

Comparison of Income Data between Surveys of Scottish Households

Research commissioned by Communities Scotland

Gillian Raab, Napier University, Charlotte MacDonald and Cecilia Macintyre

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Summary

1. Income information in the Scottish Household Survey (SHS) and the Scottish House Conditions Survey (SHCS) is restricted to that of the highest income householder and their partner. Thus, for all households, income is underestimated compared to the Family Resources Survey, Households Below Average Income data set (FRS/HBAI).
2. When comparisons are restricted to households with only one adult or two adults who are partners there is much less of a difference. Considering the completely different and much less onerous method of collecting income data in the SHS/SHCS the agreement in the income distributions with the FRS/HBAI data is remarkably good.
3. SHS and SHCS greatly underestimate investment income and interest payments compared to FRS/HBAI
4. Lack of weighting to population age and sex totals in the SHS/SHCS seems to be introducing a bias between these surveys and the FRS/HBAI with respect to the age breakdown of the population. This affects income distributions particularly in one person households
5. Overall income from benefits agrees well between the surveys, but the individual benefits may be less accurately classified in the Scottish surveys.

Recommendations

1. Better ways of asking about investment income and bank interest in the SHS/SHCS should be devised.
2. For the purpose of income estimation the SHS/SHCS data should be re-weighted to match the age profile of the population
3. The way in which winter fuel payments contribute to income in the SHS, needs to be clarified and if necessary corrected.
4. A common approach to imputation should be developed for the SHS and the SHCS.

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1 Introduction

1.1 The surveys and choice of time periods for comparisons

The three surveys to be compared are

- the Scottish House Conditions Survey (SHCS)
- the Scottish Household Survey (SHS)
- the Scottish sample of the Households Below Average Income (HBAI) data set from the Family Resources Survey (FRS)

The SHS and the FRS are continuous surveys and in each case the data from the four financial years 1999/00 to 2002/03 were available. The HBAI data set is derived from the FRS, for the specific purpose of examining income distributions, with the addition of some extra data from the inland revenue to improve the incomes of the those with the highest incomes.

The three earlier years of the HBAI/FRS have been compared in a report prepared by Scottish Executive Statisticians. This report found that the SHS under-reported household income by around 10%. However, much of this difference could be explained by the fact that the SHS gathered income data only from the highest income-earning householder (HIH) and from the HIH's partner. When the analysis was restricted to households which contained either one adult or two adults, as partners, the differences between the two surveys were much reduced. Overall the SHS appeared to under-estimate income by around 3% compared to the FRS/HBAI but there were subtle differences by household type.

The SHCS was carried out during 2002, with the bulk of the social interviews, where income data were obtained, being carried out between January and June of that year. The timing of the interviews for the SHCS is given in appendix Table A1. To choose an appropriate comparison period it is important to look at any time trends that might be happening in the other two surveys. Details of the preliminary analysis that were carried out to investigate this are shown in the appendix in Table A2 and Figure A1. Consistent trends can be seen in the SHS and FRS/HBAI data sets with all percentiles of the income distributions increasing by approximately 10% from the financial year 2000/02 to 2001/02, compared to the start of 1999/00 financial year.

More recent time periods would be better to allow comparability with the SHCS and to take advantage of the Scottish boost in the FRS. Households North of the Caledonian Canal were included in the FRS from 2001/02 and the sampling fraction in Scotland doubled in 2002/03. Choices considered were to use the 2002/03 financial year alone, or to use the two financial years 2001/02 and 2002/03. The former would give a total of under 5000 households, which seems too few to examine some subgroups. It would also exclude the start of 2002 when a substantial proportion of SHCS interviews were carried out. The two financial years would give over 7,000 households for the FRS/HBAI, but with a larger number in the later year.

It was decided to use the two financial years 2001/02 and 2002/03 in the income comparisons in this report. For the second of these years the FRS/HBAI data provide twice as many interviews as the first. The grossing-up weights for the

FRS/HBAI will be adjusted so as to down-weight the first year by a factor of 2. This will give a larger effective sample size, on the assumption of no bias over the two-year period. A major bias would seem unlikely given the relatively short time period involved. The total households with income information from each survey are shown in Table 1.

Table 1 Numbers of households in the three surveys for the financial years 2001/02 2002/03

Survey	Total Households	Households with 1 adult or two partners
SHS	29,401	23,570
FRS/HBAI	7,007	5,773
SHCS	18,310	14,439

All income figures are adjusted with the RPI to April 2002 prices, to be comparable with previous Scottish Executive report.

1.2 Summary of income data used from each survey

The manner in which the income data are obtained differs between the surveys. The FRS/HBAI contains more detail and obtains data from all household members. The SHS and the SHCS obtain income data only for the HIH and their partner. Details of how the income questions differ between the surveys are outlined in section 2 below.

Each survey provides a summary measure for the household net income. In each case this is a derived variable following complex calculations, involving the checking of the data and the imputation of missing values. Details of how these procedures differ between the surveys are summarised in section 4 below.

2 Differences in how income questions are asked

2.1 Overall differences in approach

The aim of the FRS is to compile as accurate an account as possible of net income from all sources and this is reflected in the detail and focus of the questions. The SHS and SHCS questions are identical for the most part and aim is mainly to gather enough information to reliably classify households by income bands. Additionally, the actual income is used in the SHCS for the purposes of defining households in fuel poverty (based on a ratio of predicted fuel costs to income) and the affordability of housing (based on a ratio of rent or mortgage costs to income).

Income questions cover three main areas: income from employment/self-employment; benefit income; income from savings and investments. All three surveys use Computer Assisted Personal Interviewing (CAPI) that allows inbuilt consistency checks and automatic routing. FRS interviewers are encouraged to consult documentation from respondents at all stages of the interview and to record whether or not they are able to do this. In the SHS, interviewers record whether payslips are consulted but not benefit books or other documentation.

2.2 Income from employment – ‘actual’ or ‘usual’ pay

FRS asks about actual take home pay for the most recent pay period and follows up with detailed questions about deductions and credits and about gross pay for the year to-date. Any income which is employment related - e.g. statutory sick or maternity pay, tax credits or mileage allowance - is identified at this stage and used to check the difference between gross and net pay.

SHS asks about ‘usual’ take home pay from each job and only asks about actual pay – the last time the respondent was paid – if the initial questions cannot be answered. Additions and deductions are not identified. Similar questions are asked about income from self-employment i.e. in terms of pay covering a specific time period.

Another difference from the FRS is that the SHS specifies a sequence of questions that is followed until the respondent is able to give an answer, even though the final answer may be a fairly rough estimate. Thus a person who cannot provide usual net or usual gross pay is asked about the amount received the last time they were paid. If they are unable to answer that question they are finally asked to give an estimate of how much they earned in the last year.

