adults, by 1994 that position was reversed.

Turning to Table 2.6, using the modified OECD scale produces a larger differential between one-adult and two-adult households (elderly or not) than the 1/0.66/0.33 scale, but otherwise produces a similar profile of relativities in both years - and of course leaves the pattern of change between the two years unaffected.

Table 2.6: Mean Equivalised Disposable Income by Detailed Household Composition Type, 1987 and 1994, Equivalence Scale 1/0.5/0.3

Household type	mean income		as % of reference type	
	1987	1994	1987	1994
1 elderly (65 or over)	66.1	85.4	53.6	41.5
2 elderly	76.5	109.9	62.0	53.4
1 adult (18-64)	94.3	156.6	76.5	76.1
2 adults	123.3	205.8	100.0	100.0
3 adults	136.1	204.0	110.4	99.1
4 adults	159.5	190.4	129.4	92.5
5 or more adults	141.3	181.9	114.6	88.4
1 adult and 1 elderly	97.4	136.2	79.0	66.2
1 adult and 2 elderly	95.3	151.4	77.3	73.6
2 adults and 1 elderly	106.9	159.9	86.7	77.7
other adults and elderly	122.4	163.0	99.3	79.2
1 adult and 1 child	64.8	84.2	52.6	40.9
1 adult and 2 children	62.3	68.7	50.5	33.4
1 adult and 3 or more children	46.6	79.9	37.8	38.8
2 adults and 1 child	111.3	170.4	90.3	82.8
2 adults and 2 children	93.1	153.0	75.5	74.3
2 adults and 3 children	85.4	128.6	69.3	62.5
2 adults and 4 children	76.0	109.3	61.6	53.1
2 adults and 5 or more children	62.7	88.9	50.9	43.2
3 adults and 1 child	106.4	147.3	86.3	71.6
3 adults and 2 children	88.8	127.8	72.0	62.1
3 adults and 3 or more children	78.3	100.7	63.5	48.9
4 adults and 1 child	108.5	155.6	88.0	75.6
4 adults and 2 or more children	84.3	119.5	68.4	58.1
5 or more adults and children	105.6	166.0	85.6	80.7
adult, elderly and child(ren)	81.9	129.1	66.4	62.7
All households				

2.4 Conclusions

The results presented in this chapter have highlighted the fact that between 1987 and 1994 the average disposable incomes of households comprising one or two non-elderly adults without children rose a good deal more rapidly than those of other household types. Compared to them, the elderly and households with children both did relatively badly.

This meant that by 1994 there was virtually no difference in mean income between two adult households without children and those with children. It also meant that households of one adult with one or two children had lower mean incomes than those of one (non-elderly) adult without children. Finally, it meant that by 1994 elderly adults living alone had mean income of little more than half non-elderly adults living alone, and similarly two elderly people living alone had mean incomes little more than half two non-elderly adults living alone.

The implications were brought out when we looked at mean incomes having sought to adjust income for differences in household size and composition, using equivalence scales. Results on this basis suggested that by 1994, for example, elderly couples and households with 4 or more children were in very much the same position, with mean equivalised income of about half the level going to households comprising two non-elderly adults without children. All households types with children had mean equivalised income substantially below the level going to the two-adult without children type, but households of children living with one adult had the lowest average equivalised income. These patterns, particularly the marked deterioration in the relative position of families with children, highlight areas of obvious concern from a policy perspective.

Chapter 3

Poverty Risk and Household Composition

3.1 Introduction

Having examined the mean equivalent income accruing to different household types in Chapter 2, we focus in this chapter on way the risk of poverty varies with household type. As in previous research using the 1987 and 1994 ESRI household surveys, we measure poverty risk using two approaches. In Section 3.2 relative income poverty lines are employed, while in Section 3.3 a combination of these lines and non-monetary indicators of deprivation is used (see Callan et al 1996, Nolan and Whelan 1996). We use these approaches to assess the extent of variation in poverty risk across household composition types, and one again how this changed between 1987 and 1994. This analysis takes as point of departure previous research showing significant changes in the relative poverty risk of different household types over the period from as far back as the early 1970s up to 1994. Among the most striking changes were the deterioration in the relative position of households with children, and improvement in the relative position of the elderly (see for example Callan et al 1989, Nolan and Farrell 1991, Callan et al 1996). Here we look at the 1987-1994 period in more detail, to provide a more comprehensive picture of the evolution of income across household types.

3.2 Relative Income Poverty

Relative income poverty lines are based on proportions of mean equivalent household income. For this purpose we continue to use the two equivalence scales described earlier, namely the 1/0.66/0.33 and 1/0.5/0.33 scales. We look at poverty risk with relative income poverty lines set at the 50% and 60% of mean equivalised income with each of these scales.

Table 3.1 shows poverty risks by summary household composition type with the 50% relative poverty line, for each equivalence scale, in 1987 and 1994. We see first that there was little difference between the two sets of equivalence scales in 1987 in terms of overall poverty risk, or the poverty risk facing many of the summary household types. However, there was a substantial difference between the two scales

in the risk facing both single adult households and single adults with children: the 1/0.5/0.3 scale produces a substantially higher risk for these household types than the 1/0.66/0.33 scale. One adult with children households clearly face a risk well above the average with either scale, though more so with the 1/0.5/0.3 one, whereas single adult households face a below average risk with the 1/0.66/0.33 scale but above average with the 1/0.5/0.3 one. With each of these scales we see that households of two adults, three or more adults, and three or more adults with children faced a below-average risk. Households of two adults and 1 child or two children faced about the overall average risk, two adults and three children were above average, and two adults with four or more children were well above average.

In 1994, it is only the risk for the single adult household type which is affected by the choice between these two equivalence scales, that group once again having a much higher risk with the 1/0.5/0.3 scale. Compared with 1987, we see that with this 50% poverty line (and for both equivalence scales) poverty risk has risen sharply for single adult households, single adults with children, and two adults with four or more children. By contrast it has fallen for two adult households, and for three or more adults.

Table 3.1: Risk of Poverty with 50% Relative Income Line by Summary Household Composition Type, 1987 and 1994

Household type	% below 50% line			
	1987		1994	
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 adult	11.9	22.3	21.3	41.9
2 adults	11.4	11.8	8.9	9.0
3 or more adults	7.8	6.8	3.5	3.0
1 adult and child(ren)	37.1	47.3	59.2	61.0
2 adults and 1 child	18.3	17.3	15.2	15.2
2 adults and 2 children	18.2	18.3	17.1	16.0
2 adults and 3 children	21.3	21.0	23.8	23.6
2 adults and 4 or more children	36.3	36.1	47..9	45.3
3 or more adults and child(ren)	14.4	11.0	17..3	12.9
All	16.3	17.6	18.4	22.2

The corresponding figures for the detailed household composition categories are shown in Table 3.2. We see first of all that in 1987 the difference in risk for single

adult households between the two equivalence scales is seen both for the single elderly and the single non-elderly. In 1994, though, this difference is much more pronounced for the elderly, where it is extreme: only 15% of the single elderly are below half average income with the 1/0.66/0.33 scale, but the figure with the 1/0.5/0.3 scale is 50%. Apart from this group (and one adult with two children in 1987), the scale employed does not greatly affect the risk facing other household types in either year.

The variation in poverty risk across detailed household types is very wide in each year. In 1987 the elderly, particularly households of two elderly persons, had well below average risk. Single non-elderly adults had a much higher risk than single elderly, well above average. Households of two non-elderly adults had a higher risk than two elderly adults, but were still below average. Households of two adults and 1-3 children were not much above average risk, but those with 4 or particularly 5 or more children faced very high risks, as did single adults with children.

Between 1987 and 1994 the most striking change is the sharp increase in risk for single elderly households: with this poverty line no such increase was seen for two elderly persons. Households of two adults with 1-3 children did not see an increase but those with 4 or 5 or more did have a sharp rise in risk, as did single adults with children.

Table 3.2: Table 9: Risk of Poverty with 50% Relative Income Line by Detailed Household Composition Type, 1987 and 1994,

Household type	% below 50% line			
	1987		1994	
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 elderly (65 or over)	3.3	10.8	15.4	50.8
2 elderly	5.2	5.7	6.3	6.3
1 adult (18-64)	22.4	36.3	27.7	32.3
2 adults	12.4	12.8	10.5	10.5
3 adults	9.5	8.3	3.9	3.0
4 adults	7.1	5.5	2.2	1.8
5 or more adults	1.7	1.7	2.0	2.0
1 adult and 1 elderly	16.0	16.0	8.5	9.0
1 adult and 2 elderly	6.8	6.8	0.9	0.9
2 adults and 1 elderly	12.6	11.6	6.1	4.8
other adults and elderly	3.0	2.2	1.8	1.8
1 adult and 1 child	39.9	39.9	48.2	57.6
1 adult and 2 children	16.3	42.1	72.5	73.4
1 adult and 3 or more children	51.7	57.9	58.7	54.2
2 adults and 1 child	17.5	17.2	14.7	14.7
2 adults and 2 children	18.4	18.5	17.1	16.0
2 adults and 3 children	21.1	20.8	23.4	23.3
2 adults and 4 children	29.4	28.4	43.2	40.3
2 adults and 5 or more children	47.0	48.3	56.7	54.7
3 adults and 1 child	13.3	8.3	9.5	7.5
3 adults and 2 children	22.1	18.3	23.8	18.3
3 adults and 3 or more children	19.4	14.6	41.2	38.9
4 adults and 1 child	5.8	5.8	11.1	2.7
4 adults and 2 or more children	13.6	8.8	19.8	12.4
5 or more adults and children	11.0	7.8	9.9	5.8
adult, elderly and child(ren)	17.5	13.9	14.8	13.3
All households	16.3	17.6	18.4	22.1

Now focusing on the 60% relative income poverty line, Table 3.3 shows poverty risks by summary household composition type and Table 3.4 once again shows the corresponding results for the detailed categorisation by type. The pattern of risks by composition is in many respects similar to the 50% line but at higher levels. However, the risk facing one adult households is much higher with the 60% line in 1987 and does not now increase as sharply by 1994. As Table 3.4 brings out, this reflects very different trends for single elderly and non-elderly: the risk for the former rose very substantially over the period, whereas for the latter it declined a good deal. Unlike the 50% line, the 60% line also shows a marked increase in risk for households of two elderly persons. Risk for households of non-elderly adults without children fell, whereas for two adults with children they were rather stable. For households of one adult with one or two children, risk with the 60% line rose from already very high levels in 1987 to even higher figures in 1994. No such increase was seen for one adult with three or more children, which – as we show below – reflects an increase in income from the market rather than transfers received by these households.

Table 3.3: Risk of Poverty with 60% Relative Income Line by Summary Household Composition Type, 1987 and 1994

Household type	% below 60% line			
	1987		1994	
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 adult	37.0	54.7	51.5	57.9
2 adults	20.6	20.7	26.3	26.3
3 or more adults	13.0	11.0	9.8	7.8
1 adult and child(ren)	63.8	63.8	70.6	74.5
2 adults and 1 child	24.1	24.8	23.0	23.0
2 adults and 2 children	25.6	26.1	22.9	22.9
2 adults and 3 children	33.3	33.3	35.7	36.2
2 adults and 4 or more children	51.6	50.3	56.5	57.4
3 or more adults and child(ren)	25.0	20.3	34.2	27.0
All	28.5	30.5	34.5	34.9

Table 3.4: Risk of Poverty with 60% Relative Income Line by Detailed Household Composition Type, 1987 and 1994

Household type	% below 60% line			
	1987		1994	
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 elderly (65 or over)	30.1	57.4	67.0	76.2
2 elderly	11.4	11.4	37.3	37.3
1 adult (18-64)	45.5	51.3	34.8	38.0
2 adults	25.0	25.0	18.0	18.0
3 adults	15.5	14.8	10.6	9.4
4 adults	13.6	8.6	6.0	3.7
5 or more adults	3.4	1.7	10.9	8.4
1 adult and 1 elderly	22.0	22.4	32.9	32.9
1 adult and 2 elderly	11.6	10.3	8.7	7.3
2 adults and 1 elderly	16.3	14.7	10.6	7.1
other adults and elderly	9.3	6.8	9.3	6.7
1 adult and 1 child	55.3	55.3	63.1	74.5
1 adult and 2 children	65.0	65.0	84.2	84.2
1 adult and 3 or more children	70.3	70.3	66.5	66.5
2 adults and 1 child	23.0	23.7	22.2	22.2
2 adults and 2 children	25.2	25.6	22.4	22.4
2 adults and 3 children	33.1	33.1	35.4	35.9
2 adults and 4 children	45.3	44.3	51.8	52.3
2 adults and 5 or more children	61.4	59.8	65.2	67.0
3 adults and 1 child	20.8	17.4	25.1	16.9
3 adults and 2 children	35.2	29.9	35.9	34.2
3 adults and 3 or more children	36.7	27.6	60.0	54.3
4 adults and 1 child	12.6	11.7	23.3	17.4
4 adults and 2 or more children	20.7	16.8	41.2	30.8
5 or more adults and children	21.0	16.5	26.9	15.7
adult, elderly and child(ren)	30.8	27.1	36.2	30.3
All households	16.3	30.5	34.5	34.9

3.3 Poverty Rates with Income and Non-Monetary Deprivation Indicators

The other approach to assessing poverty risk developed in previous research using the ESRI surveys focuses on both position vis-a-vis relative income poverty lines and experience of deprivation. Only those households which are both below for example the 60% relative line and report rather basic forms of deprivation (enforced by lack of resources) are then considered poor. The global poverty target incorporated in the National Anti-Poverty Strategy is framed in terms of the poverty measures this produces. Without repeating the detailed description of this approach presented elsewhere (notably Callan *et al* 1996, Chapter 6 and Nolan and Whelan, 1996), here we simply present the poverty risks for different household composition types in 1987 and 1994 using the 60% line and what we have termed there "enforced basic deprivation".

Table 3.5 shows these figures with the two equivalence scales for summary household composition types, while Table 3.6 shows them for the full detailed composition categories. On this basis, the relatively very low poverty risks for two adult and three adult households without children stand out in Table 3.5. The risk facing single adult households is once again very high, but falls rather than rises between 1987 and 1994.

Table 3.5: Risk of Poverty with 60% Relative Income Line and Basic Deprivation by Summary Household Composition Type, 1987 and 1994

Household type	% below 60% line and experiencing basic deprivation			
	1987		1994	
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 adult	19.1	28.0	17.8	18.4
2 adults	8.6	8.7	7.2	7.2
3 or more adults	5.7	4.8	4.0	3.2
1 adult and child(ren)	52.7	52.7	42.8	44.9
2 adults and 1 child	14.4	15.4	11.0	11.0
2 adults and 2 children	17.4	17.5	11.2	11.2
2 adults and 3 children	20.1	19.7	20.6	20.6
2 adults and 4 or more children	34.5	33.5	32.9	33.6
3 or more adults and child(ren)	11.0	9.3	17.0	13.3
All	16.0	17.0	14.9	14.6

The risk for single adult households is stable or falls over the period, but Table 3.6 reveals that the risk for single non-elderly adults falls while the trend for elderly adults depends on which equivalence scale is employed. The risk for households of two elderly persons rises from 1987 to 1994 with either scale, but only to a level which is still well below average. The use of income plus deprivation criteria to assess poverty risk thus shows a much less marked deterioration in the position of the elderly than either of the income poverty lines alone. The same is true of households comprising one adult with children: these face relatively high risks in each year, but the combined income/deprivation criteria do not suggest this increased between 1987 and 1994 - indeed for an adult with one child, it fell substantially. Households of two adults with 1-2 children had about average risk in 1987 but had fallen below average by 1994. Risk for two adults with three, four or five or more children were stable over the period, with risk increasing with number of children in each year. It is worth emphasising that up to about half the households of two adults with five or more children were poor by this criterion, a poverty rate exceeded only by households of one adult with two or three or more children.