2.3 Business profits

FRS asks respondents who are self-employed whether they think of themselves as having a job or a business, and this information is used in phrasing subsequent questions. Detailed questions cover the respondent’s share of business profits and losses as well as the actual amount of personal income they draw from the business, and tax and national insurance payments made.

2.4 Benefit income

The accuracy of detailed income and benefit data is a priority for the FRS as the results are used to model policy options. Interviewers’ briefing notes include eligibility criteria for all of the benefits covered and questions are designed to check that responses are consistent with these criteria. Other validation processes include range checks during the interview and post-interview imputation based on individual benefit assessments for benefits such as Income Support, which depend greatly on individuals’ situations.

SHS is not so concerned with the detail of individual benefits as with the overall income accruing. Housing benefit and tax credits are included in the list of benefits on the card shown. Once receipt of specific benefits has been established, respondents are asked to state the amount received. As with earned income questions, if respondents cannot state these amounts they are asked to give a global figure for all benefits received by self and partner.

SHCS differs from SHS by including consistency checks for some benefits at the time of interview. For example, SHCS checks whether a person claims to be receiving disability living benefit even though no-one in the household is reported to have a longstanding health problem or disability.

The SHCS asks explicitly about winter fuel payments. These payments are paid automatically to those over retirement age in receipt of any state benefit. Only a small proportion of those eligible have to make a claim. The SHS does not ask about winter fuel payment. HBAI has the practice of imputing Winter Fuel Payment to those whom statisticians at the Department of Work and Pensions (DWP) are confident will receive it, and amounts are based on the applicable rates during the survey year.¹

2.5 Income from savings/investments

FRS presents respondents with a show card and asks them to indicate which types of account they have [in contrast with the EFS which asks separate questions about each type of account]. It has been suggested that the FES method may produce greater accuracy because the respondent has more time to focus on the required answers².

As with questions about benefits, FRS seeks to identify enough detail about this category of income and tax liability to support modelling exercises.

2.6 Other income

Both FRS and SHS/SHCS ask about a list of income sources including annuities, maintenance payments and income from odd jobs. SHS presents one card listing all these types of income whereas FRS deals with each category separately.

3 Overall differences in the design and post-survey processing between the three surveys

3.1 Sample selection

All three surveys aim to estimate characteristics of the household population of Scotland and all three use the post-code address file (PAF) as the sampling frame with similar details in procedures, such as using the multi-occupancy indicator.

SHCS

The SHCS was a simple random sample, with no clustering. Different sampling fractions were used within each local authority (LA) to achieve a minimum of 550 interviews in each LA.

FRS/HBAI

The FRS sample is a clustered sample, where the primary sampling units (PSUs) are postcode sectors with up to 25 respondents from one sector. In 2001/02 and 2002/03, 481 PSUs in Scotland were included in the sample.

¹ Winter fuel payments 2000-01 – report available from DWP.

² Comparisons of income data between the Family Expenditure Survey and the Family Resources Survey, Government Statistical Service Methodology Series No 18. London, 2000.

SHS

The SHS used a simple random sample of addresses for the nine LAs with population densities of 500 or more people per sq km. For the remaining LAs a cluster sample was selected with the enumeration district as the PSU. The survey aimed to achieve 11 interviews per PSU. The sampling fractions varied by LA, with larger sampling fractions in the smaller LAs in order to assure a sample size of 500 households in each LA over a two year period.

3.2 Stratification

SHCS

Within each LA a systematic sample was selected from households ordered by Mosaic category of the enumeration district (ED). This, effectively, corresponds to stratification by the Mosaic category of the household within each LA.

FRS/HBAI

This sample was selected by stratifying the PSUs within each region into eight groups defined by their socio-economic characteristics. In Scotland there were six regions,

- Highland, Grampian and Tayside
- Fife, Central and Lothian
- Glasgow
- Strathclyde excluding Glasgow
- Borders, Dumfries and Galloway
- Scotland North of the Caledonian Canal and Islands

The post-code sectors were selected with probability proportional to size. A sample of 25 addresses was selected from each selected post-code sector.

SHS

In the local authorities that used simple random sampling, the SHS sample was stratified by 10 mosaic categories within each local authority. For areas with cluster sampling stratification was by local authority only.

3.3 Weighting for non-response and post-stratification

SHCS

The response rate for the social survey was 70% of eligible addresses. The response rate to the social survey was modeled using a logistic regression of a range of variables, including local authority, MOSAIC code and tenure. Non-response and non-contact were looked at separately. The weights from each stage were used to create a final weight for the social survey.

Post-stratification of the sample was carried out by tenure, housing type (i.e. whether the dwelling is a house or flat) and age of dwelling (i.e. the proportion of housing stock built pre- and post-1996). This was done within each LA, using figures from the 2001 Census. A raking method was used to match all three of these margins.

These procedures should have reduced non-response bias in income since the weighting factors and the post-stratification factors are all strongly associated with income.

FRS/HBAI

The overall household response rate for the FRS in Scotland was 66% in 2001/02 and in 2002/03. Grossing up the sample to match estimated population numbers on several items was carried out. This was done separately for Scotland where the sample was forced to match population data on age and sex of family members, family composition, tenure type and council tax band of household. The estimated population numbers were based on data from the 2001 census in both of the years that will be considering.

An additional refinement in the FRS/HBAI is the use of Inland Revenue data on high incomes to adjust the top range of the income distribution (SPI adjustment). The effect of this will be explored below.

Like the SHCS this non-response weighting should go a fair way to reducing response biases. It controls for the age structure of the population as well as the housing variables used by the SHCS.

SHS

The response rate for 2001/02 was 67% of eligible addresses (latest published figures). The SHS weighting factors compensate for non-response at the local authority level but no use was made of sub-population totals by (say) social class or household type within LAs to adjust for non-response. Comparisons of the distribution of household tenure and household type with the 2001 census did not suggest major imbalances. There was the expected bias towards a higher response rate among older people.

3.4 Consequences of these design characteristics for comparisons and inference

The design characteristics can affect inference from the samples in terms of the bias and precision of the estimates of income. Bias is the most important characteristic. All three surveys re-weight to adjust for sample selection probabilities. Non-response weighting/post-stratification is carried out for the SHCS and the FRS/HBAI with respect to several variables that are strongly related to income and so bias should be reduced. The FRS/HBAI also adjusts for the age and sex structure of the population. There SHS adjusts for unit non-response only by LA. This may have influenced income distributions and the effect might be expected to differ by household type.

The FRS team has carried out investigations of non-response in relation to income. They have found a lower response rate in the areas where high incomes would be expected.

The design of the surveys also affects precision and this is allowed for in the standard errors calculated below. The SURVEY package of the R package has

been used for all analyses³. This allows all the features to be incorporated. Factors that affect the precision of the estimates are (in order of importance)

- Sample size (larger is better)
- Clustering (decreases precision)
- Stratification and post-stratification (improves precision)
- Weighting (uneven weighting is bad for precision)

The following results apply to inferences about incomes over the two-year period used in these analyses.

The FRS/HBAI has the most imprecision because of its relatively small sample size. It also uses clustering which decreases its efficiency by about a factor of 2. However, the very effective post-stratification recovers the efficiency lost by the clustering to give a design effect of around 1.0. The SHCS gives very precise estimates since it has a very large sample size and no clustering. Post-stratification gives relatively little improvement in precision (though it will have helped for bias as discussed above).

4 Imputation of missing data

In both the SHCS and the SHS, imputation of household income was carried out at the level of the individual components of income e.g. earnings for the respondent from the main job, individual benefits and other items of miscellaneous income.

There is comparatively little imputation in the HBAI/FRS. This is because very detailed data editing, on a case-by-case basis, replaces the correct benefit levels for the households. Also the insistence on looking at evidence from payment books and pay slips makes the data much more complete.

4.1 Extent of imputation

The level of missing data in the year 2002 in the SHS and the SHCS is given in Table 2, demonstrating very similar levels in the two surveys. Around a quarter of respondents did not provide income data either for the highest income earner or the partner (where applicable). Amongst the most common benefits, there was a wide range of missing data. Almost three quarters of households did not know their council tax benefit, and over 1/3 of eligible households were unable to provide their level of housing benefit. Levels of missing data were over 40% for disability living allowances and were around 30% for attendance allowance and incapacity benefit. Over half the investment income in each survey was imputed.

³ Lumley T. (2004) "Analysis of complex survey samples" [Journal of Statistical Software 9\(8\)](http://www.jstatsoft.org/index.php?vol=9) available from <http://www.jstatsoft.org/index.php?vol=9>

Table 2 Proportions of missing/imputed data in components of income in the SHS and the SHCS
SHS data are for the calendar year 2002.

EARNED INCOME	SHCSⁱ			SHS		
	Missing	n	%	Missing	n	%
Highest income earner main income	2313	9941	23%	2007	8115	25%
Highest income earner other income	94	292	32%	97	279	35%
Partner main income	1258	5489	23%	983	4228	23%
Partner other income	55	203	27%	55	171	32%

BENEFIT INCOME	SHCSⁱⁱ			SHS		
	Missing	n	%	Missing	n	%
Income support	593	2378	25%	460	1760	26%
Working families tax credit	104	740	14%	109	604	18%
Jobseeker's allowance	51	401	13%	31	247	13%
Housing benefit	1397	3692	38%	678	1988	34%
Council tax benefit	3166	4381	72%	2252	3018	75%
Earnings top-up	2	2	100%	2	4	50%
Child benefit	477	3917	12%	358	3560	10%
Child benefit at one parent rate	42	1255	3%	28	426	7%
Maternity allowance	3	15	20%	5	17	29%
Maternity payment	2	35	6%	7	18	39%
State retirement pension	990	5285	19%	872	4275	20%
Other benefit	67	181	37%	15	39	38%
Widow's payment	16	49	33%	22	56	39%
Widowed mother's allowance	4	27	15%	2	25	8%
Widow's pension	91	367	25%	46	181	25%
Incapacity benefit	404	1378	29%	277	977	28%
Disabled persons tax credit	16	30	53%	7	19	37%
Disability living allowance care	364	927	39%	348	795	44%
Disability living allowance mobility	495	1040	48%	383	737	52%
Industrial injury/disablement	23	176	13%	15	90	17%
Invalid care allowance	47	230	20%	43	173	25%
Severe disablement benefit	84	160	53%	52	97	54%
Statutory sick pay	19	52	37%	13	37	35%
War disablement allowance	18	105	17%	15	80	19%
Disability premium	60	90	67%	17	47	36%
Attendance allowance	167	572	29%	127	421	30%

MISCELLANEOUS INCOME	SHCSⁱⁱ			SHS		
	Missing	n	%	Missing	n	%
Non-state pension	695	3157	22%	938		
Annuity	25	112	22%	40	137	29%
Maintenance payments	28	230	12%	31		
Rent	49	186	26%	52	249	21%
Dig money	44	374	12%	76		
Accident/sickness scheme	3	12	25%	7	31	23%
Investments	677	1249	54%	976	1784	55%
Student loan	20	142	14%	28		
Grant	20	95	21%	27	114	24%
Other	13	72	18%	22	77	28%

4.2 Imputation method

The approaches taken in the two surveys are broadly similar, with regression used to identify imputation classes, followed by "hot deck" imputation. In

situations where there were small number of cases, imputation groups were identified using exploratory data analysis using cross-tabulations or by examining averages.

In the SHCS, the imputation groups were defined directly from the regression analysis, based on the predicted values from the regressions. In situations where the resulting imputation groups contained few cases, a larger group was used by merging 'neighbouring' imputation classes.

In the SHS the majority of variables were imputed using "hot deck" imputation based on categories. It is not clear what procedure is used to define these. The imputed earned income⁴ was the predicted value (squared) from a regression on the square root of the income. This is sometimes known as predictive mean matching and will tend to reduce the variance of the income distribution. Where the number of imputed values required is small the SHS substitutes missing values with the median value of the observed data. Again this will tend to reduce the variance of the income.

Table A 3 in the Appendix summarises the details of the imputation models used in the two surveys for income and benefits. There are differences in the groups used to define the imputation classes although it is not easy to say what the implications of this will be for differences between the surveys. It seems unlikely that the different approaches would introduce any particular bias, although it may affect the variability in the final analysis dataset.

4.3 Conclusions

A large amount of missing data for a particular component may not be a concern where there is little variability in the amount received once any eligibility criteria are taken into account. A simple example of this would be child benefit. However, considerable error may be introduced where there are no clear patterns explaining the levels. An example of this would be self employed people where the range of possible income is very wide range, and the information required to predict the income is generally not collected in the survey.

An examination of the quality of the imputation methods is beyond the scope of this work, but by examining the proportions of household income imputed we may be able to identify groups where the distributions may be vulnerable to the quality of the imputation. Table 3 identifies households in the SHS (SHCS to follow) by the percentage of their income that is imputed. The differences by income level and household type are relatively small. As expected there is less imputation for smaller households. Those with lower incomes tend to have somewhat higher levels of imputation. Some further analyses were carried out but these failed to identify any sub-groups with very high levels of imputation that might be vulnerable to the methods used. SHCS and SHS results are very similar.