Table 3.6: Risk of Poverty with 60% Relative Income Line and Basic Deprivation by Detailed Household Composition Type, 1987 and 1994

| Household type | % below 60% line and experiencing basic deprivation | | | |
| | 1987 | | 1994 | |
	1/0.66/0.33	1/0.5/0.3	1/0.66/0.33	1/0.5/0.3
1 elderly (65 or over)	12.2	23.9	17.9	18.0
2 elderly	2.4	2.4	8.2	8.2
1 adult (18-64)	27.2	32.8	17.7	18.8
2 adults	11.7	11.7	5.9	5.9
3 adults	7.2	7.2	6.9	5.6
4 adults	7.7	4.4	1.9	1.5
5 or more adults	1.9	1.9	9.5	7.9
1 adult and 1 elderly	8.8	9.4	9.6	9.6
1 adult and 2 elderly	1.6	1.6	3.2	1.7
2 adults and 1 elderly	5.8	5.1	0	0
other adults and elderly	4.3	2.9	1.6	1.6
1 adult and 1 child	52.6	52.6	24.7	30.8
1 adult and 2 children	51.6	51.6	54.9	54.9
1 adult and 3 or more children	53.8	53.8	50.2	50.2
2 adults and 1 child	14.1	15.1	10.9	10.9
2 adults and 2 children	17.0	17.1	10.8	10.8
2 adults and 3 children	19.9	19.4	20.7	20.7
2 adults and 4 children	27.0	25.9	24.4	24.4
2 adults and 5 or more children	46.8	45.9	48.5	50.3
3 adults and 1 child	4.8	3.0	13.3	9.7
3 adults and 2 children	18.2	16.4	14.8	14.3
3 adults and 3 or more children	16.4	14.1	29.1	27.0
4 adults and 1 child	2.9	2.9	12.6	10.0
4 adults and 2 or more children	7.4	5.8	18.0	12.1
5 or more adults and children	12.5	10.6	19.2	13.0
adult, elderly and child(ren)	15.9	14.1	15.2	11.4
All households	16.0	17.0	14.9	14.6

3.4 Conclusions

We focused in this chapter on way the risk of poverty varies with household type. As in previous research using the 1987 and 1994 ESRI household surveys, we measure poverty risk using two approaches. First, relative income poverty lines were employed. With a poverty line set at half average equivalent income, the variation in poverty risk across detailed household types was found to be very wide in each year. In 1987 the elderly, particularly households of two elderly persons, had poverty rates well below the average. Single non-elderly adults had a much higher risk than single elderly, well above average. Households of two adults and 1-3 children were not much above average risk, but those with 4 or particularly 5 or more children faced very high risks, as did single adults with children. Between 1987 and 1994 there were some

marked changes in this pattern, the most striking change being a sharp increase in risk for single elderly households, couples with 4 or more children, and single adults with children.

The other approach to assessing poverty risk, developed in previous research using the ESRI surveys, focuses on the household's position vis-a-vis both relative income poverty lines and non-monetary deprivation indicators. (The global poverty target incorporated in the National Anti-Poverty Strategy is framed in terms of this type of poverty measure). This suggested a much less marked deterioration in the position of the elderly than income poverty lines alone. Households comprising one adult with children, or two adults with five or more children, were seen to face very high poverty risks in each year, but again were much more were stable over the period than using income lines alone.

Chapter 4

Transfers, Direct Tax and the Relative Position of Different Household Types

4.1 Introduction

Having analysed the position of different types of household in terms of disposable income and vis-a-vis alternative poverty standards in Chapter 3, we now want to get assess the impact of cash transfers from the state, and direct taxes levied by the state, in producing these outcomes. We therefore define, in addition to disposable income, the following income concepts:

market income: income from employee earnings, self-employment, farming, occupational pensions, rent, interest and dividends - all before tax;[3]

gross income: market income plus state cash transfers.

Disposable income is gross income minus income tax and PRSI contributions. Comparison between the market, gross and disposable income going to different household types then provides a measure the differential impact of transfers and tax on these households. The analysis is entirely static, in that no attempt is made to capture behavioural response to the structure of taxes or transfers. Nonetheless, it does indicate how the flow of resources to and from households through direct tax and cash transfers varies across household types.

4.2 Market, Gross and Disposable Income and Household Composition

Table 4.1 shows mean market, gross and disposable income by summary household type in 1987 and 1994, while Table 4.2 shows the corresponding figures for the detailed household composition categories. We see that overall, cash transfers and direct taxes effectively balance each other out on average, so mean market and disposable income over all households are very similar. This is also approximately true for some household types, notably two adult households, three or more adults, and three or more adults with children. However other household types gain or lose

from transfers and direct taxes combined: Table 4.1 shows that among the summary household types the significant gainers are one adult households, one adult with children, and two adults with four or more children. By contrast, two adult households with 1-3 children are on average losers, paying more in income tax/PRSI than they receive in transfers.

Table 4.1: Mean Market, Gross and Disposable Income by Summary Household Composition Type, 1987 and 1994

Household type	1987			1994		
	mean, £ per week			mean, £ per week		
	market	gross	net	market	gross	net
1 adult	59.03	92.42	78.79	99.79	143.50	119.62
2 adults	141.54	186.24	156.04	242.07	296.70	248.53
3 or more adults	331.77	379.71	301.61	423.71	498.99	415.20
1 adult and child(ren)	48.74	105.27	97.61	52.19	148.49	141.36
2 adults and 1 child	225.11	254.44	201.59	346.92	389.22	307.73
2 adults and 2 children	221.25	250.70	198.54	385.62	421.27	326.33
2 adults and 3 children	230.88	261.96	209.57	342.59	393.07	319.55
2 adults and 4 or more children	195.33	245.75	209.81	268.06	362.34	310.12
3 or more adults and child(ren)	301.26	359.20	297.14	427.84	513.77	430.52
All	200.61	242.34	198.06	279.39	339.09	280.18

The more detailed categorisation in Table 4.2 shows that the elderly, unsurprisingly, are substantial net gainers from the tax/transfer system. Households of one non-elderly adult, and more particularly two non-elderly adults, are net losers, as are those of three, four and five or more non-elderly adults. In the summary categorisation we saw that overall one and two-adult households were small net gainers, but the more detailed categorisation is essential here in bringing out the critical distinction between the elderly and the non-elderly. Households with two adults and 1-3 children again lose, but those with four or five or more children gain significantly, as do one-adult households with children. We see thus that the combination of direct tax and cash transfers serves to redistribute income from households comprising non-elderly adults without children or with 1-3 children to the

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[3] The CSO, in the Household Budget Survey, use the term "direct income" for this concept.

elderly, households of two adults with 4 or more children, and one-adult households with children.

To focus in on the scale of the impact of transfers and tax and changes in their effects between 1987 and 1994, it is useful to adopt an alternative presentation of the relationship between market, gross and disposable income. This involves taking mean gross income for the household type in question in a particular year as the reference point, and expressing mean market income (i.e. from wages, occupational pensions etc.) and mean disposable income for that type as percentage of that gross mean. Tables 4.3 and 4.4 show these results for the summary and detailed household type categorisation respectively. From Table 4.3 we see then that in 1987 cash transfers had the greatest impact on households of one adult with children, for whom mean market income was less than half mean gross income. Households of one adult without children were also relatively heavily reliant on transfers, with market income accounting for less than two-thirds of gross income. Households of three or more adults, and two adults with 1-3 children, were the least reliant on transfers with market income accounting for almost 90% of gross income.

Table 4.2: Mean Market, Gross and Disposable Income by Detailed Household Composition Type

Household type	1987 mean income			1994 mean income		
	market	gross	net	market	gross	net
1 elderly (65 or over)	22.92	67.42	66.06	24.86	86.22	85.40
2 elderly	43.15	115.98	114.73	71.69	165.16	164.85
1 adult (18-64)	102.90	122.79	94.26	180.73	205.38	156.58
2 adults	214.14	239.96	185.01	365.03	392.44	308.68
3 adults	329.67	353.34	272.15	456.12	503.90	407.92
4 adults	488.03	514.91	398.79	534.54	589.58	475.90
5 or more adults	579.24	626.02	466.31	658.03	746.94	593.48
1 adult and 1 elderly	111.26	161.26	146.04	150.53	223.80	204.24
1 adult and 2 elderly	123.85	211.81	190.56	221.01	331.36	302.74
2 adults and 1 elderly	195.22	255.22	213.87	259.94	359.68	319.73
Other adults and elderly	322.80	402.46	336.07	382.51	499.46	439.88
1 adult and 1 child	60.04	100.11	92.40	41.53	118.44	112.04
1 adult and 2 children	62.68	111.78	101.50	35.28	122.22	118.19
1 adult and 3 or more children	27.60	104.44	98.97	76.01	198.28	187.95
2 adults and 1 child	231.08	259.09	204.19	356.34	396.22	311.81
2 adults and 2 children	223.11	251.93	199.23	389.31	423.58	327.66
2 adults and 3 children	231.28	262.41	209.89	344.21	394.14	320.27
2 adults and 4 children	209.83	250.86	213.07	290.38	370.14	310.18
2 adults and 5 or more children	172.59	237.74	204.70	226.38	347.77	309.99
3 adults and 1 child	299.45	331.02	262.50	405.01	449.24	357.30
3 adults and 2 children	265.34	306.63	251.10	374.42	441.87	360.08
3 adults and 3 or more children	233.42	300.16	261.61	314.23	400.17	339.34
4 adults and 1 child	359.41	404.17	316.08	509.21	564.29	456.83
4 adults and 2 or more children	309.61	363.20	294.90	397.41	497.03	417.21
5 or more adults and children	431.37	504.20	419.95	619.27	750.93	652.26
Adult, elderly and child(ren)	207.56	283.16	247.08	312.22	433.90	383.84
All households	200.8	242.49	198.10	279.58	339.24	280.24

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In 1994 the overall impact of transfers was very similar to 1997. Two trends may however be discerned from the summary household composition results. The first is that one-adult households with children had become even more reliant on those transfers by 1994, with market income then coming to only 35% of gross income. The second is that, by contrast, transfers had fallen as a percentage of gross income for households of one or two adults without children.

Table 4.3: Mean Market, and Disposable Income as Percentages of Mean Gross Income by Summary Household Composition Type, 1987 and 1994

Household type	1987 mean			1994 mean		
	market	gross	net	market	gross	net
1 adult	63.87	100	85.25	69.54	100	83.36
2 adults	76.00	100	83.78	81.59	100	83.76
3 or more adults	87.37	100	79.43	84.91	100	83.21
1 adult and child(ren)	46.30	100	92.72	35.15	100	95.20
2 adults and 1 child	88.47	100	79.23	89.13	100	79.06
2 adults and 2 children	88.25	100	79.19	91.54	100	77.46
2 adults and 3 children	88.14	100	80.00	87.16	100	81.30
2 adults and 4 or more children	79.48	100	85.38	73.98	100	85.59
3 or more adults and child(ren)	83.87	100	82.72	83.27	100	83.80
All	82.78	100	81.73	82.39	100	82.63

Once again the detailed household composition types in Table 4.4 help to bring out the underlying patterns. We see first that the variation across these detailed household types in the role of transfers is very wide. In 1987, households of one adult with children were heavily dependent on transfers as we have seen, but not as much so as households of one or two elderly persons, which received only about one-third of their gross income from the market. Households comprising one non-elderly adult together with one or two elderly persons, though less heavily reliant on transfers than that, still receive only 60-70% of their income from the market. Other household types relatively dependent on transfers are two adults with five or more children and households containing one or more elderly, non-elderly adult and child.

Comparing 1987 and 194, the overall pattern is again similar but some shifts between the two years can be seen. First, among adult-only households those of one elderly adult became more reliant on transfers, with market income falling from 34% to 29% of gross income. By contrast, households of two elderly adults or two elderly with one non-elderly adults saw transfers decline as a proportion of gross income, and the same was true of households of one or two non-elderly adults. Secondly, as we have seen households of one adult with children became even more heavily reliant on transfers. Finally, transfers became somewhat less important for households of two adults and four or five or more children.

Focusing now on to the impact of income tax and PRSI contributions on household income, Table 4.3 shows that in 1987 the percentage of gross income going in tax was highest - so mean disposable income as a percentage of gross income was lowest - for households of three or more adults, and for those of two adults with 1-3 children. For these household types, these taxes amounted to about 20% of gross income. For one or two adult households, and for two adults and four or more children, this figure was closer to 15%. One adult households with children are the outlier here, with only 7% of gross income going in tax. The table also shows that between 1987 and 1994 there was little change in this pattern.

Looking at the more detailed household composition in Table 4.4, we see again that this reveals wider variation and that the distinction between the elderly and non-elderly is crucial. Households of one or two elderly persons paid very little of their gross income in direct tax. Those comprising non-elderly adults without children, on the other hand, paid a relatively high percentage of gross income in tax, of 20% or more. This was also true of two adults with 1-3 children. Households of two adults with four or five or more children paid a lower percentage in tax, and those of one adult with children paid about 5% of their gross income in tax. Even with this finer categorisation the impact of tax is seen to be quite stable between 1987 and 1994, though there was some increase in the percentage of gross income going in tax for households of 3, 4, 5 or more adults without children, 2 non-elderly adults with an elderly person, and "other adults and elderly".

Table 4.4: Mean Market, and Disposable Income as Percentages of Mean Gross Income by Detailed Household Composition Type, 1987 and 1994

Household type	1987 mean income			1994 mean income		
	market	gross	net	market	gross	net
1 elderly (65 or over)	34.00	100	97.98	28.83	100	99.05
2 elderly	37.20	100	98.92	43.41	100	99.81
1 adult (18-64)	83.80	100	76.77	88.00	100	76.24
2 adults	89.24	100	77.10	93.02	100	78.66
3 adults	93.30	100	77.02	90.52	100	80.95
4 adults	94.78	100	77.45	90.66	100	80.72
5 or more adults	92.53	100	74.49	88.10	100	79.45
1 adult and 1 elderly	68.99	100	90.56	67.26	100	91.26
1 adult and 2 elderly	58.47	100	89.97	66.70	100	91.36
2 adults and 1 elderly	76.49	100	83.80	72.27	100	88.89
Other adults and elderly	80.21	100	83.50	76.58	100	88.07
1 adult and 1 child	59.97	100	92.30	35.06	100	94.60
1 adult and 2 children	56.07	100	90.80	28.87	100	96.70
1 adult and 3 or more children	26.43	100	94.76	38.33	100	94.79
2 adults and 1 child	89.19	100	78.81	89.93	100	78.70
2 adults and 2 children	88.56	100	79.08	91.91	100	77.35
2 adults and 3 children	88.14	100	79.99	87.33	100	81.26
2 adults and 4 children	83.64	100	84.94	78.45	100	83.80
2 adults and 5 or more children	72.60	100	86.10	65.09	100	89.14
3 adults and 1 child	90.46	100	79.30	90.15	100	79.53
3 adults and 2 children	86.53	100	81.89	84.74	100	81.49
3 adults and 3 or more children	77.77	100	87.16	78.52	100	84.80
4 adults and 1 child	88.93	100	78.20	90.24	100	80.96
4 adults and 2 or more children	85.25	100	81.19	79.96	100	83.94
5 or more adults and children	85.56	100	83.29	82.47	100	86.86
Adult, elderly and child(ren)	73.30	100	87.26	71.96	100	88.46
All households		100			100	

The overall impact of transfers and direct taxes taken together is also brought out by this presentation. We see in Table 4.4 that the combination of relatively very heavy reliance on transfers and extremely light tax burden leaves the elderly gaining very substantially from the tax/transfer system. One adult households with children are less reliant on transfers and pay marginally more tax (as a percentage of their gross incomes), but still gain very substantially overall from the system. Households of non-elderly adults without children receive close to 90% of their incomes from the market, and pay about 20% of their gross incomes in tax, leaving them as significant net losers on average. Households of two non-elderly adults and 1-3 children are effectively in the same situation as those adults without children. % of their gross incomes in tax, leaving them as significant net losers on average. Households of two non-elderly adults and 4 or particularly 5 or more children are more reliant on transfers and pay a smaller proportion of income in tax than those households with 1-3 children, and thus are net gainers from the tax/transfer system.