Given the move of the SHCS to become a continuous survey, Communities Scotland will require to implement a methodology appropriate for data collected

⁴ This was used for the income of the main job of the highest income householder and the main job of the partner.

in this way. It is not clear how stable the current methods will be, when used with the smaller sample sizes that will accrue each year in the continuous survey. Given this, and the similarity between the questions in the two surveys, it may be useful to consider agreeing a similar approach to imputation. This would at least remove some of the potential for differences, especially if the levels of missing data remain similar.

Table 3 Percentage of income imputed for SHS and SHCS by household type and income level.

	SHS						SHCS				
	% of income imputed						% of income imputed				
<i>Household type</i>	<i>None</i>	<i>Under 50%</i>	<i>50-100%</i>	<i>All</i>	<i>Total</i>		<i>None</i>	<i>Under 50%</i>	<i>50-100%</i>	<i>All</i>	<i>Total</i>
All	52%	22%	13%	13%	100%		51%	25%	11%	13%	100%
Single adult	60%	20%	7%	13%	100%		55%	24%	7%	14%	100%
Small adult	57%	14%	11%	18%	100%		58%	17%	9%	16%	100%
Single parent	41%	47%	9%	4%	100%		44%	42%	9%	5%	100%
Small family	58%	18%	19%	5%	100%		57%	21%	17%	5%	100%
Large family	50%	21%	23%	7%	100%		51%	23%	18%	8%	100%
Large adult	50%	15%	17%	18%	100%		51%	16%	14%	18%	100%
Older smaller	49%	22%	12%	17%	100%		47%	24%	11%	17%	100%
Single pensioner	43%	32%	8%	17%	100%		38%	36%	8%	18%	100%
<i>Income level</i>											
<6k	49%	23%	6%	22%	100%		45%	27%	6%	21%	100%
6-<10k	44%	35%	7%	14%	100%		41%	38%	6%	14%	100%
10-<15k	50%	24%	12%	13%	100%		51%	24%	11%	14%	100%
15-<20k	57%	16%	14%	13%	100%		55%	18%	13%	13%	100%
20-<30k	54%	14%	20%	12%	100%		57%	17%	14%	12%	100%
30k plus	60%	18%	13%	9%	100%		57%	20%	15%	9%	100%

*Approximate figures, as some data were missing for small components of income.

5 Overall comparisons of income distributions

5.1 All households

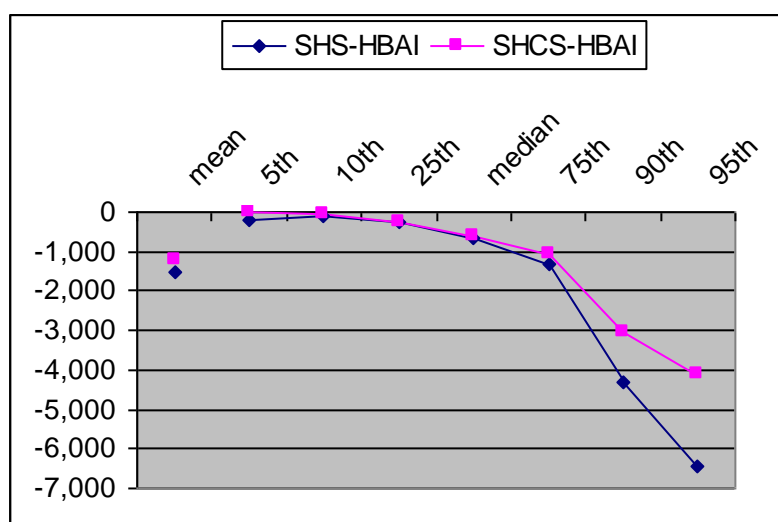
Table 4 compares the income distributions for the three surveys, and for each comparison gives an appropriate standard error for the differences between the means and percentiles of each of the surveys. Both the SHS and the SHCS have income distributions that lie below that of the FRS/HBAI with the mean in each case being over a £1000 lower. The differences are most pronounced at the top end of the income distribution while up to the median there is little evidence of any difference between the two distributions. Note however in this, as in all subsequent tables, that the standard errors associated with the higher percentiles of the distributions and their differences are considerably larger than those at the lower end of the distribution. This is because of the skewed nature of income distributions where the number of households is much more sparse at the upper incomes. This is illustrated in the appendix in Figure A3, which shows the income distribution for the SHCS, the form of which was also shared by the other surveys considered.

The overall income distribution for the SHS and SHCS were fairly similar. However, there were some differences at the extremes of the income distributions where the SHS gave lower incomes at the low tail of the distribution and also at the upper end of the distribution, whereas the median of the two distributions was somewhat similar. This resulted in an overall decrease in the mean of around £300 for the SHS compared with the SHCS.

Table 4 Comparison of income distributions between three surveys, all households

	<i>Estimates</i>						<i>Differences between surveys</i>						
	<i>All</i>	<i>HBAI</i>	<i>s.e.</i>	<i>SHS</i>	<i>s.e.</i>	<i>SHCS</i>	<i>s.e.</i>	<i>SHS-HBAI</i>	<i>s.e.</i>	<i>SHCS-HBAI</i>	<i>s.e.</i>	<i>SHS-SHCS</i>	<i>s.e.</i>
Mean	19,210		188	17,778	107	18,071	102	-1,498	240	-1,205	238	-293	148
5 th	5,043		119	4,833	50	5,031	67	-210	129	-12	137	-198	84
10 th	6,326		106	6,215	46	6,295	54	-111	116	-32	119	-79	71
25 th	9,260		106	8,987	56	9,013	63	-273	120	-248	124	-25	85
Median	15,143		197	14,494	94	14,549	101	-649	218	-595	221	-54	138
75 th	24,709		257	23,366	157	23,665	157	-1,343	301	-1,044	301	-299	222
90 th	36,768		573	32,478	211	33,710	252	-4,290	611	-3,058	626	-1,232	329
95 th	45,815		934	39,393	291	41,724	365	-6,422	979	-4,090	1,003	-2,332	467

Figure 1 Comparison of percentiles of income for all households. Differences from the FRS/HBAI data are plotted.



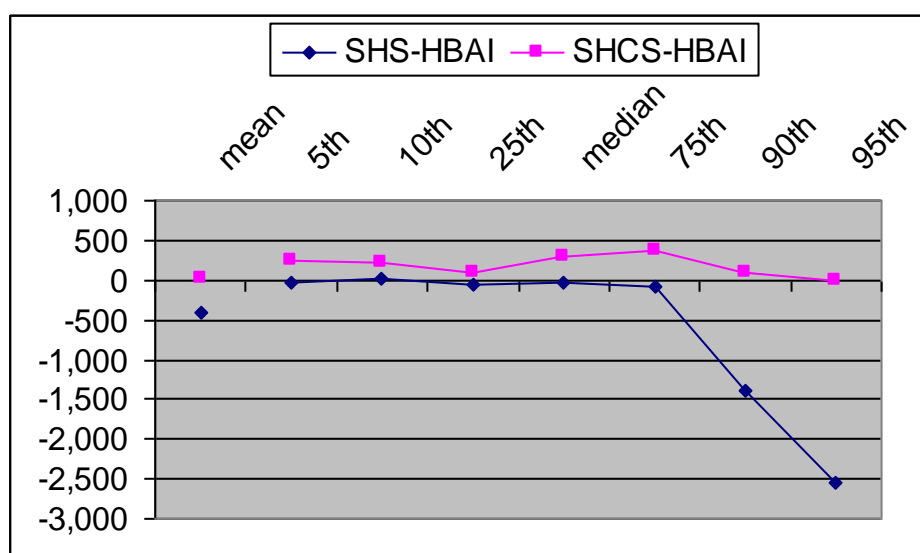
5.2 Households with one adult or two adult partners

Because the SHS and the SHCS only ask for income data from the highest-income householder and their partner, this is likely to be a major source of the higher incomes reported in the FRS/HBAI. To adjust for this we look at data for households where the only adults present are the highest income householder (HIH) and their partner. Table 5 and Figure 2 show the results.

Table 5 Comparison of percentiles of income for households with one adult or two partner adults.

	HBAI	s.e.	SHS	s.e.	SHCS	s.e.	SHS-HBAI	s.e.	SHCS-HBAI	s.e.	SHS-SHCS	s.e.
mean	17,172	203	17,091	116	17,512	112	-403	231	18	229	-421	162
5th	4,772	125	4,743	43	5,022	69	-28	124	250	135	-279	81
10th	5,986	111	6,008	49	6,204	63	23	110	218	117	-195	80
25th	8,600	131	8,531	60	8,683	79	-69	139	83	148	-152	99
median	13,608	209	13,583	112	13,900	115	-26	224	292	225	-317	161
75th	22,397	281	22,321	144	22,775	208	-75	289	378	326	-453	253
90th	32,942	582	31,548	216	33,035	260	-1,393	508	93	529	-1,487	338
95th	41,190	829	38,645	315	41,189	471	-2,545	749	-1	827	-2,544	566

Figure 2 Comparison of percentiles of income for households with one or two partner adults. Differences from the FRS/HBAI data are plotted.



The differences between the two Scottish surveys and the FRS/HBAI are diminished but not removed entirely. Note the different scales used for Figures 1 and 2. The differences are most pronounced at the top end of the income distribution where the SHS percentiles lie below those of the FRS/HBAI, whereas the SHCS lie very close to them. The pattern of differences between the SHS and FRS/HBAI is very similar to that found in the earlier report.

Although these distributions appear to be very similar and it is reassuring that the lower percentiles are so close, we will see in later sections that part of the reason for the agreement is that, when we break down the data by household type we have different factors that together cancel out to give a rather similar common distribution.

One possible reason for differences at the top end of the distribution might relate to the adjustment made to the FRS/HBAI for very high incomes to make them comparable with national figures. This is known as the SPI adjustment. It was investigated with the current data by looking at the figures of the FRS/HBAI

before and after this adjustment and it was found that it would not make a difference to the estimates that would be important. Only the value of 95th percentile would be affected and the effect on the mean would be to increase income by around £50.

6 Comparisons by household type

6.1 Composition of surveys by household type

Comparison of incomes by household types has been carried out for households containing either single adult or only two adults who are partners, as this is a more meaningful comparison in making the surveys comparable. Before investigating income by household it is important to check whether the three surveys have the same proportion of the different household types presented in equivalent proportions. Table 6 shows the breakdown weighted in every case to represent the Scottish population, for each of the three surveys. It can be seen that the SHS and the SHCS give almost identical proportions of the household types. However, the FRS/HBAI is different, particularly with respect to single adult households and single pensioner households. Single adult households are over-represented in the FRS/HBAI compared to the other two surveys and single pensioner households are under-represented.

Considering back to section 2 on the technical details of how the surveys have been weighted, we find a possible explanation. The FRS/HBAI is the only one of the three surveys which attempts to match the population distribution in the survey with the age distribution of the total Scottish population as represented in the 2001 Census. The SHCS does some post-stratification by factors such as tenure and council tax band but it has no adjustment to population totals by age and sex.

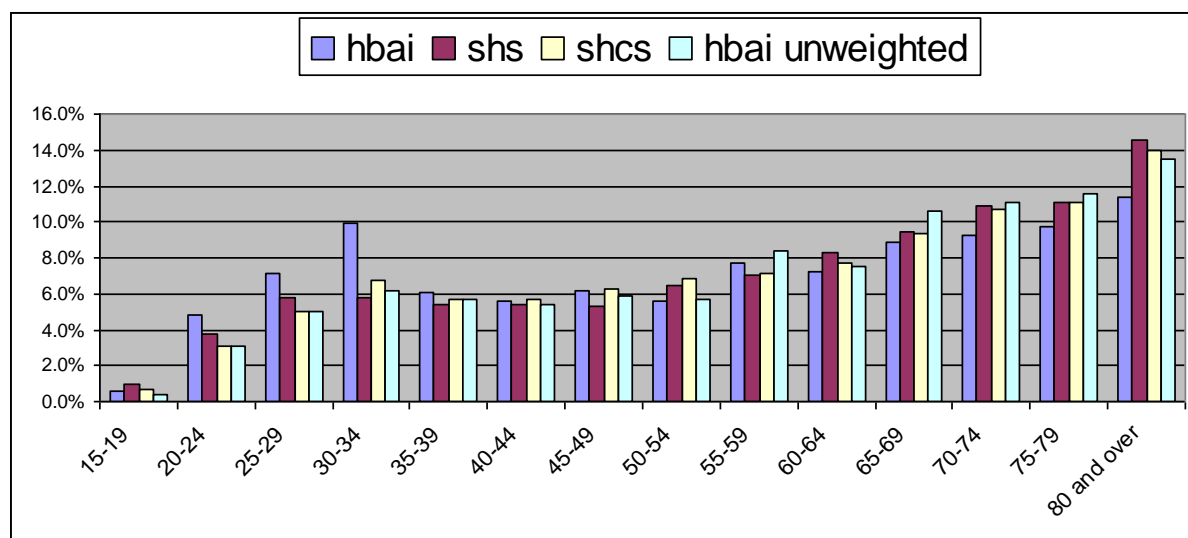
Table 6 Proportion of household types in each survey, single adult or two partner households only