The overall redistributive pattern was similar in 1987 and 1994. The impact of tax on mean gross income by household type remained quite stable, so the rather small shifts in the effects of the tax/transfer system which did occur mostly reflect trends in transfers as a proportion of gross income. Transfers increased as a proportion of gross income for households of one elderly person but decreased for two elderly persons, so with virtually no tax paid these household types saw diverging trends in overall tax/transfer impact. For households of 1-2 non-elderly adults, transfers fell as a percentage of gross income and taxes remained unchanged so they so they became slightly greater net losers in moving from market to disposable income. For households of 3-5 non-elderly adults transfers rose and taxes fell slightly as proportions of gross income, so they became somewhat smaller net losers from the system. One-adult households with one or two children became more reliant on transfers, with market income falling from about 60% of gross income to 35% or less; for those with three or more children the share of market income rose somewhat, but from a very low base. There was little change in the overall position of two adult households with 1-3 children, while those with 4 or 5 or more children became greater net gainers as transfers grew and, for the latter, tax fell as a proportion of gross income.

4.3. Social Welfare Transfers and Household Composition

We now look in more detail at social welfare transfers, going beyond the pattern of variation in mean receipt from transfers by composition type. Table 4.5 shows first the percentage of households in the 1994 survey receiving regular weekly payment from the social welfare system (so Child Benefit receipt is not included), by detailed household composition type. We see that this ranges from over 90% of elderly adults living alone, down to about one-quarter of two adult households with two children. The various different types of household containing an elderly person all have a high proportion receiving social welfare, and about 85% of households comprising one adult with children also do so. Households of two or more non-elderly adults, whether without or with children, generally have much lower proportions receiving social welfare, although well over half of some of the larger household types (five or more adults - both with and without children, 2 adults with five or more children) do receive such payments.

The table also shows the extent to which households of the different types rely on social welfare, in the sense that regular weekly payments account for 50% or more of total household income. The variation across types is now even greater. About 85% of elderly adults living alone are reliant on social welfare in this sense, as are a very high percentage of households comprising one adult with children. About 70% of households comprising two elderly adults also rely on social welfare, but the proportion doing so is less than half for other household types: indeed, it is 20% or under for 2-4 non-elderly adults, 2 adults with 1-3 children, and 3 or 4 adults with one child. It is however worth noting that over one-third of all households comprising a non-elderly adult living alone - most of those in receipt of social welfare - rely on those payments. The mean share of social welfare transfers (excluding Child Benefit) in household income for all households in the 1994 sample is 37%, but this table illustrates the extent to which social welfare's role in total income varies by household type.

Table 4.5: Receipt of Social Welfare Transfers by Summary Household Composition Type, 1994

Household type	receiving social welfare	reliant on social welfare*
	%	%
1 elderly (65 or over)	91.0	85.7
2 elderly	82.6	69.8
1 adult (18-64)	40.4	37.3
2 adults	32.5	17.6
3 adults	45.6	17.3
4 adults	45.5	14.9
5 or more adults	65.6	17.2
1 adult and 1 elderly	76.5	44.9
1 adult and 2 elderly	81.0	40.8
2 adults and 1 elderly	84.1	33.7
other adults and elderly	85.6	20.4
1 adult and 1 child	87.1	81.8
1 adult and 2 children	86.5	81.8
1 adult and 3 or more children	82.7	77.8
2 adults and 1 child	38.1	19.6
2 adults and 2 children	26.0	14.4
2 adults and 3 children	30.7	21.0
2 adults and 4 children	42.2	34.8
2 adults and 5 or more children	58.4	44.1
3 adults and 1 child	36.0	16.0
3 adults and 2 children	49.6	23.6
3 adults and 3 or more children	54.3	30.0
4 adults and 1 child	38.4	13.2
4 adults and 2 or more children	53.3	26.9
5 or more adults and children	67.3	29.4
adult, elderly and child(ren)	92.0	33.6
All households	53.8	36.6

* Social welfare transfers (excluding child benefit) comprise at least 50% of household income.

We now look at the types of social welfare scheme from which different types of household tend to receive payment, concentrating attention on the non-elderly. Table 4.6 shows the situation for households comprising one or two non-elderly adults, Table 4.7 looks at two-adult households with children, and Table 4.8 looks at one-adult households with children. In each case the table shows the percentage receiving payment from the most relevant schemes, the percentage reliant on those schemes, and the mean amount received from each.

We see from Table 4.6 that for households of one non-elderly adult, Unemployment Assistance (UA) is by far the most important scheme: about 15% of these households receive UA, and most of those rely on their UA receipt. Invalidity Pension is the next-most important, by received by - and relied on - by 6% of this household type. Compared with one-adult households, only about half as many two-adult households rely on social welfare. About one in ten receive UA but only 3% are reliant on those payments because of other income coming into the household, although UA is still the most important scheme for this group.

Table 4.6: Social Welfare for One and Two-adult Households Without Children, 1994

	one non-elderly adult	two non-elderly adults
% receiving		
UB	2	5
UA	15	11
DB	2	4
IP	6	6
SWA	0	0
% reliant on		
all social welfare	37	18
UB	1	1
UA	13	3
DB	2	1
IP	6	3
SWA	0	0
mean amount received		
all social welfare	24.6	27.4
UB	1.0	2.8
UA	8.4	7.1
DB	1.4	2.5
IP	3.4	4.5
SWA	0.1	0
total net income	156.6	308.7

Table 4.7 shows that for two-adult households with children, UA is also the most important social welfare scheme. The percentage actually reliant on UA payments is 8-9% for those with one or two children, rising to one-third for those with five or more children. Unemployment Benefit (UB) is the next-most important scheme for this group, but is relative to UA is more important for the smaller than the larger families. The table also shows the average amount received in Child Benefit by these household types - which has not been included with the regular weekly social welfare payments. We see that the amounts received in Child Benefit are quite

substantial relative to those weekly payments on average, except for the one-child families.

Table 4.7: Social Welfare for Two-adult Households With Children, 1994

| | 2 adults and | | | | |
	1 child	2 children	3 children	4 children	5 or more
% receiving					
all social welfare					
UB	9	7	5	8	8
UA	17	12	18	22	41
DB	3	4	2	4	1
IP	1	1	2	1	0
SWA	1	0	0	0	0
% reliant on					
all social welfare	20	14	21	35	44
UB	4	2	2	4	6
UA	8	9	16	20	32
DB	1	1	1	3	1
IP	0	0	2	1	0
SWA	0	0	0	0	0
mean amount received					
all social welfare	35.4	24.6	35.6	60.0	91.9
UB	7.8	5.7	5.9	8.4	12.8
UA	12.5	12.6	22.2	30.7	60.7
DB	2.1	3.0	2.3	5.5	1.5
IP	0.8	0.7	2.8	1.9	0
SWA	0.4	0.6	0	0	0
Child Benefit	4.5	9.7	14.3	19.7	29.5
total net income	311.8	327.9	320.3	310.2	310.0

Table 4.8 shows the position for one-adult households with children. The schemes which are most important for these households vary with the number of children. For households of one adult with one child, Lone Parent Allowance is by far the most important scheme: 79% receive payment from this scheme and all rely on it. For one-adult households with two or three or more children, Lone Parent Allowance again plays a substantial role but almost as important is deserted Wife's Benefit or Allowance, while Widow's Contributory Benefit is also received by a significant proportion of the three or more child households.

Table 4.8: Social Welfare for One-adult Households With Children

		1 adult and	
	1 child	2 children	3 or more children
% receiving			
all social welfare			
UB	0	7	4
UA	3	5	3
DB	0	9	0
DWB/A	5	32	24
LPA	79	30	38
WCP	0	0	14
WNCP	0	0	0
SWA	0	0	0
% reliant on			
all social welfare	82	82	78
UB	0	7	0
UA	3	5	3
DB	0	9	0
DWB/A	0	27	24
LPA	79	30	37
WCP	0	0	14
WNCP	0	0	0
SWA	0	0	0
Mean amount received			
all social welfare	72.3	78.2	103.6
UB	0	6.5	1.7
UA	1.5	3.9	3.0
DB	0	6.6	0
DWB/A	4.2	29.5	36.9
LPA	59.4	27.7	42.6
WCP	0	0	16.1
WNCP	0	0	0
SWA	0	0	0
Child Benefit	4.61	8.8	18.7
Total net income	112.0	118.2	188.0

One-adult households with children are of particular interest, although the numbers of households of that type in the sample limit the analysis which can be carried out. (In Table 1.2 above we saw that 4% of the 1994 sample comprised an adult living with a child or children aged under 18). The variation in social welfare schemes on which these households rely points to some other differences, explored in Tables 4.9-4.11. Table 4.9 shows the labour force status of the adults involved, by number of children. This shows that about two-thirds of the adults in these households are in home duties, but the percentage in work is higher for those with three or more children - 28% as against 10-13% for the 1 or 2 child groups.

Table 4.9: Labour Force Status, One-Adult Households With Children

Labour force status	1 child	2 children	1 adult and 3 or more children	All
Employee	13.4	10.1	28.4	17.9
self-employed	2.7	6.6	1.7	3.5
Farmer	3.9	0	2.8	2.5
Unemployed	6.0	7.4	4.7	6.0
Ill	1.9	7.8	0	2.9
Retired	0	0	0	0
Home duties	62.7	68.1	62.4	64.1
Education	9.4	0	0	3.2
All	100	100	100	100

With small numbers of cases in these groups in the sample it would be unwise to read too much into such differences, but Table 4.10 also shows some interesting variation by marital status. Most of those with one child have not been married, but about half those with two or three or more children are separated, with widows also accounting for 17% of the adults living with three or more children. (The "married but not living with spouse" category could reflect a variety of situations, from prisoner's wives to situations where the husband works abroad to what is effectively but not legally separation).

Table 4.10: Marital Status, One-Adult Households With Children

Marital status	1 child	2 children	1 adult and 3 or more children	All
Married, not living with spouse	2.7	16.4	1.9	6.4
Separated	9.4	45.9	53.2	36.0
Divorced	6.5	0	1.6	2.8
Widowed	2.9	5.4	17.2	9.0
Unmarried	78.5	32.3	26.0	45.8
All	100	100	100	100
Mean age	33	36	36	

It is also interesting to look at the relationship between labour force status and marital status for this group. Table 4.11 shows that very few of those who have not been married are at work, almost all say they are in home duties. By contrast, between

a third and a half of those who are separated or divorced are working as an employee or self-employed, and most widows are in that situation.

Table 4.11: Labour Force Status by Marital Status, One-Adult Households With Children

| 1 adult with children | labour force status | | | | |
marital status	Employee, self-employed, farmer	Unemployed	home duties	other	all
married, not living with spouse	14.3	0	85.7	0	100
Separated	33.4	9.8	50.4	6.4	100
Divorced	52.3	0	47.7	0	100
Widowed	84.2	0	8.6	7.1	100
never married	4.0	5.3	83.6	7.0	100

4. 4 Married Versus Cohabiting Couples

It is also interesting, in considering the tax and welfare treatment of different types of household, to compare the situation of couples who are married and those who are cohabiting. This is possible using data from the 1994 survey because "not married, living with partner" was included as a marital status category. All the cohabiting couples in the sample identified in this way were in 2-adult households, with or without children: none were in households comprising 3, 4 or 5 or more adults, or 2 adults and 1 elderly. Table 4.12 shows the marital status of the household head in households comprising two non-elderly adults and different numbers of children. We see that cohabitation is much more common in two-adult households with no or one child than in those with 2 or more children. In two-adult households with no child, 63% are married couples, 6% are cohabiting, 14% are separated, divorced or widowed, while 18% said they were not married but not living with a partner.

Table 4.12: Marital Status, Two-Adult (Non-elderly) Households With Children

	household of 2 non-elderly adults and					
	no child	1	2	3	4	5+

	child	children	children	children	children
married, living with spouse	62.6	83.3	97.8	98.3	94.4	96.5
not married, living with partner	5.8	7.7	1.6	0.5	1.9	2.7
separated, divorced, widowed	13.5	9.4	0.6	1.3		
never married	18.2	2.7			3.7	
All	100	100	100	100	100	100

Table 4.13 focuses on the contrast between married and cohabiting couples, (i.e. still concentrating on two-adult households only but excluding those where the head is neither married nor cohabiting), and compares their labour force status. Approximately the same proportion of the men, about three-quarters, are working in each case. However, women in a cohabiting couple are twice as likely to be working in the paid labour force as wives (of men under 65). In cohabiting couples almost as many women as men are employed or in self-employment, whereas about one-third of wives are in that position. As a consequence, 62% of cohabiting couples are both at work but this is the case for only 31% of married couples.

The table also shows that unemployment is a good deal more prevalent among cohabiting than among married men. It is also more prevalent for cohabiting than married women but is extremely low in both cases. There are very few cases indeed where both partners - whether married or cohabiting - are unemployed. The situation where the women is employed or in self-employment and the man is unemployed is rather more common for cohabiting couples, accounting for 8% compared with only 2% of married couples.

Since presence or absence of children can be a key influence, the table also summarises the results when one concentrates on couples with no children in the household (which could be because they have not had children or because their children have grown up and left the parental home). Half of the married couples without children were both working, compared to 88% of the cohabiting couples. This could reflect a variety of factors, including the different age profile and distribution over the life-cycle of the two groups and the way they are regarded by the tax and welfare system. Again a higher proportion of cohabiting than married couples had the women in employment or self-employment with the man unemployed, but very few cohabiting had the man at work and the wife unemployed or in home duties.

Table 4.13: Labour Force Status for Married Versus Cohabiting Couple-Headed Households (Aged under 65)

	married	cohabiting
	%	%
All		
husband working	77.4	74.0
wife working	34.9	71.2
both working	31.0	62.4
husband unemployed	13.5	26.0
wife unemployed	1.0	2.3
both unemployed	0.1	0
husband working, wife unemployed or in home duties	45.7	11.6
wife working, husband unemployed	2.1	8.7
couple, no children		
both working	49.5	87.6
husband working, wife unemployed or in home duties	24.3	2.8
wife working, husband unemployed	1.4	9.7

Table 4.13 now compares the average incomes accruing to married versus cohabiting couples in different labour force configurations (still concentrating on households with only two adults). Overall, mean disposable household income is higher for married than cohabiting couples, but the opposite is true for mean equivalent income (using the 1/0.66/0.33 scale) because more of the married couples also have children in the household. If we look at couples where both partners are working in the paid labour force, there is not very much difference in nominal weekly mean income, but cohabiting couples do have higher mean equivalent income because of fewer children. Where the woman is not at work the cohabiting couples have considerably lower mean income, both unequivalised and equivalised, than the married couple, but as we have seen this occurs in only a small proportion of cohabiting couples. Where the woman is at work and the man is unemployed there is not a great difference between married and cohabiting couples in mean equivalised incomes.

Table 4.13: Married Versus Cohabiting Couple-Headed Households (Aged under 65): Mean Income by Labour Force Status

	married		cohabiting	
	income	equivalent income	income	equivalent income
All	368.4	138.8	337.4	173.9
both working	450.1	186.7	436.8	229.7
husband working, wife unemployed or in home duties	379.3	134.6	186.8	92.51
wife working, husband unemployed	258.6	95.7	189.9	105.1
both unemployed	343.8	65.0	-	-

4.5 Conclusions

In this chapter we have examined how the flow of resources to and from households through cash transfers and direct tax varies across household types. We did so by analysing mean market, gross and disposable income; this analysis did not purport to capture behavioural response to the structure of taxes or transfers.

Households of one adult with children were heavily dependent on transfers, but not as much so as households of one or two elderly persons, which received only about one-third of their gross income from the market. Households comprising two adults with four or more children were also relatively heavily dependent on transfers. Households of one or two elderly persons paid very little of their gross income in direct tax. Those comprising non-elderly adults without children, on the other hand, paid a relatively high percentage of gross income in tax, of 20% or more, as did two adults with 1-3 children. Households of two adults with four or five or more children paid a lower percentage in tax, and those of one adult with children paid about 5% of their gross income in tax.