	<i>% in each household type for each survey</i>						<i>Differences in %s and standard errors</i>					
	<i>HBAI</i>	<i>s.e.</i>	<i>SHS</i>	<i>s.e.</i>	<i>SHCS</i>	<i>s.e.</i>	<i>SHS-HBAI</i>	<i>s.e.</i>	<i>-SHCS-HBAI</i>	<i>s.e.</i>	<i>SHS-SHCS</i>	<i>s.e.</i>
single adult	23.46	0.86	18.84	0.28	19.62	0.37	-4.62	0.91	-3.83	0.93	-0.78	0.46
small adult	17.95	0.54	18.08	0.27	17.96	0.35	+0.13	0.60	.0.01	0.64	0.12	0.44
single parent	6.96	0.37	7.46	0.19	7.57	0.24	+0.50	0.42	+0.61	0.44	-0.11	0.30
small family	14.95	0.53	16.41	0.27	16.49	0.33	+1.47	0.60	+1.54	0.63	-0.07	0.43
large family	3.19	0.24	3.34	0.12	3.39	0.16	+0.15	0.27	+0.20	0.29	-0.05	0.20
older smaller	15.48	0.53	15.80	0.26	15.45	0.32	+0.32	0.59	-0.03	0.62	0.35	0.41
Single pensioner	18.01	0.56	20.06	0.29	19.52	0.35	+2.05	0.63	+1.51	0.66	0.54	0.46
Total	100%		100%		100%							

To check whether this was what was causing this imbalance the age distribution of individuals in single adult and single pensioner households was investigated and this is illustrated in Figure 3. Note that these households are the only single person households. Note also that the striking difference between the age distribution of single person households in FRS/HBAI compared to the other two surveys. The other two surveys over-represent pensioners and under-represent

the youngest households of single people. A further check was to consider the distribution of the FRS/HBAI data without using the weights supplied. We can see that the unweighted FRS/HBAI data mirrors that of the other surveys. This suggests very strongly that the post-stratification by age is causing this imbalance between the surveys in the proportion of different household types. This compositional effect has the potential to influence the overall income distribution as shown in Table 5 and Figure 2 even if the income distribution between household types were found to be identical. We will comment on the effect this will have on the overall distribution later in this section.

Figure 3 Age distribution for single person households



6.2 Income distributions between household types

Figure 4 and Table 7 illustrate the income distributions in each survey by household type.

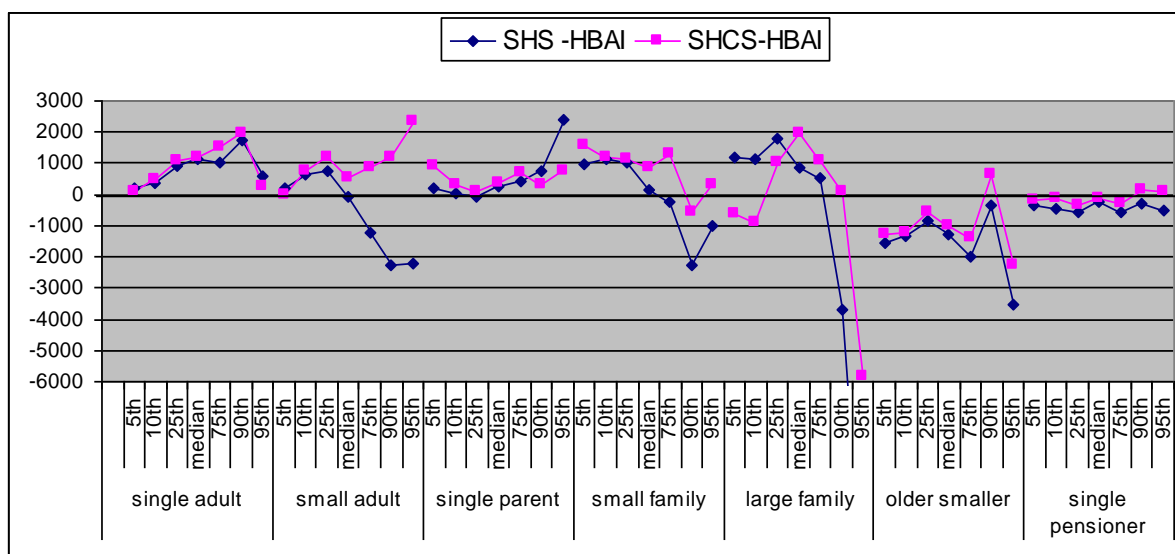
We can see that for **single adult households** the whole distribution for the SHS and SHCS lie above those of the FRS/HBAI. This is the same result that was found in the preliminary report by the Scottish Executive statisticians. Differences are not large but they are consistent and statistically significant in all cases ranging from a difference of around £500 at the bottom of the distribution to over £1000 at the top of the distribution. The most likely reason for this would seem to be the imbalance in the age distribution as illustrated in Figure 3. Single people at the lower age ranges (up to age 35) are under-represented in the SHS and the SHCS and these are households whose expected income would therefore be lower than those single people in the older age groups. This would therefore have the effect of increasing the age distribution in the SHS and the SHCS compared to the FRS/HBAI. These results are consistent with known findings about non-response in surveys where young single people are those that are considered to be the most difficult to access in surveys. Clearly a re-weighting of the two Scottish surveys to the population distribution might well change these findings.

For **single parent households** there is no evidence of any significant differences between the three surveys as can be seen from the standard errors in Table 4. Again this was in agreement with the earlier report.

For **single pensioner households** the differences between the surveys were very small. Because this is a large household group and the incomes are altogether rather low, some of these differences are statistically significant. In particular the SHS provides an overall lower estimate of the income of single pensioners than does the FRS/HBAI. The SHCS lies between the two but closer to the FRS/HBAI and although below it not statistically significantly so. Part of this difference may relate to the omission of winter fuel payments (£200 per household) from the SHS. Again this result was in agreement with the previous work.

Taking the households where only one adult is present as in these last three, we can see that the overall differences are that the single adult households have larger incomes in the SHS/SHCS but at the same time this group which has higher incomes than the other two single person households, is under-represented in the SHS/SHCS. Thus the net result is to make the overall distribution of incomes in single person households to be somewhat similar in all three surveys.

Figure 4 Differences in income distributions between the surveys by household type, for households with one adult or two partner adults.



Now turning to the household surveys with two partner adults in Figure 4, we can see that there is a common feature of all the SHS income distributions, that the top end of the income distribution is under-estimated compared with the FRS/HBAI. This is particularly true for **small adult households**. Although the effect for **large families** appears to be even greater it should be noticed that there is a very large sampling error attached to this because of the relatively small number of families with only two partner adults in this category.

There is also some evidence for **older, smaller families** and for **small families** of a difference between the FRS/HBAI and the SHCS with the SHCS giving low values at the top of the distribution. Other differences for two adult families are particularly for older smaller households where the income is under-represented in the SHS and the SHCS compared to the FRS/HBAI across the whole range of the income distribution. For **older smaller** like the **single pensioner** households the SHS data are consistently below the SHCS data, although this result is not so clearly significant as it is in the single pensioner case.

All of these differences are consistent with the differences between the SHS and the FRS/HBAI that were found in the earlier report. To summarise, we appear to have the following differences

- single adult households have somewhat higher incomes on the SHS/SHCS
- single pensioner households and older smaller households report lower incomes on the SHS/SHCS
- the SHS and to a slightly lesser extent the SHCS under-report income in two adult households particularly in small adult households. Discrepancies are most marked at the upper end of the income distribution.

These points summarise the differences in the income distributions and there is no evidence of any other difference in the income distribution percentiles. Although we have highlighted the differences in this report, it should also be noted that, considering the completely different method of collecting the data, the medians of the distributions are remarkably close in all cases.

Table 7 Income distributions and differences between surveys by household type, for households with one adult or two partner adults.

		<i>HBAI</i>	<i>s.e.</i>	<i>SHS</i>	<i>s.e.</i>	<i>SHCS</i>	<i>s.e.</i>	<i>SHS-HBAI</i>	<i>s.e.</i>	<i>SHCS-HBAI</i>	<i>s.e.</i>	<i>SHS-SHCS</i>	<i>s.e.</i>
Single adult	5th	3595	374	3809	147	3664	207	214	402	69	428	145	254
	10th	4574	120	4939	79	5024	99	365	143	450	156	-85	127
	25th	6175	134	7092	97	7233	80	917	166	1058	156	-141	126
	median	9727	301	10837	136	10903	180	1110	331	1176	351	-66	225
	75th	14490	416	15508	166	15982	265	1018	448	1492	494	-474	313
	90th	19770	747	21530	307	21704	212	1760	807	1934	776	-174	373
	95th	25765	2229	26353	418	26000	645	588	2268	235	2320	353	768
Small Adult	5th	7865	315	8048	239	7840	326	183	395	-25	454	208	405
	10th	9953	374	10617	252	10691	319	664	451	738	491	-74	406
	25th	15298	673	16057	203	16484	266	759	703	1186	724	-427	335
	median	22847	465	22763	264	23400	324	-84	535	553	567	-637	418
	75th	31429	1056	30191	225	32270	405	-1238	1079	842	1131	-2080	463
	90th	41746	1373	39450	530	42951	795	-2296	1472	1205	1587	-3501	956
	95th	49675	1267	47464	637	52000	1224	-2211	1418	2325	1762	-4536	1380
Single Parent	5th	5684	645	5874	321	6619	150	190	721	935	662	-745	355
	10th	7091	145	7125	109	7418	114	34	181	327	184	-293	158
	25th	8675	191	8596	130	8757	153	-79	231	82	244	-161	201
	median	10818	456	11093	148	11191	238	275	479	373	514	-98	280
	75th	14017	453	14445	211	14710	266	428	500	693	526	-266	340
	90th	18602	262	19349	479	18904	365	746	546	302	449	445	602
	95th	20866	1221	23277	684	21634	514	2411	1399	768	1325	1643	856
Small Family	5th	9708	562	10671	199	11272	328	963	597	1564	651	-601	384
	10th	12208	259	13354	234	13414	206	1146	349	1206	331	-60	311
	25th	17274	365	18273	229	18427	275	998	431	1153	457	-155	358
	median	23930	486	24054	209	24767	331	124	529	838	588	-714	392
	75th	31404	611	31161	287	32676	452	-244	675	1271	760	-1515	535
	90th	42642	1146	40354	590	42095	688	-2289	1289	-547	1336	-1741	906
	95th	50261	2214	49264	819	50588	1084	-997	2361	327	2465	-1324	1358
Large family	5th	10853	706	12041	624	10255	589	1188	942	-599	919	1786	858
	10th	13171	548	14296	422	12272	501	1125	691	-899	742	2024	655
	25th	16045	406	17841	219	17066	526	1796	462	1022	665	775	570
	median	21649	828	22502	372	23612	989	853	908	1963	1290	-1110	1057
	75th	30257	2929	30814	585	31358	632	557	2987	1101	2996	-543	861
	90th	44818	6334	41104	1350	44897	2091	-3714	6476	79	6670	-3793	2489
	95th	61799	5208	48954	2245	55965	2936	-12845	5671	-5834	5978	-7011	3696
Older Smaller	5th	7491	244	5958	183	6221	269	-1533	305	-1270	363	-264	325
	10th	8489	162	7150	107	7284	100	-1339	194	-1205	191	-134	146
	25th	10246	183	9390	104	9675	144	-856	210	-571	233	-285	178
	median	13860	314	12557	162	12859	189	-1302	353	-1001	366	-302	249
	75th	19452	441	17460	250	18087	423	-1992	507	-1365	611	-627	491
	90th	24996	950	24643	400	25646	541	-354	1031	650	1093	-1004	673
	95th	33278	2696	29769	546	31021	692	-3509	2751	-2257	2784	-1251	882
Single Pensioner	5th	4397	103	4051	37	4235	58	-346	110	-162	118	-184	69
	10th	5114	65	4631	38	5007	88	-483	75	-107	109	-376	96
	25th	6611	108	6022	52	6277	74	-589	120	-334	131	-255	90
	median	7988	226	7776	42	7840	61	-212	230	-148	234	-64	75
	75th	10904	266	10362	92	10594	159	-542	281	-311	310	-232	184
	90th	13742	435	13460	158	13900	174	-283	463	158	469	-440	235
	95th	16669	662	16150	245	16744	426	-519	706	75	788	-594	492

7 Comparisons by economic status

7.1 Breakdown of surveys by economic status of highest income householder and partner

In order to understand the differences between household types, a further way of looking at the data was to sub-divide the households according to the economic status of the highest income householder and their partner. Single person households were classified according to whether the person was working or not working and households with one adult and their partner classified according to whether both, neither or one of the couple were working. Table 8 gives the composition of each of the surveys according to this classification. We see in this table a similar difference to that seen in 6, in that the SHS and SHCS under-represent single households where the single person is working, and there is a corresponding increase in single person households where that person is not working. That seems likely to be related to the weighting issues that were discussed in the previous section in that single working adults, and particularly young working adults are known to be a population which is hard to reach in surveys. Again the SHS and the SHCS give very similar breakdowns in terms of this classification.