Taking transfers and income tax/PRSI together, the elderly, unsurprisingly, are seen to be substantial net gainers from the tax/transfer system. Households of one non-elderly adult, and more particularly two non-elderly adults, are net losers, as are those of three, four and five or more non-elderly adults. Households with two adults and 1-3 children lose, but those with four or five or more children gain significantly, as do one-adult households with children. Thus that the combination of direct tax and

cash transfers serves to redistribute income from households comprising non-elderly adults without children or with 1-3 children to the elderly, households of two adults with 4 or more children, and one-adult households with children.

This pattern of taxes and transfers was also seen to be quite stable between 1987 and 1994. There was some increase in the percentage of gross income going in tax for households comprising only non-elderly adults, while one-adult households with children became even more reliant on cash transfers.

We also looked in some detail at the types of social welfare transfers received by different household types, and the extent to which recipient households were reliant on these transfers as the main income source, in 1994. For households comprising one elderly person, or one adult with children, over 80% were reliant on social welfare transfers. It was also striking however that over one-third of all households of two adults with four or more children were also reliant on those transfers, most often Unemployment Assistance. Among one-adult households with children, that adult was in work in only about 20% of cases; the remainder mostly stated that their labour force status was "in home duties" rather than unemployed. Those who were widowed, divorced or separated were rather more likely to be at work than those who had not been married.

The situation of couples who were cohabiting rather than married was also examined, to the extent the numbers in the sample allowed. Cohabitation was seen to be most common where there were no children or only one child. Women in cohabiting couples were much more likely to be at work than wives (of men aged under 65), so over 60% of cohabiting couples are both at work compared with half that number for married couples of working age. Where there were no children this contrast remained. Cohabiting couples had lower average disposable income overall than married couples of working age, but higher mean equivalised income.

Chapter 5

The Needs of Households and Equivalent Incomes

5.1 Introduction

We now shift focus to a related but distinct issue which is also of central interest in considering tax and welfare strategies: how much do households of different compositions in fact "need" to reach the same standard of living? To give a concrete example, how much income does a couple with two children require to be at the same standard of living as a couple with no children who have £250 pounds per week? And how much does a single person living alone need to be at that living standard? Presumably the couple with two children need more than £250 and the single adult needs less, but how much more and less? While we have incorporated some conventional assumptions about this into our earlier analysis, we now want to examine directly this analytically very complex issue.

As we saw earlier, simply dividing total income by the number of household members to arrive at income per head is one way of taking the extra needs of additional household members into account. However, this fails to capture the fact that children do not "cost" as much as adults, and that there are economies of scale in living together – hence the notion that "two can live as cheaply as one". Tackling this problem has given rise to the concept of adult equivalence scales and equivalent income.

Suppose we take a two-adult household on £250 as the reference point: a household consisting of two adults and one child will require a larger income to attain the same standard of living. Suppose we have been able somehow to arrive at an estimate of how much more the latter needs to reach the same standard of living – let us say it is £50. The ratio of the income needed by the larger household, £300, to the income of the reference household is the equivalence scale, and the difference in incomes is often loosely described as the "cost of a child". Equivalence scales for different household types can then be used to put incomes of different types of households onto a basis where welfare comparisons can be made, having corrected for the differences in needs associated with differences in size and composition.

Of course, it could be argued that having children is mostly a matter of choice for the adults involved, which carries with it a cost to be borne by them as parents. Even if this argument were fully conceded, however, it would still be perfectly valid and important to try to measure the cost, and use the results for various purposes. Whether the state should reimburse any, some or all of the cost is a separate issue, depending on the objectives of family policy and the priorities attached to alternative demands on the Exchequer. We do not attempt here to consider this central issue for policy, nor the related one of how such state expenditure should be financed and how that financing (through taxation) might itself affect the welfare of different household types. Instead, our focus is entirely on the empirical examination of the nature and scale of the adjustment for the presence of children, or additional adults, which needs to be made to the incomes of households of differing size and composition to put them on a comparable basis in terms of living standards.

The assumption made about the scale of this adjustment is a crucial element in assessing how different types of household are faring at any point in time – are two-adult households on average better or worse off than two-adult households with two children? It is also central to assessing the extent of poverty for different household types, since an income poverty line will itself have to be set at a higher level for larger than smaller households. Finally, such an assumption is also one element feeding into decisions about social welfare support rates, in terms of the amount paid to a couple compared with a single person to put them on the same living standard, and how much extra is to be paid for dependent children. Thus assumptions about the relative needs of different households are built into both assessments of how well income support policy is performing, and into the structure of income support in the first place. This is of course why equivalised income was used in Chapters 2-4 earlier. What we are focusing on here is the nature of that adjustment itself.

The problem is that there is no one method of estimating what these relativities should be, of deriving equivalence scales, which commands widespread support among researchers and gives unambiguous answers. In practice, there are many complications and possible variations in approach, which we will discuss in more detail later. Many of these problems stem from the choice of measure of standard of living: even if we know their incomes, on what basis are we to decide that two households of different compositions are in fact on the same standard of living,

allowing the equivalence scale to be derived? In theoretical discussions, a measure referred to as "utility" is postulated, but it is not usually considered to be directly measurable. Some approaches take a proxy measure of utility, while others infer equality (or inequality) of utilities from observations on expenditure or suppositions about them. In this study we examine the potential of another measure, not investigated previously, based on information obtained in the 1994 Living in Ireland Survey on non-monetary indicators of living standards/deprivation.

We have used these non-monetary indicators extensively elsewhere in studying poverty, but here we employ them to see if they provide a basis for estimation of equivalence scales and the "costs" of children. In essence, this involves assuming that households with the same extent of measured deprivation – in terms of these indicators - can be deemed to have equal living standards, even if family composition varies. Equivalent incomes can then be deduced from how much extra income it takes larger households than smaller ones to reach a particular level of consumption. This new approach was adopted for reasons that will become evident during our review of the approaches in the literature, in Section 5.3. First, though, as background to the analysis we look at the assumptions about the needs of different household composition types implicit in the structure of social welfare rates and how these have been evolving.

5.2. Equivalence Scales in the Social Welfare System

It is useful to take the Report of the Commission on Social Welfare (1986) as starting-point, since it made explicit recommendations on the appropriate scales or relativities between households of different compositions, and appears to have influenced policy in that regard. The Commission in its analysis concentrated on calculating a minimum adequate income for a single person, using methods reviewed in detail in Callan, Nolan and Whelan (1996). The Commission highlighted how little was known about the relative needs of households of different sizes and compositions in Ireland, and this prevented it from coming to firm conclusions about what constitutes a minimum adequate income for children. However, a firm recommendation was made about the appropriate relationship between the payment rate for a single person and that for a couple: "The appropriate payment for a couple should be 1.6 times the personal rate" (p. 217).

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This conclusion was put forward with little supporting discussion, on the basis that "the 0.6 is the standard measure referred to in the literature on adult equivalence scales" (p. 196). In fact, quite a diversity of scales is employed in the research literature or built into official rates, as we shall see in Section 10 (although 0.6 is most commonly used in the UK). The strength of the conclusion reached by the Commission on Social Welfare on the precise relativity between the needs of a couple versus a single person was not based on an in-depth analysis of the international research literature or the Irish situation. (The Commission in deriving estimates of minimum income for a single adult itself used different equivalence scales in different methods - see Callan, Nolan and Whelan 1996 Chapter 3).

In looking at the rates actually paid by social welfare we begin in 1985, when the Commission on Social Welfare was deliberating. Table 5.1 shows the scale of the additional payment made for the second adult in a couple and for the first, second and third child by Unemployment Benefit, Unemployment Assistance (long-term), and Unemployment Assistance (short-term)/Supplementary Welfare. We see that the payment for a dependent adult was about 73% of the single adult rate for Unemployment Assistance in 1985. Unemployment Benefit then paid a substantially higher rate for a single adult than Unemployment assistance, but the additional amount for a dependent adult was less in proportionate terms, at 64%. For children, the extra amounts payable in 1985 varied with the number of children and across schemes. Table 5.1 shows that the total paid for children (including Children's Allowance as it then was) ranged from 29% to 38% of the single adult rate.

Table 5.1: *Equivalence Scales Implicit in Social Welfare Rates, 1985 and 1998*

	Proportion of Single Adult Payment Rate				
1985	*Extra Adult*	*First Child**	*Second Child**	*Third Child**	*Average for Child 1-3**
Unemployment Benefit	0.64	0.31	0.34	0.29	0.31
Unemployment Assistance (long-term)	0.72	0.33	0.36	0.30	0.33
Unemployment Assistance (short-term)/ Supplementary Welfare Allowance	0.73	0.34	0.38	0.32	0.35
1998					
Unemployment Benefit	0.58	0.29	0.29	0.32	0.32
Unemployment Assistance (long-term)	0.58	0.29	0.29	0.32	0.32
Unemployment Assistance (short-term)/ Supplementary Welfare Allowance	0.60	0.30	0.30	0.33	0.33

* Includes Children's Allowance/Child Benefit.

In the period since 1985, priority has been given to increasing what were then the lowest payment rates, as recommended by the Commission. In addition, however, the most substantial increases in rates since then have been for the single adult case on which the Commission concentrated. Increases for child and more particularly for adult dependants have been lower, with the result that the equivalence scales implicit in social welfare rates at present are rather different to those in 1985. The second half of Table 5.1 shows that by 1998, UB and long-term UA were paying only 58 per cent extra for an adult dependant – now below the Commission's recommended level of 60 per cent - while short-term UA and SWA were down all the way from from 73 to 60 per cent extra.

As far as children are concerned, the changes since the CSW in the equivalence scales implicit in the structure of rates have been less substantial. There has however been a concerted policy of implementing the Commission recommendation to reduce the variety of different rates for dependent children. Table 5.1 shows that by 1998, this variation had been eliminated almost entirely, with the rate for each dependent child irrespective of size of family being £13.20 across all

these schemes.[4] Child Benefit, as Children's Allowance has become, does retain some variation, however, with a higher rate being paid for the third and subsequent child than for the first two. The overall average rate of support for children is now 29-33 per cent of the single adult rate, which for the first or second child in a family represents a considerable reduction since 1985.

5.3. Approaches to Deriving Equivalence Scales

There is no consensus internationally about the best way to estimate the "needs" of one type of household *vis-à-vis* another, and equivalence scales covering a wide range are in common use. A common approach is to simply base scales for research purposes on those implicit in social security payment rates – which is how the scales most commonly used in UK research were originally derived. This does not of course provide any basis for saying what relativities should be built into the social welfare system in the first place, which is the key question. Whatever their initial justification, there is little or no research foundation for the current relativities in social security rates, and these have often been called into question (see for example Piachaud 1979, Bradshaw 1993, Ruggles 1990).

Probably the most frequently employed methods for estimating equivalence scales use the actual spending patterns of different household types, as revealed by household expenditure surveys, to try to define equal living standards and to estimate equivalent incomes. However, there are strong disagreements among economists and statisticians, which has spawned an extensive international literature, about the correct techniques. (See Browning 1992, Banks and Johnson 1994, for reviews of this literature and of the central issues). A core issue is how to know when households of differing compositions are at the same welfare level. For example, the "adult good" idea says two adults with a child have the same standard of living as the reference household if consumptions of some good, not consumed by children (for example, alcohol), are equal. This idea, originally due to Rothbart (1943) is still employed by some estimation methods. The even older definition of standards of living being equal when the share of food expenditure in the household budgets are equal has also been

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[4] Higher rates than this are however now paid with Widow's and Widower's Pensions, Deserted Wife's Benefit and Allowance, and Lone Parent's Allowance.

employed recently (see, for example, Deaton and Muellbauer, 1986). Both of these assumptions have been criticised on various grounds (is the adult good truly such? etc.) The more computationally sophisticated methods that utilise expenditures on several commodities – in particular, the complete demand systems approaches – are also far from conflict-free. For example, the frequently-used linear expenditure system model, employed using Irish data by Conniffe and Keogh (1988), embodies an assumption of constant differences rather than constant scales. On the other hand, the Blundell and Lewbell (1991) approach embodies an assumption of constant scales. It is sometimes possible, and certainly desirable, to test the validity of these assumptions.

The Conniffe and Keogh study, based on the 1980 Household Budget Survey, focused on the costs of children (rather than additional adults). Their results suggested that young children cost considerably less than older children, that there are substantial economies of scale for younger children, and that social welfare support rates in 1987 fell short of the estimated costs of children in most instances. The absolute cost figures, which can be updated in line with prices and the changing pattern of consumption across commodity types, are deducted from total household income to arrive at income adjusted for household composition.

An alternative method which has been employed is the "budget standards" approach. This seeks to specify "appropriate" requirements for a child's (or an extra adult's) consumption in terms of adequate nutrition, clothing etc. item by item. By costing these, one arrives at a cost of a child to add to the income of the reference household. This approach was used in the famous Beveridge (1942) report in the UK, and has been employed recently in the UK in a series of studies by Bradshaw and colleagues. It also underlies the relativities built into the US official poverty line back in the 1960s. The budget standards approach has clear value in demonstrating what a given level of money can and cannot buy at a particular point in time, and this can be valuable information to policy-makers and the wider public in assessing the adequacy of income support levels. However, the selection of items to be included in the exercise is highly judgemental: very different results can be produced depending on the precise choices made, and the appropriate basis for making those choices is unclear. It may be worth noting that budget standards approaches also embody the assumption of constant differences rather than scales.

The budget standards approach to deriving the costs of a child was applied to Irish data by Carney *et al.* (1994) in a study for the Combat Poverty Agency. They specified and costed the basket of goods and services they considered to constitute a basic minimum, including food, clothes, schooling costs, and limited spending on recreation**.** They found that the costs associated with rearing a child differed considerably depending on the age of the child: estimated costs were nearly twice as high for teenagers as they were for young children. In 1992 prices, the estimated basic minimum cost for a child aged 0-6 was about £21 per week, whereas for someone aged 7-12 it was £28.50 and for someone aged 13-18 it was about £37. The overall pattern of their results is similar in many respects to those of Conniffe and Keogh, in suggesting that older children cost substantially more than younger ones and that there are substantial economies of scale with respect to number of children. The costs of obtaining childcare if both parents work outside the home are not taken into account, however, and these are greatest for younger children. No similar Irish study has been carried out applying the budget standards method to producing an estimate of adequate income for adults.

Some researchers have made use of subjective evaluations by different types of households as to how much income they need to "make ends meet" to derive equivalence scales. Crudely, if two-adult households without children on average say they need £250 per week and two-adult households with one child say they need £300, this provides a basis for deriving the "cost" of a child. Many complexities arise in implementing and interpreting this approach, however, and it has not been widely adopted. Others have endeavoured to measure proxies for utility by seeking psychological perceptions of welfare. These approaches have been reviewed by Bradbury (1989), for example, who is skeptical about their value.

Before summing up on these methods and turning to our approach in this study, it should be remarked that poverty and income inequality researchers do now customarily investigate the sensitivity of conclusions to variation in estimates of scales. As regards research on poverty and income inequality in Ireland using the 1987 and 1994 ESRI surveys, a range of scales has been used for that purpose. Among these are the two sets of scales described and employed earlier in Chapter 2. Taking a single adult as 1, the first set of scales attributed a value of 0.66 to each additional adult and 0.33 to each child. The second, the "modified OECD" scale, attributed 0.5 to each

additional adult and 0.3 to each child. Another scale in common use gives a value of 0.7 to each additional adult and 0.5 to each child – the "original OECD" scale – while in the UK a scale giving 0.6 to additional adults and 0.4 to children is often used. In comparative income distribution and poverty analyses, a scale which simply takes the square root of the number of persons in the household (without differentiating between children and adults) has also been widely employed.

These scales cover a substantial range, although the range produced by the various estimation methods we have described would be even wider. The subjective approach, for example, generally produces much lower values for the "cost of a child" than other approaches, while methods based on analysis of expenditure can produce estimates scattered across a wide range depending on the precise techniques and assumptions employed.

Returning to the choice of estimation method, our range of options is limited by the fact that the Living in Ireland Survey did not seek to record expenditures on commodities. The methodological review has suggested that neither the budget standards approach nor the subjective evaluations method has received much support in the literature. So we make use of data in the 1994 Living in Ireland Survey on non-monetary indicators of living standards to assess when different households have attained a similar living standard. Like expenditure-based methods, our results are based on estimating what income difference across different household types equalises a measure of household living standards. Our approach is novel only in the use of non-monetary indicators rather than expenditures to provide that living standards measure, and it could perhaps be classified as conceptually similar to the "proxy for utility" method, but with an objective rather than subjective measure.

It may of course be argued that the level of possessions of households with and without children cannot be taken as simply reflecting living standards because the fact of having children may itself lead to a change in preferences. Once again, this is no different to the expenditure-based methods where the implications of precisely that point have been frequently debated. The underlying problem is of course the impossibility of measuring welfare or "utility" directly.

5.4. Non-Monetary Indicators in the Living in Ireland Survey

The ESRI's *Living in Ireland* survey carried out in 1994 obtained information on not only household composition and income, but also on whether the household was able to afford a range of possessions or activities. Essentially, households with the same level of possessions will be deemed to have equal living standards, even if family composition varied, so that equivalent incomes will be deduced from the observed incomes which households of differing composition need in order to reach a particular level of possessions.

Research on poverty has occasionally employed non-monetary indicators such as lack of some amenity or inability to participate in some desirable activity as indicators of deprivation. An index can be constructed by counting the items or amenities possessed and the activities that can be undertaken, or conversely a deprivation index can be constructed of items lacked or activities not afforded. An index of this nature was employed by Townsend (1979) and Mack and Lansley (1985) and Gordon *et al* (1995) for the UK. Previous work on the 1987 and 1994 ESRI surveys has explored in some depth the use of such indicators for measuring poverty in an Irish context (see especially Nolan and Whelan 1996). The 1994 *Living in Ireland* survey recorded possession (in this general sense of including activities) of 27 items, indicative of living standards, shown in Table 5.2.

Table 5.2: *Non-Monetary Indicators in the 1994 Living in Ireland Survey*

Item
Refrigerator
Washing machine
Telephone
Colour Television
Car
Video recorder
Microwave
Deep freeze
Dishwasher
A week's annual holiday away from home (not with relatives)
A dry damp-free dwelling
Adequate heating for your home
Central heating
An indoor toilet
Bath or shower
A meal with meat, chicken or fish every second day
A warm, waterproof overcoat
Two pairs of strong shoes
Able to save some income regularly
A daily newspaper
A roast joint of meat, or its equivalent, once a week
A hobby or leisure activity
New, not second-hand, clothes
Presents for friends or family once a year
Second (holiday) home
Able to replace any worn-out furniture
Having friends or family for a drink or meal at least once a month

Not all of these items would be suitable for inclusion in a deprivation index, and only a sub-set has been employed in measuring poverty – what has been termed a set of items relating to "basic" deprivation (see Callan *et al* 1996). Here, however, the aim is different: we are seeking a general indicator of living standards, and will employ all the items to construct a possessions index. It is important to be clear at the outset why we do so, rather than honing in on a sub-set (as we have elsewhere in measuring poverty, for example). In employing such an index we treat each item as an imperfect measure of standard of living. The response to each item will be affected by the underlying dimension that we wish to tap and by other, for our purposes, extraneous factors such as tastes or constraints on particular activities. The measurement of any phenomenon is thus always subject to a certain amount of chance

error. However, by averaging across items we hope to capture the systematic component that is common across items as the random influences cancel out. This tendency towards consistency found in repeated measurement is referred to as reliability. The most widely used measure of reliability is Cronbach's coefficient alpha. This can be interpreted as the correlation between an index based on this particular set of items and all other possible indices containing the same number of items that could be constructed from a hypothetical universe of items that measure the characteristic of interest. The alpha coefficient for our standard of living index reaches a highly satisfactory level of 0.86. In no case would the exclusion of an item significantly increase the reliability of the scale. We therefore retain all twenty-seven items.[5]

Clearly one would ideally like to have more information about some of the items (as well as an even broader range of items). As well as knowing whether a household has or has not an item such as a car or a washing machine, for example, one might want to know year of purchase and purchase price. Similarly, knowing whether someone buys new rather than second-hand clothes is rather different to information on actual expenditure on clothing over a year. Partial information on a broad range of items has advantages over more complete information on only a few items, however.. Using an index of possessions across quite a wide range for the purpose of identifying equal standards of living is clearly worth exploring, and that is what we concentrate on here.

If we construct a possessions index for each household by counting one for each item possessed, the mean value of that index over all survey households is 19.7, with a standard deviation of 4.9. A frequency distribution of the values for this index is shown in Figure 5.1. While even low-income households have some scope to make choices about how to allocate their expenditure and these choices may vary across households, the use of statistical methods in analysing the relationship between this possessions index and income is intended to bring out the systematic element in this relationship.

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[5] While the full 1994 sample comprised 4048 households, 3735 gave full information on all 27 items and therefore are available for analysis here.

Figure 5.1: *Frequency Distribution of Index of Possessions*
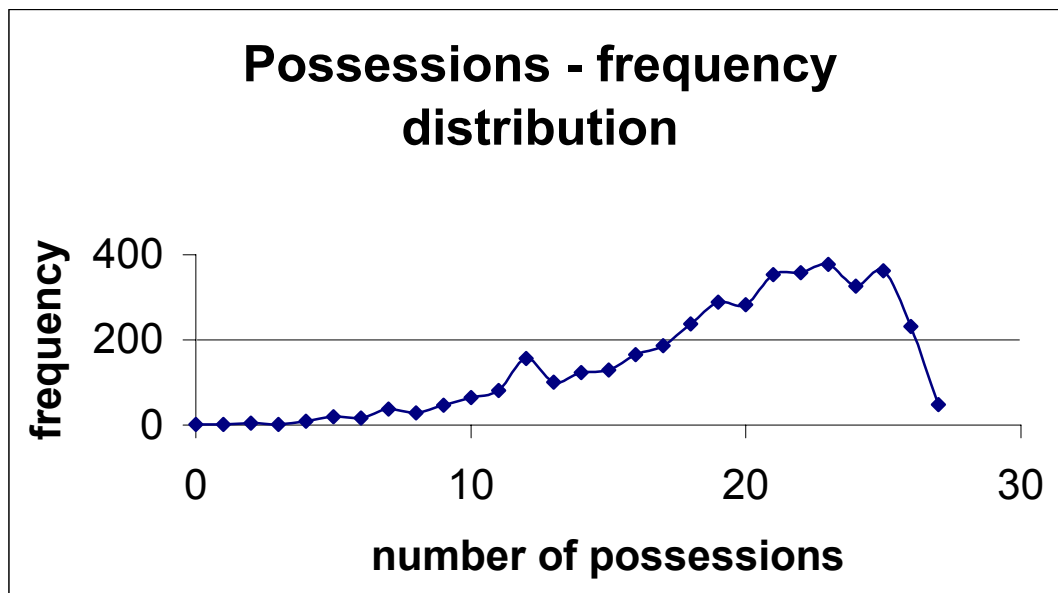
This index of possessions can be broken down and analysed in terms of the various explanatory factors recorded in the Living in Ireland survey, such as household composition, income, social class, occupation of head of household, etc. In this study, of course, the interest is primarily in the impacts of the first two factors: household composition and income. The other factors will play a role too, but as instrumental variables and not as explanatory variables to be controlled for. It is usual in social research to control for other explanatory variables when drawing inferences about the importance of a factor, but that is not appropriate when estimating equivalent incomes. The situation is best explained by taking the social class factor as an example. The social classes and the number of households in each in the survey are listed in Table 5.3.

Table 5.3: Social Classes and Frequencies

Social Class	Code	Frequen-cies	% of total sample
Higher-grade professionals, administrators & managers in large establishments, large proprietors.	1	304	8.1
Lower-grade professionals, administrators & managers in small establishments, higher technicians.	2	441	11.8
Higher grade non-manual	3	237	6.3
Lower grade non-manual	4	387	10.4
Small proprietors with employees	5	183	4.9
Small proprietors without employees	6	150	4.0
Lower grade technicians & supervisors	7	194	5.2
Skilled manual	8	516	13.8
Semi-skilled manual	9	328	8.8
Unskilled manual	10	292	7.8
Agricultural and primary production workers	11	100	2.7
Farmers > 100 acres	12	212	5.7
Farmers > 50 < 100 acres	13	223	6.0
Farmers < 50 acres	14	168	4.5
Total		3735	100

Average levels of possessions differ between social classes as may be seen from Figure 5.2.

Figure 5.2: *Possessions by Social Class*

Mean Possessions of Classes
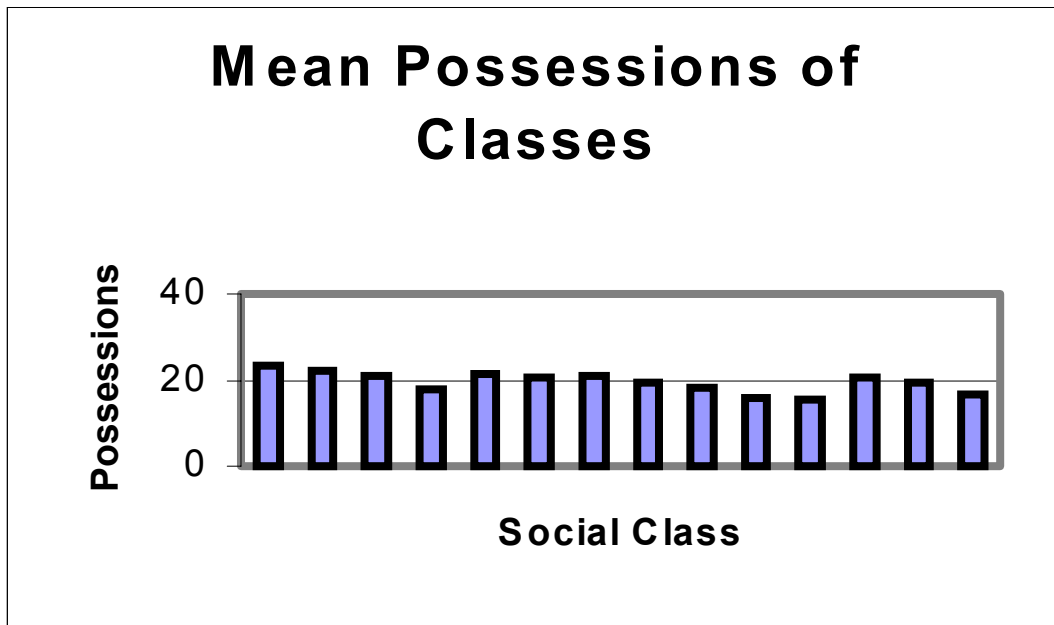
As might be expected, the highest mean value of possessions was associated with Social Class 1, the higher-grade professionals, administrators etc. The lowest mean values were associated with Social Classes 10 and 11, the unskilled manual workers and agricultural labourers. But, of course, incomes also differ between Social Classes and constitute one cause of the differences in possessions. Indeed, it is arguable that all differences in possessions between classes are just the long run effects of income differences. The mean incomes for the social classes are shown in Figure 5.3.

Figure 5.3: *Mean Incomes for the Social Classes*

The highest income class is Social Class 1 and the lowest is Social Class 11 with Social Class 10 very low also, which correlates well with the pattern on the possessions index in Figure 5.2. Some (perhaps anomalous) points deserve note. Although large farmers (Social Class 12) are the second highest income group, they rank only sixth in terms of possessions. A possible explanation is that 1994 may have been a good year for agriculture, but farmers, like others whose incomes can vary substantially from year to year, may save in a good year and spend from savings in a bad year. Their levels of possessions may relate more to their average expected incomes than to their actual fluctuating incomes. This, of course, is compatible with the "permanent income hypothesis" and life-cycle models of consumption and savings that are sometimes cited in support of the idea that household expenditure is a better measure of average income than is recorded survey income. Note also that the self-employed (Social Classes 5 and 6), ranked quite high on possessions but lower (particularly Class 6) on incomes. The converse of the possible explanation for farmers may apply – perhaps 1994 was a bad year for the self-employed. Alternatively, there may be understatement of income.

Overall though, there are substantial differences between Social Classes in levels of possessions and these are evidently correlated with differences in incomes.

Now the purpose of this study is to see how much extra income households of a certain composition require to reach the same standard of living as a reference household. Should this be done controlling for social class (by, for example, including social class variables in any equations estimated between possessions, household composition and income)? This would say that all between classes differences in household incomes and possessions must not enter into the assessment of equivalent income. A household of a certain composition just "needs" the extra income that attains equality of possessions with a reference household, assuming that both are in the same social class and both incomes have already been set equal to the average for that class. This is clearly not what is desired in seeking equivalent incomes and social class should not be controlled for.

Social class has been used to illustrate this point, but similar conclusions apply to other factors. No factor that could diminish the income component of the variations in possessions between household types should be controlled for in the analysis. As will be seen, there will still be a role for these factors, but not as conventional explanatory, or control, variables.

5.5. Household Composition and Possessions

We now turn to household composition and how best to categorise households in terms of size and composition for the purpose of the current exercise. It is necessary to have precise categorisations which allow us to compare the situation of, for example, a couple with no children and a couple with one child – "loose" categories such as "couple with children" or "three or more adults" will not suffice. Apart from distinguishing adults and children, it may not be satisfactory to treat the cost of a child, as if independent of age of child - and indeed of the number of other children in the household. A smaller increment in income may be required to equalise living standards with the reference household if the child is young than if the child is a teenager. As regards number of children, it is plausible that there could be some economies of scale, so that two children (of similar age) need not imply twice the income increment. Another issue of interest arises is whether the cost of a child could be greater if that child is living with a single adult than for a pair of adults? If so, the income increment required for the single adult plus child to attain the same living standard as a single adult would be larger than the corresponding increment for a

couple.

The number of household types could be very large indeed if one works with a fine breakdown of children by age categories, but the numbers in each type in the sample could then become too small to support analysis. Here we let "young child" mean below age five and "old child" mean age five to fifteen. In Chapters 2-4 we simply treated all those under 18 as children. Here, though, we treat 16-17 year olds as "adults" because they are arguably as costly to maintain, they would be considered to be adults if the parents were not resident, and they are classified as adults by the CSO and have been treated as such in previous studies of equivalence scales. Table 5.4 shows the seventeen household types with highest frequency in the sample, for whom we also have full information allowing the deprivation index to be constructed.

Table 5.4: *Household Composition Types with Highest Frequency*

Composition	Type	Number in sample
Single adult	1	530
Two adults	2	850
Two adults + 1 young child	3	140
Two adults + 2 young children	4	83
Two adults + 1 old child	5	70
Two adults + 2 old children	6	133
Two adults + 3 old children	7	57
Two adults + 1 young + 1 old	8	111
Two adults + 1 young + 2 old	9	98
Two adults + 2 young + 1 old	10	47
Three adults	11	423
Three adults + 1 old child	12	98
Three adults + 2 old children	13	65
Four adults	14	307
Four adults + 1 old child	15	126
Five adults	16	184
Six adults	17	146

Since children over fifteen are counted as adults, a four adult household is often two parents with two children. The household types shown in the table account for 86% of the survey sample and, although there is a very large number of other possible household compositions, their frequencies are low. For example, one would

expect households consisting of four adults and one young child to be infrequent and in fact only eleven occur in the survey. There are two households consisting of six adults and one young child. As regards households types consisting of a single adult and children, these are also infrequent.

The mean values on the possessions index for the household types from Table 5.4 are now shown in Figure 5.4, with each type identified by the code given in the table. The most striking difference is between the single adult households (type 1) and the others, with single adults having a low level of possessions, and there is no overall tendency for households with children to have lower levels of possessions. The second lowest level of possessions occurs for households consisting of two adults (type 2), while households with two young children and two young plus one old (types 4 and 10 respectively) have the second highest and highest levels.

Figure 5.4: *Mean Level of Possessions by Household Type*
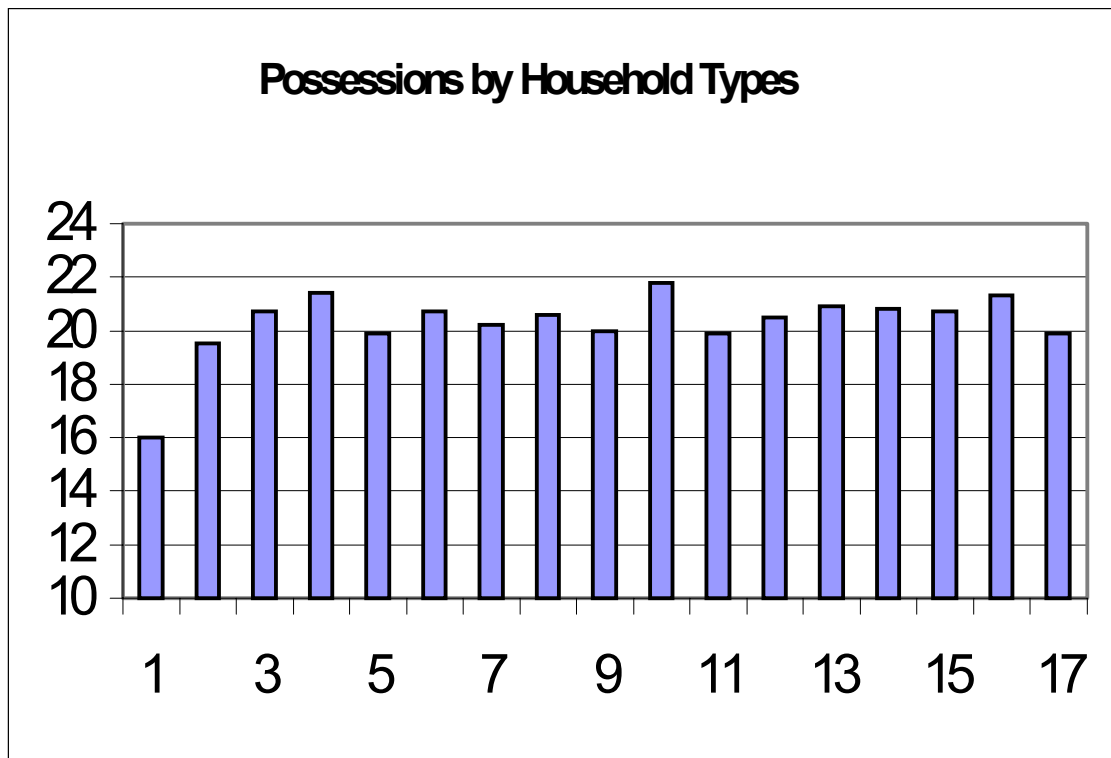
The mean incomes of the various household types are now shown in Figure 5.5. Income obviously is a major factor explaining many of the differences in possession levels. Single adult and two adult households (types 1 and 2) have the lowest and second lowest incomes, while households of two adults and two young

children (type 4) have the highest mean income of all households containing fewer than four adults. The fact that the survey seems to have sampled a relatively low income group of couples with one old child (type 5) correlates with that household type having the lowest possession level among households with children. However, couples with two young and one old child (household type 10) does not have a particularly high income and had the highest possession level, so income is not the only determining factor.

Figure 5.5: *Mean Incomes by Household Type*
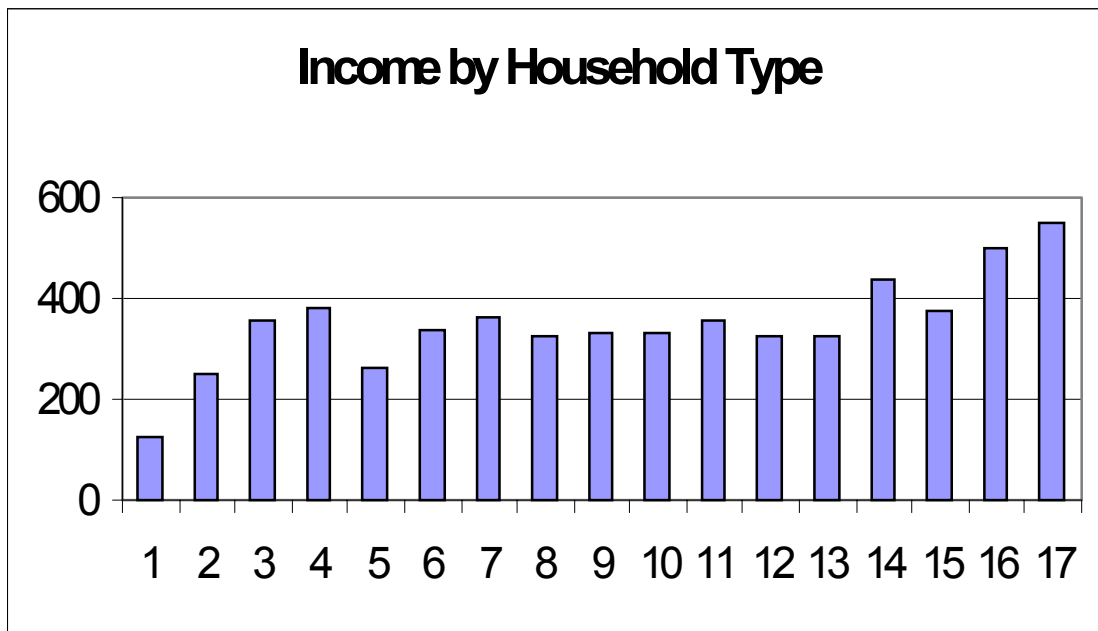
5.6. The Relationship of Possessions to Income

Whatever the household type, the value of the index of possessions should increase with income. However, the rate of increase could itself be expected to decrease as income rises. This is because a modest income increase may enable a poor household to have a meal with meat, fish or chicken every second day, while a substantial increase would be required by even a well-off household to permit purchase of a second home, and yet both items add the same increment (1) to the index. Also, the index cannot exceed 27, however large the income. Thus one would expect a curve of the form shown in Figure 5.6 to describe the relationship between possessions and income.

Figure 5.6: *Relationship between Possessions and Income*
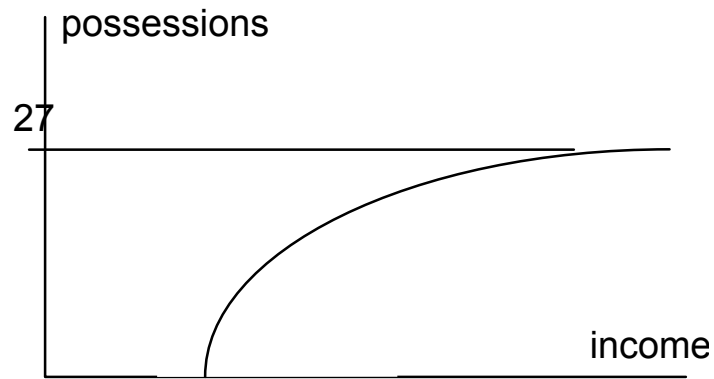
Do the survey data actually support a curve of the form of Figure 5.6? A plot of the level of the possessions index against income for all 4,400 households in the sample would just produce a confusing cloud of points, but a summary based on means of possessions and incomes for the 14 social classes, listed earlier in Table 5.3, is informative and is shown in Figure 5.7.

Figure 5.7: *Possessions versus Income for Social Classes*
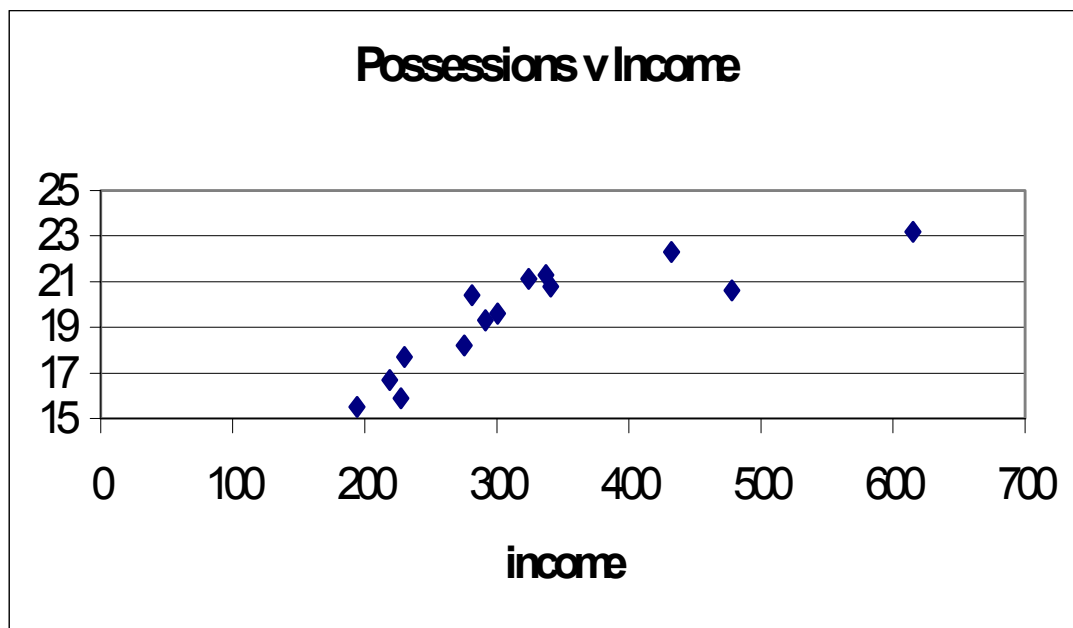
The relationship is broadly in agreement with Figure 5.6, although the curve seems to begin flattening out rather quickly when possessions exceed 20 and one high income class (large farmers) seems to be unexpectedly low in terms of possessions. These features may be connected to the bluntness of a have/have-not dichotomy of items on which very different sums could be spent, but it may also relate to the points mentioned earlier about the income measures for farmers and the self employed. In Figure 5.8 these two social classes have been omitted.

Figure 5.8: *Possessions v Income for Social Classes excluding Farmers and Self-Employed*
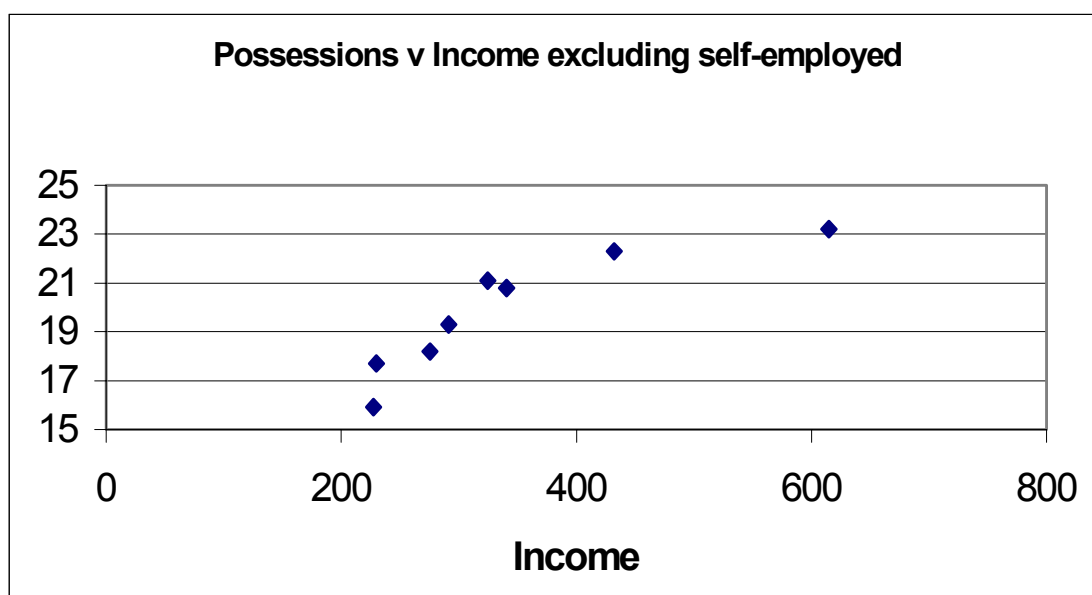
The relationship now looks closer to what would be expected in theory and suggests that more precise estimation of household composition effects may be obtainable for the sub-population defined by omission of farmers and the self-employed. But excluding such a large number of households (a quarter of the sample) is very undesirable and another approach is preferable. When, in regression analysis, an explanatory variable is considered subject to measurement error or to be endogenous, the method of instrumental variables (two stage least squares) is often employed to correct for the phenomenon without discarding observations. The method

uses other factors or variables that were recorded in the survey and are related to income. It can be shown that when such factors are qualitative, the method amounts to taking the means of the groups of households defined by the combinations of factors and conducting weighted regression on the means (as demonstrated in Appendix 1). So use will be made of factors other than income in the analysis, but as instrumental rather than control variables.

The clarification in pattern from Figure 5.7 to Figure 5.8 can be reproduced in sub-groups of the survey households. Figures 5.9 and 5.10 apply the same breakdown by Social Class to two adult households without children.

Figure 5.9: *Possessions v Income for Two Adult Households*
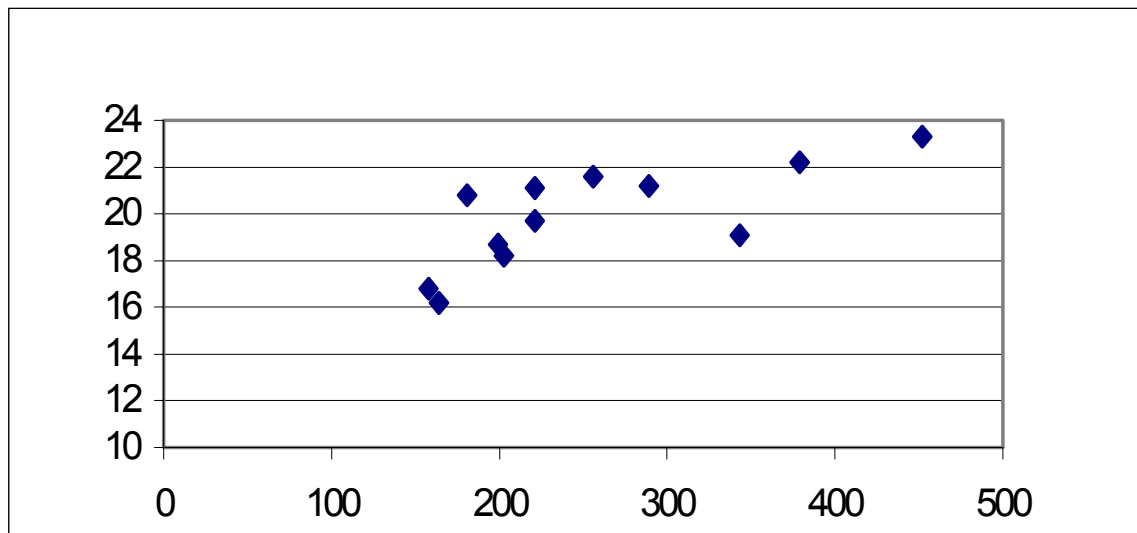
Figure 5.10: *Possessions v Income - Two Adult Households excluding Farmers and Self-Employed*
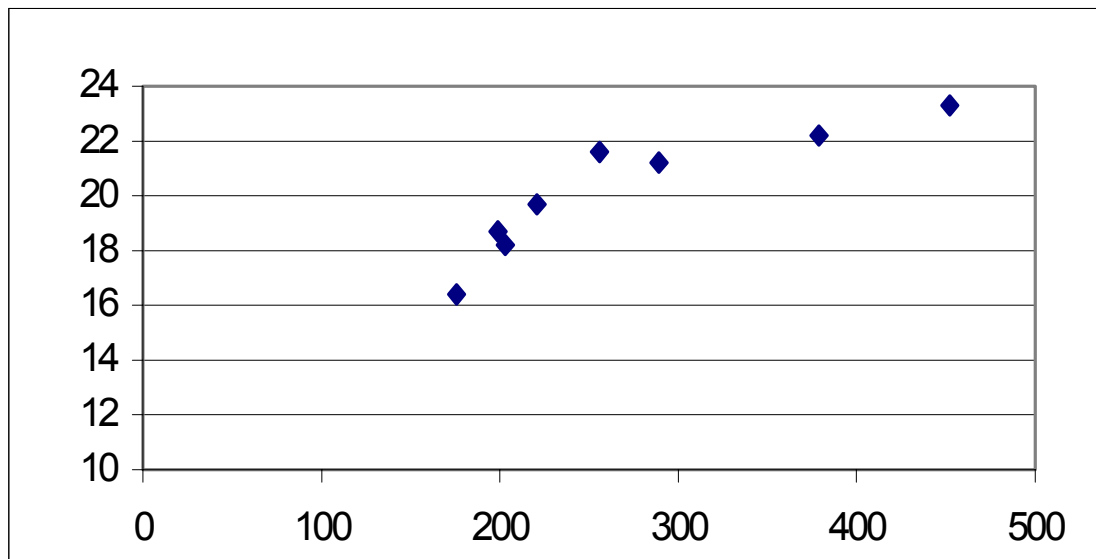
Similar patterns follow from looking at other household types, although not always as clearly as for two adult households. As we have seen, there are 850 two adult households in the sample, but there are only 70 two adult and one older child households. Divided over the 14 social classes, frequencies become small (in fact Social Class 11 is not represented at all for this household type and Social Class 12 is represented by just one household) and then a single peculiar household can distort the picture. However, the overall impression reinforces the desirability of employing the instrumental variables method described above.

5.7. Equivalent Incomes and Scales

Before presenting our estimation results, some important issues about the nature of the relationship between income and "needs" or "costs of a child", and therefore about the form which equivalence scales should take, need to be set out. The shape of the curve in Figure 5.6 should apply to all household types, but the starting points along the income axis and the slopes of the curve can be expected to differ with household type. For two household types, say two adults and two adults plus a young child, the situation might be as in Figure 5.11.

Figure 5.11: *Equivalent Income for Two Household Types*
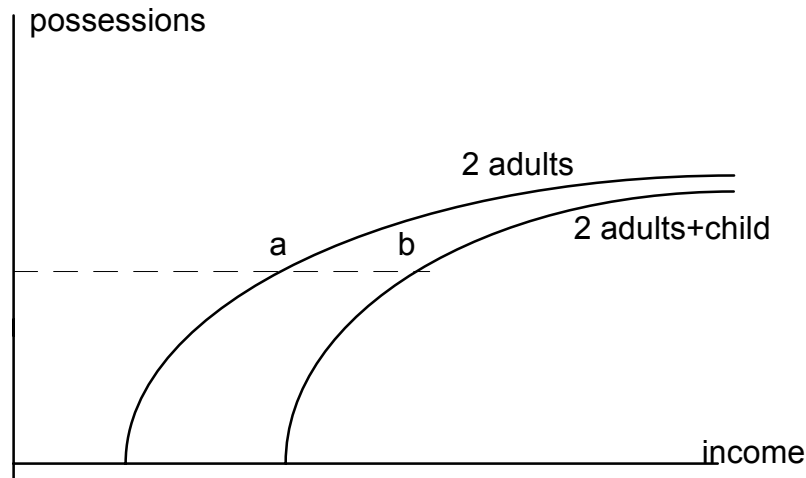
Taking any specific level of possessions, the horizontal (dashed) line cuts the two curves at a and b respectively. The distance from a to b is the income increment or additional amount required to "compensate" for the cost of the child. The equivalence scale is then just the increment divided by the income of the 2-adult household.

The mathematical model employed and the process of deriving increments and scales is now outlined. Mathematically a curve of the form shown in Figure 5.6 has the equation

$$p = 27 - \frac{b}{y-a} \qquad (1)$$

where p denotes possessions and y income and a and b are constants that determine the precise slope and position of the curve relative to the axes. These may differ with household type. Let the equations of the two curves in Figure 11 be

$$p_r = 27 - \frac{b_r}{y_r - a_r} \qquad \text{and} \qquad p_h = 27 - \frac{b_h}{y_h - a_h}, \quad (2)$$

where the subscript r refers to the two adult reference household and the subscript h to the two adult plus child household and p and y refer, as before, to possessions and

income. Let possessions be equal $p_r = p_h$ so that y_r and y_h are equivalent incomes. If $b_r = b_h$ then $y_r - a_r = y_h - a_h$, or,

$$y_h - y_r = a_h - a_r, \qquad \text{a constant increment.} \qquad (3)$$

If $a_r = a_h = 0$, then $b_r / y_r = b_h / y_h$, so that

$$\frac{y_h}{y_r} = \frac{b_h}{b_r}, \qquad \text{a constant scale.} \qquad (4)$$

If neither $b_r = b_h$ nor $a_r = a_h = 0$, then both increments and scales change as income increases and can either decrease or increase depending on the values of the parameters. So all the possible models are embedded within model (2) and the possibilities of constant intercept or constant scale models can be tested by examining if $b_r = b_h$ or $a_r = a_h = 0$. Of course, there are numerous household types and formulae covering all of them involve many parameters, but the principles remain the same.

There are several possibilities here that need discussion because there are divergent views in the literature on equivalence scales. In principle, the required increment (in pounds per week or per year) might decrease as income increases, but it seems unlikely that the "cost" of a child would be any less for a higher income household than a lower income one. If such were the case the scale would, of course, also descend with income.

A more reasonable hypothesis would be that there is a <u>constant increment</u> with increasing income: the amount required does not change as the income of the household changes. This is sometimes "built-in" at the estimation stage, either because it is intrinsic to the definition of equivalence or because it emerges from assumptions in an underlying economic model. The "budget standards" approach, for example, costs and sums the ingredients of a nutritionally adequate diet etc., and arrives at a cost figure which will be the same for all households, quite independently of their actual incomes – the method takes it for granted that this is appropriate. An example of a constant increment estimation method arising from underlying model assumptions is Conniffe and Keogh's (1988) estimation based on fitting the linear

expenditure demand system to household budget data. Note that a constant increment in absolute terms implies a decreasing equivalence *scale* – because the same absolute amount for the cost of a child represents a declining proportion of the income of the single adult or couple reference household as household income increases.

An alternative formulation is that the increment could increase with income, but not as much as income. This would mean that the absolute amount for the cost of a child rises but the equivalence scale declines as we move up the income distribution. Although this situation has not featured in the literature, there is no reason to rule it out *a priori*.

The situation where the income increment increases so fast that there is a <u>constant equivalence scale</u> does feature frequently in the literature, however. A constant scale means that the income increment doubles if the income doubles. Many studies have assumed constant scales, probably because they are convenient to work with, although some authors (for example, Blundell and Lewbel, 1991) have made the assumption of constant scales central to the estimation method. As we have seen, the scales most widely employed in income distribution and poverty analysis tend to take this form – for example the "OECD" and "modified OECD" scales described above.

Finally, increments could increase so fast that scales also increase with income. This perhaps seems unrealistic in a "real world" context, but is not mathematically impossible. However, almost all published work on equivalent incomes have taken either constant increments or constant scales. In estimating scales based on household scores on the possessions index, household income, and household composition, we employ a flexible model which allows the data to determine which form the resulting equivalence scales are to take.

5.8 Estimation

The details of the estimation of the parameters and the performance of the relevant tests are now given. The equation

$$p_k = 27 - \frac{b_k}{y_k - a_k},$$

where the subscript k refers to household type, can apparently be easily linearised by transformation, but, as will be mentioned later, there can be difficulties. The equation may be rewritten

$$\frac{1}{27-p_k} = \frac{y_k}{b_k} - a_k$$

or

$$w_k = c_k + d_k y_k \,, \tag{5}$$

which is now in linear form, with $w_k = 1/(27-y_k)$ and the coefficients of interest given by

$$-c_k \text{ and } 1/d_k \,.$$

Although there are as many equations of the form (5) as there are household types, they can be written and estimated as one single equation by introducing dummy variables and products of dummy variables with incomes in the manner:

$$
\begin{matrix}
w_1 \\
w_2 \\
\cdot \\
\cdot
\end{matrix}
=
\begin{matrix}
1 & 0 & . & . & c_1 \\
0 & 1 & . & . & c_2 \\
\cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot
\end{matrix}
+
\begin{matrix}
y_1 & 0 & . & . & d_1 \\
0 & y_2 & . & . & d_2 \\
\cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot
\end{matrix}
\tag{6}
$$

The analysis including all household types (except very low frequency types) did display some heterogeneity problems. In particular, single adult households were much more variable in terms of incomes and possessions than households with children, so analyses were also conducted dividing household types into two (not entirely disjoint and not exhaustive) groups. The first included single adult households, two adult households, three adult households etc and was used to investigate the "costs" of extra adults or late teenage dependants. The second group included two adult households with and without children in the various number and age combinations and was used to investigate the costs of children. It should be said here that several other sets of analyses were undertaken. Models were estimated from the original data rather than from the grouped means and some of the findings will be returned to. Models were also estimated, both from means of groups and from original data, omitting farmers and the self-employed entirely.

If there are s household types involved in an analysis based on the model (6)

there are 2s unknown parameters. In section 5, the condition for constant scales to apply was shown to be $a_1 = a_2 = .. = 0$, which here becomes $c_1 = c_2 = .. = 0$. This amounts to fitting the equations (5) or (6) with the constants suppressed, that is, assuming that all equations radiate out from the origin. Then only s parameters are estimated. Subtracting the regression sum of squares when all constants are suppressed from the regression sum of squares when they are estimated, dividing by s and then dividing by the residual mean square (from the regression estimating the constants) gives an F test for deviations from constant scales. The tests rejected the hypothesis of constant scales.

The condition for constant increments was seen to be $b_1 = b_2 = .. = b_s$, which here becomes $d_1 = d_2 = .. = d_s$. Then the equations (5) or (6) are fitted with a common regression coefficient on income, that is, as a set of parallel straight lines, with s + 1 parameters to be estimated. Subtracting the regression sum of squares of the model with a common coefficient from the regression sum of squares when individual coefficients are estimated, dividing by s - 1 and then by the residual mean square (from the regression estimating different coefficients) gives an F test for deviations from constant increments. The hypothesis of constant income increments was also rejected.

When neither scales nor increments are constant, the various possibilities – decreasing scales and decreasing increments, decreasing scales and increasing increments and increasing scales and increasing increments – depend on the values of the parameters. For these analyses scales and increments are found to decrease with income.

The Hausman type tests, described earlier, are based on comparisons of the estimators from analysis by IV and standard regression on the original data. However, there are some problems to performing "standard" regression for all the models investigated using all the original data. The device used to linearise equation (1) into the form (5) takes the inverse of 27 – p and therefore assumes p does not equal 27. This creates no difficulty when p is a mean of a sizeable group of households, but does for analysis of individual data because a few high income households attain the maximum value of the index of possessions. Omission of some data can obviously solve the inversion problem and comparisons then suggested that the IV, or analysis of

means method, was necessary to correct for endogeniety or measurement error. However, it could perhaps be claimed that omission of data had introduced distorting biases.

If a constant equivalence scale model had been appropriate there would again be no difficulty, because then the model (1) would have reduced to

$$p_k = 27 - \frac{b_k}{y_k}$$

and that could have been linearised by the alternative method of regressing p on the reciprocal of income, which would cause no difficulty as income is never zero. So the model can be easily estimated from means and from individual data. This was done and the estimates were very different. However, since constant equivalence scales were not appropriate, this is possibly not conclusive evidence either.

Finally, equation (1) could be estimated without transformation by non-linear iterative processes, although this is computationally very demanding compared with linearisation, does not yield such convenient estimation and test procedures (F tests etc.) and can exhibit convergency problems (perhaps because of the attainment of the asymptotic limit by individual households). To the extent that it was employed, however, it bore out the other analyses in indicating that IV analyses are required to correct for complexities in the income variable.

These analyses were repeated excluding farmers and the self-employed. While the differences between estimates based on means and individual household data were now much reduced, there were still sufficiently large discrepancies to prefer the IV approach. In addition, a decision to omit farmers and the self- employed would seem very drastic, since they constitute a large proportion of the survey sample. Quite apart from the technical statistical aspects of reduced sample size, there would be then be the reduced generality of the population to which the survey's findings applied.

The estimation results show that the statistical tests reject both constant scales and constant absolute increment models. The curves for the various household types are indeed significantly different in the expected direction at low income levels, with for example households with children needing more income to reach a given level of possessions than a household with no children. However, the curves are virtually indistinguishable at high income levels – in other words, a high-income household

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with children is predicted to have the same level of possessions as a household without children on the same income, with no "cost" for a child. The implication is that both scales and increments decrease as income increases. This result was obtained (although occasionally statistical significance was not attained at 5%, but at 10%) consistently over the range of variants of the analyses described in Appendix 3.

Although it has been argued in the literature (for example, Conniffe, 1992) that scales which decrease with income are plausible, declining absolute increments are much less so. It seems likely that the nature of the possessions variable is the explanation. The items included were designed for the most part to reflect the extent of deprivation towards the bottom of the income distribution, rather than act as a comprehensive measure of living standards throughout the entire income distribution. Thus, for example, very few households in the top half of the income distribution will not have a bath, toilet, telephone, car etc. Only a few items (such as having a second home) are likely to tap into differences in living standards among those towards the top of the income distribution. It must be concluded that the index available to us seems a poor proxy for utility when applied to households of medium to high incomes, although it may serve the purpose required of it when applied to lower incomes.

If we were to proceed to estimate equivalence scales or increments throughout the entire income range as if they were constant, the average value over the whole income range will clearly underestimate what the increment or scale should be at a low level of income or possessions. For example, the "cost" of the second adult in a two adult household is estimated as just £34.6 per week and the scale is estimated as 0.23 from a constant scale model, implying that the second adult "costs" less than a quarter of the first. Implausibly low values are also obtained for the costs of children. A constant income increments model gives the cost of an older child as £13 per week and a constant scale model estimates a scale of 0.09.[6]

Since the equivalence scales relevant to those depending on social welfare are

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[6] These figures are based on the models including farmers and self-employed, but using instrumental variable estimation, and separating comparisons of adult only households from comparisons of households with children, as these models seemed best for the reasons given in Appendix 3. However, the other models described there gave similar results.

of particular interest in this study, it is probably permissable to concentrate on households on lower incomes. We therefore proceed by comparing incomes of different household types at a fixed level of possessions well below the average – what income does it take a couple with no children versus a couple with one child to reach a particular score on the possessions index? Focusing on an extremely low possessions score would be undesirable, however, because of the danger of exaggerating income increments by choosing a possessions level so low that few, if any, households would fall beneath it. A value of 15 for the index of possessions is approximately one standard deviation below the overall mean for all households, but because the distribution of possessions is negatively skew, as Figure 3 showed, there are many households below this value. (That negative skewness is itself a reflection of the limitations of the possessions index discussed above: most measures of income or wealth are positively skew.)

By fixing the comparisons of income at a possessions value of 15, the income increments can be estimated by the mathematical analogue of drawing the dashed horizontal line of Figure 11. The income required for the second adult in a two adult household is £68. There is no evidence of further economies of scale as regards extra adults – a third adult costs another £68 (the values estimated were not actually identical, of course, but were not significantly different, and the £68 is a pooled estimate). Relative to the income (at possessions=15) of a single adult household, this corresponds to an equivalence scale of 0.73.

Turning to costs of child dependants, the income increment for one young child (compared to a household of two adults with no children) is £21 per week. There seems to be a sizeable economy of scale effect; a second young child requires an extra income increment of just £12. For an older child the corresponding figures are £37 for the first and £33 for the second or subsequent child, so the scale economies are less evident. Expressing these as proportions of the income of a couple (at the same level of possessions), these correspond to an extra 13% and 21% for one and two young children respectively. For one and two older children the corresponding figures are 23% and.44% respectively.

Can these estimates, made for possessions = 15, be extrapolated more widely?

A case could perhaps be made that the possessions index is actually a good approximation to a true standard of living measure for low values of possessions and incomes, but – given the set of items on which we actually have information - not for high values. A constant increments model might thus have fitted well had the standard of living measure been adequate over the whole range, and then the income increment found would be appropriate over all incomes. However, this is supposition and is not confirmable from the existing survey data. The estimates must be regarded as highly tentative.

The choice of 15 as the point on the possessions index on which to focus does matter, of course. If one took a value of 16 instead, then the estimates would be different. The income required for the second adult in a two adult household would then be £62. Relative to the income (at possessions=16) of a single adult household, this corresponds to an equivalence scale of 0.57. The equivalence scale value is lower than the 0.73 found with possessions = 15 both because the income increment is smaller (£62 versus £68) and because the income of the single adult household with which it is being compared is higher (£109 versus £93). It should be noted though that this higher income level is now even further above the level of support currently paid to single adults relying on social welfare.

Household types consisting of a single adult and combinations of numbers and ages of children have not featured in our analyses. It might well be arguable that a single parent with, say, two young children may face somewhat different costs than two adults with two young children and that estimates should be based directly on data from single adult households. Unfortunately, the households in the survey comprising single adults with children of fifteen years or younger are a small and heterogeneous group including widows, single parents etc., with the household compositions varying from one young child to four older children. This means that the statistical methods used earlier cannot be applied to assess whether costs of children are in fact greater than in couple households.

5.9. Conclusions

In this chapter we first outlined the importance of research on the income required by households of differing compositions to reach the same standard of living

– put another way, the estimation of equivalent incomes or scales. The extremely thorny conceptual and analytical difficulties facing such research have been briefly described. Although the Living in Ireland Survey did not record expenditures on commodities, so ruling out some of the methods proposed in the literature, a new approach to addressing this issue, using information on non-monetary indicators of living standards/deprivation obtained in that survey, has been investigated. Like expenditure-based methods, our results are based on estimating what income difference across different household types equalises a measure of household living standards: our approach is novel only in the use of non-monetary indicators rather than expenditures to provide that living standards measure.

The results are less than ideal, because the nature of the items covered by the non-monetary indicators – relating more to deprivation than to differences in living standards throughout the distribution – led to convergence for all family types at even moderately high incomes. So, the income increments required to equate living standards seemed to decrease rapidly with rising income, making the choice of comparison point crucial. However, at income levels similar to current social welfare payment rates, the income required by a couple to reach the same standard of living as a single adult could be about 70% higher.

This is a good deal higher than the extra amount currently paid by the social welfare system to a couple rather than a single adult, which for Unemployment Benefit and Unemployment Assistance is currently an addition of 60% or less. An examination of the evolution of social welfare rates since 1985 showed that the additional amount paid to a couple versus a single adult by these schemes fell markedly over this period. The Commission on Social Welfare (1986) recommended that the amount payable for the second adult in a couple should be 60% of the single adult rate, but that was not based on an in-depth examination of the issue. Our results thus suggest a figure higher than that recommended by the Commission and higher than that currently paid – about the proportional addition which was payable with Supplementary Welfare allowance back in the mid-1980s. However, the data deficiencies and resulting sensitivity of this result to the precise choice of point on the possessions index (and thus income level) have already been stressed. The figure is a "best guess", using far from conclusive evidence.

As far as the "costs of a child" are concerned, our results suggest that it is important to distinguish between younger and older children, and to take into account the number of children in the family because there are economies of scale. They suggest that, compared with the income of a couple, a young (under 5) child adds 13% to the income needed to attain a specified standard of living. A child aged 5-15 adds a greater amount, 23% of that income. On average, then, across these ages a single child may add about 18% to the income needed by a couple to attain a particular living standard. At present, taking both child additions to weekly social welfare payments and Child Benefit into account, couples in receipt of Unemployment Benefit or Assistance receive about that proportionate increase for the first child. The results suggest that the additional amount required in the case of a second young child is rather less, but for a second older child the economies of scale are not as great. Our results did not extend to larger family sizes or to separate analysis of costs of children living with one adult rather than a couple, due to the limited number of cases in the sample.

The results presented here are exploratory and necessarily tentative – though for children they have much in common with the results of earlier studies for Ireland using the budget standards or expenditure methods of estimating equivalence scales. It would certainly be desirable to complement the analyses in this study by a corresponding examination of the 1994/95 Household Budget Survey, which is now available in micro-data form. In addition, policy formulation will of course take into account factors other than those considered here in setting social welfare rates and deciding on the appropriate relativities between payments going to households of different compositions. These results do however represent an advance on our knowledge about one important consideration.

Chapter 6

Conclusions

6.1 Introduction

This study set out to use the 1987 ESRI Survey of Income Distribution, Poverty and Use of State Services and the 1994 Living in Ireland Survey to examine two issues of immediate relevance to Irish tax and social welfare policy. The first is how the living standards of different household types have been evolving in recent years. The second is the relationship between the "needs" of one household type versus another - for example a single adult versus a couple, or a couple with no children versus a couple with four children. The study was undertaken in the first instance as a contribution to the work of the Inter-Departmental Working Group set up in 1998 to examine the treatment of married, cohabiting and one-parent households under the tax and social welfare codes; it is being published in order to inform the wider debate of these issues.

Comparisons between the 1987 and 1994 surveys allowed us to examine first how the composition of Irish households has been changing. We saw that there were significant changes in the profile of sample households over the period. The percentage of households comprising one adult only rose markedly, from 17% to 22%, with an increase in the importance of both elderly and non-elderly adults living alone. Households comprising two adults with children fell from 36% to 28% of the sample between 1987 and 1994, with a particularly sharp fall in the proportion of those households with 4 or more children. Households with one adult and one child or more doubled, though this still only brought them from 2% to 4% of all households Overall, households with children fell from 52% to 46% of all households.

6.2 Household Composition and Income

We then looked at how average income varied across the different household types, and how this pattern changed between 1987 and 1994. Looking first at income without any adjustment for household size, the results showed that the average disposable incomes of households comprising one or two non-elderly adults, without

children, rose a good deal more rapidly than those of other household types. Compared to them, the elderly and households with children both did relatively badly. This meant that by 1994 there was virtually no difference in mean income between two adult households without children and those with children. It also meant that households of one adult with one or two children had lower mean incomes than one (non-elderly) adult without children. Finally, it meant that by 1994 elderly adults living alone had mean income of little more than half non-elderly adults living alone, and similarly two elderly people living alone had mean incomes little more than half two non-elderly adults living alone. These patterns, particularly the marked deterioration in the relative position of families with children, highlight areas of concern from a policy perspective.

6.3 Household Composition and Poverty

We focused in this chapter on way the risk of poverty varies with household type. As in previous research using the 1987 and 1994 ESRI household surveys, we measure poverty risk using two approaches. First, relative income poverty lines were employed. With a poverty line set at half average equivalent income, the variation in poverty risk across detailed household types was found to be very wide in each year. In 1987 the elderly, particularly households of two elderly persons, had poverty rates well below the average. Single non-elderly adults had a much higher risk than single elderly, well above average. Households of two adults and 1-3 children were not much above average risk, but those with 4 or particularly 5 or more children faced very high risks, as did single adults with children. Between 1987 and 1994 there were some marked changes in this pattern, the most striking change being a sharp increase in risk for single elderly households, couples with 4 or more children, and single adults with children.

The other approach to assessing poverty risk, developed in previous research using the ESRI surveys, focuses on the household's position vis-a-vis both relative income poverty lines and non-monetary deprivation indicators. (The global poverty target incorporated in the National Anti-Poverty Strategy is framed in terms of this type of poverty measure). This suggested a much less marked deterioration in the position of the elderly than income poverty lines alone. Households comprising one

adult with children, or two adults with five or more children, were seen to face very high poverty risks in each year, but again were much more were stable over the period than using income lines alone.

6.4 Household Composition and the Tax and Welfare Systems

We than examined how the flow of resources to and from households through direct tax and cash transfers varies across household types, by looking at mean market, gross and disposable income. (That analysis is entirely static, in that it does not purport to capture behavioural response to the structure of taxes or transfers.) We saw first the very wide variation across household types in the role of cash transfers. Households of one adult with children were heavily dependent on transfers, but not as much so as households of one or two elderly persons, which received only about one-third of their gross income from the market. Households comprising two adults with four or more children were also relatively heavily dependent on transfers.

Households of one or two elderly persons paid very little of their gross income in direct tax, while those comprising non-elderly adults without children paid a relatively high percentage, as did two adults with 1-3 children. Households of two adults with four or more children paid a lower percentage in tax, and those of one adult with children paid very little tax.

The combination of direct tax and cash transfers then serves to redistribute income from households comprising non-elderly adults without children or with 1-3 children to the elderly, households of two adults with 4 or more children, and one-adult households with children. This pattern of taxes and transfers was seen to be quite stable between 1987 and 1994, though one-adult households with children became even more reliant on cash transfers.

The situation of couples who were cohabiting rather than married was also examined, to the extent the numbers in the sample allowed. Cohabitation was seen to be most common where there were no children or only one child. Women in cohabiting couples were much more likely to be at work than wives (of men aged under 65). Cohabiting couples had lower average disposable income overall than married couples of working age, but higher mean equivalised income.

6.5. The "Needs" of Different Household Types

We then turned to the key question of how much income is in fact required by households of differing compositions to reach the same standard of living – what is known in the research literature, as the estimation of equivalent incomes or scales. The extremely thorny conceptual and analytical difficulties facing such research were described. Although the Living in Ireland Survey did not record expenditures on commodities, so ruling out some of the methods proposed in the literature, we investigated a new approach to addressing this issue, using information on non-monetary indicators of living standards/deprivation obtained in that survey. Like expenditure-based methods, our results are based on estimating what income difference across different household types equalises a measure of household living standards, but non-monetary indicators rather than expenditures provided that living standards measure.

The results are less than ideal, because the nature of the items covered by the non-monetary indicators related more to deprivation than to differences in living standards throughout the income distribution. The income increments required to equate living standards then seemed to decrease rapidly with rising income, making the choice of the point on which one focuses crucial. However, at income levels similar to current social welfare rates, the income required by a couple to reach the same standard of living as a single adult was estimated to be about 70% higher. The additional amount paid by the social welfare system to a couple rather than a single adult, for Unemployment Benefit and Unemployment Assistance, is currently an addition of 60% or less. Since 1985 that additional amount paid to a couple versus a single adult by these schemes has fallen markedly. The Commission on Social Welfare (1986) recommended that the amount payable for the second adult in a couple should be 60% of the single adult rate, but that was not based on an in-depth examination of the issue. Our results suggest a figure higher than that recommended by the Commission and currently paid, but the data deficiencies and resulting sensitivity of this result to the precise choice of point on the possessions index (and thus income level) have already been stressed.

As far as the "costs of a child" are concerned, our results suggest that it is important to distinguish between younger and older children, and to take into account the number of children in the family because there are economies of scale. They suggest that, compared with the income of a couple, a young (under 5) child adds 13% to the income needed to attain a specified standard of living. A child aged 5-15 adds a greater amount, 23% of that income. On average, then, across these ages a single child may add about 18% to the income needed by a couple to attain a particular living standard. At present, taking both child additions to weekly social welfare payments and Child Benefit into account, couples in receipt of Unemployment Benefit or Assistance receive about that proportionate increase for the first child. The results suggest that the additional amount required in the case of a second young child is rather less, but for a second older child the economies of scale are not as great. Our results did not extend to larger family sizes or to separate analysis of costs of children living with one adult rather than a couple, due to the limited number of cases in the sample.

6.6 Future Research Priorities

This study has sought to provide some important elements of the context in which key policy issues in the reform of the Irish tax and social welfare systems have to be assessed. The results presented here on equivalence scales are exploratory and necessarily tentative – though for children they have much in common with the results of earlier studies for Ireland using the budget standards or expenditure methods. It would certainly be desirable to complement the analyses in this study by a corresponding examination of the 1994/95 Household Budget Survey, which is now available in micro-data form. In addition, policy formulation will of course take into account factors other than those considered here in setting social welfare rates and deciding on the appropriate relativities between payments going to households of different compositions. The treatment of different types of household by the tax and social welfare systems has many different aspects, and will no doubt continue to evolve incrementally. The range of structural issues which have to be considered includes how couples are best treated vis-a-vis single people, how cohabiting couples are treated vis-a-vis married couples, and how those with and without children are

treated. In-depth analysis of particular aspects, with specific proposals for reform, have been presented in previous studies - for example, the treatment of children under the tax and welfare codes has been considered in Nolan and Farrell (1991), Callan et al (1996), and Fahey (1998)). Our aim here has not been to address such structural policy issues directly, but to to contribute to understanding of the context in which they are to be addressed.

Appendix 1

Instrumental Variables and Analysis of Means of Groups of Households

The method of instrumental variables (or two stage least squares) was developed by various authors, including Geary (1949), to deal with the problem of an explanatory variable being endogenous, or subject to errors of measurement. For the reasons mentioned in section 4 of the paper, there may be arguments suggesting that the incomes recorded in the survey are not always coincident with the respondents' perceptions of their disposable incomes. There might even be some degree of endogeneity of income in the sense that lack of some of the items in Appendix 1 might reduce the capacity to earn income.

In the simplest case of estimation of a regression equation

$$w = a + b\,x + e,$$

where x is considered subject to measurement error, suppose one instrumental variable z is available.

The IV estimator of b is

$$\frac{\sum (z_i - \bar{z})(w_i - \bar{w})}{\sum (z_i - \bar{z})(x_i - \bar{x})} \, .$$

The usual regression coefficient would result from taking z = x. The estimator can also be obtained by first regressing x on z to get a function of z that predicts x and then regressing w on this "predictor" of x and hence the tern "two stage least squares". When several instrumental variables $z_1, z_2, \ldots$ are available, the predictor of x is obtained by initial regression of x on $z_1, z_2, \ldots$ In this study, the instrumental variables derive from the qualitative or categorical variables. Suppose, for example, a qualitative variable has r categories. These define r – 1 instrumental variable $z_1, z_2, \ldots z_{r-1}$, each of which is a binary (dummy) variable taking the values 0 or 1. Regressing income on all such variables provides the predictor of income, which

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replaces income in the final step of the IV estimation procedure. The method seems complicated, but is actually much more easily performed than the account suggests.

Wald (1940) and Bartlett (1949) had suggested an intuitively plausible approach to the problem of estimating b in w = a + b x + e, when the explanatory variable x is subject to error. They divided observations into income groups (keeping the number of groups small enough to ensure sizable numbers of observations in each group)and then regressed the group means of w on the group means of x using weighted regression. The idea is that if the x values within group i (of size n_i, say) are actually uncertain, it is better to treat the data as if n_i observations had been made at the point $\bar{x}_i$, $\bar{w}_i$.

The resulting estimator for b is

$$\frac{\sum n_i (\bar{x}_i - \bar{x})(\bar{w}_i - \bar{w})}{\sum n_i (\bar{x}_i - \bar{x})^2},$$

which is easily computed. Now it can be shown by some rather tedious algebra that the IV estimator, when the instrumental variables are derived from categorical variables, is exactly the same as that obtained by defining groups by categories (or combinations of categories) and regressing group means on each other, weighted by group size. The number of groups must be restricted to avoid small group size, which for categorical variables is the analogue of avoiding multicolliniarity for continuous variables.

When the IV approach is used unnecessarily, that is if there is nothing amiss with the measurement of the explanatory variable, there is some loss of efficiency in the analysis. The greater the range in the explanatory variable, the lower the standard error of the estimated regression coefficient. Since taking means of groups reduces the range of the explanatory variable, the standard errors of IV estimators will tend to be larger. However, the estimated coefficients should not differ significantly. But if the IV approach was necessary, the coefficients should differ, because the standard regression method then leads to a biased estimate. So if the ordinary regression and IV coefficients differ significantly, the implication is that the IV estimate is preferable.

This is essentially a Hausman (1978) test. The test of significance is easily performed, because the variance of the difference between estimates is the difference of the variances when one estimator is efficient, as standard regression is in the absence of endogeneity or measurement errors.

The foregoing has presumed just one linear relationship is being estimated and, of course, this study is considerably more complex. Equations are being estimated for each household type and the relationships of possessions to income are not linear. While this can introduce complications to both estimation and testing, it will be shown in Appendix 3 that most of the approach described continues to apply and indeed equations can usually be transformed to linear form before estimation.

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