Table 8 Composition of survey populations (weighted to population totals) by economic status of adults, 1 adult or 2 partner families only

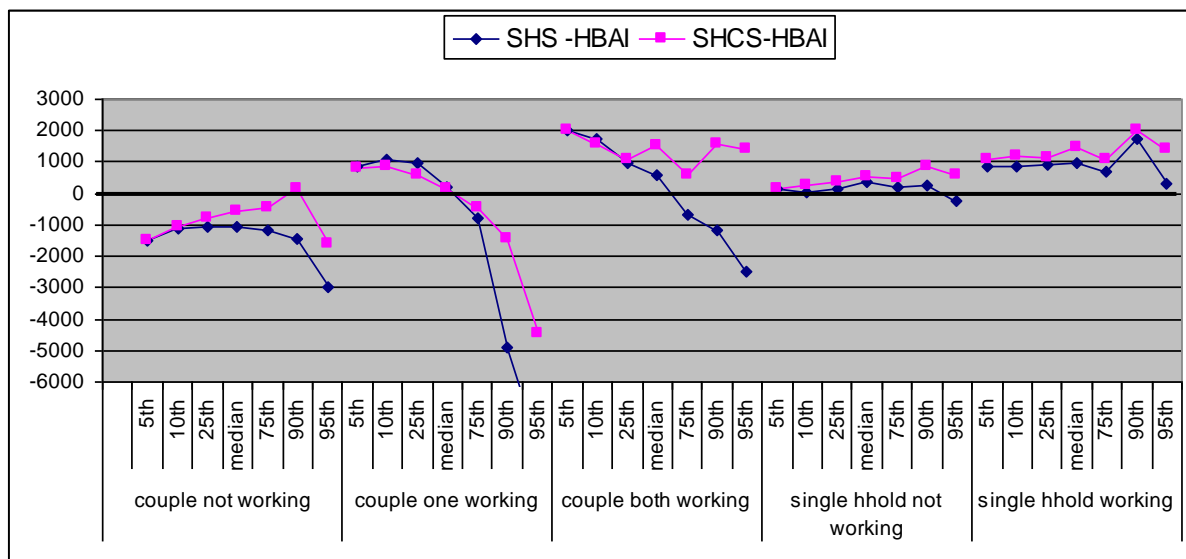
	<i>HBAI</i>	<i>s.e.</i>	<i>SHS</i>	<i>s.e.</i>	<i>SHCS</i>	<i>s.e.</i>	<i>HBAI-SHS</i>	<i>s.e.</i>	<i>HBAI-SHCS</i>	<i>s.e.</i>	<i>SHS-SHCS</i>	<i>s.e.</i>
Couple both working	14.97	0.50	16.06	0.26	16.24	0.33	-1.09	0.57	-1.27	0.60	-0.18	0.42
Couple not working	11.22	0.47	12.17	0.23	10.81	0.28	-0.95	0.52	0.41	0.55	1.36	0.36
Couple one working	25.37	0.68	25.96	0.32	26.24	0.39	-0.59	0.75	-0.87	0.78	-0.28	0.50
Single hhold not working	29.24	0.76	30.72	0.34	30.92	0.39	-1.48	0.83	-1.67	0.85	-0.20	0.52
Single hhold working	19.19	0.65	15.08	0.25	15.79	0.34	4.11	0.70	3.39	0.74	-0.71	0.42

7.2 Income distributions by economic status of highest income earner and partner

Figure 5 and Table 9, show the income distributions and their differences between the three surveys by this classification. Many of the same features can be seen as was evident in the previous breakdowns.

In particular, the single working households align with the single adult households in the previous breakdowns with the SHS and SHCS are consistently above the FRS/HBAI. Note that here the lower percentiles of this distribution show the same difference, whereas in the previous case there was fewer differences at the lower percentiles. The likely interpretation of this again relates to the differential weighting for non-response that we identified as a problem in the previous section.

Figure 5 Differences in income distributions by economic status of HH and partner, single adult or two adult partner households only.



In single households not working, the pattern is somewhat different. The SHS gives figures across the range which are almost identical to the FRS/HBAI, whereas the SHCS gives an income distribution which across the full range is somewhat higher than the FRS/HBAI by around £300 on average.

For households with two adults we can see that it is chiefly in the cases where one or both adults are working that we have the very large deficit at high incomes. There is also a corresponding shrinking away from the lowest incomes particularly for couples who are both working in the SHS compared with the FRS/HBAI. This could occur because both ends of the distribution have been pulled in towards the middle by the predictive mean matching that is used for imputing income data in the SHS, as discussed in section 4 above.

Because of the relatively small numbers in some of these groups it is important to consult Table 9, which gives standard errors for the differences, so as not to over-interpret the data shown in Figure 4.

Table 9 Income distributions by economic status of HIH and partner, single adult or two adult partner households only.

		<i>HBAI</i>	<i>s.e.</i>	<i>SHS</i>	<i>s.e.</i>	<i>SHCS</i>	<i>s.e.</i>	<i>SHS-HBAI</i>	<i>s.e.</i>	<i>SHCS-HBAI</i>	<i>s.e.</i>	<i>SHS-SHCS</i>	<i>s.e.</i>
Couple not working	5th	6525	253	5001	169	5000	327	-1524	304	-1525	414	1	368
	10th	7727	134	6590	120	6680	145	-1137	180	-1047	197	-90	188
	25th	9714	197	8675	82	8949	125	-1039	214	-765	233	-275	149
	median	12530	212	11466	125	11964	146	-1064	246	-566	257	-498	193
	75th	16664	486	15474	208	16223	244	-1190	529	-440	543	-750	320
	90th	22533	552	21060	537	22692	451	-1472	770	159	712	-1632	702
	95th	29019	2272	26031	490	27428	687	-2987	2324	-1591	2373	-1397	844
Couple one working	5th	8012	448	8877	212	8841	286	865	496	829	532	36	356
	10th	9611	419	10684	181	10476	238	1073	456	865	481	207	299
	25th	12909	245	13852	123	13496	163	942	275	587	295	356	204
	median	17625	499	17822	181	17784	272	196	531	159	568	38	327
	75th	24763	377	24001	309	24279	695	-762	487	-484	791	-278	761
	90th	36769	1758	31840	633	35320	903	-4929	1868	-1449	1976	-3480	1103
	95th	48178	2036	40130	960	43701	2121	-8048	2251	-4477	2940	-3571	2329
Couple Both working	5th	12900	657	14886	230	14910	187	1986	696	2010	683	-24	296
	10th	15529	414	17254	145	17076	192	1725	438	1547	456	178	241
	25th	20188	287	21131	117	21256	221	942	310	1068	362	-125	250
	median	25582	329	26170	199	27109	237	588	384	1527	405	-940	310
	75th	34031	772	33332	219	34623	301	-699	803	592	829	-1290	372
	90th	44028	1367	42868	445	45619	644	-1160	1437	1591	1511	-2751	783
	95th	53807	2930	51334	815	55227	1389	-2473	3042	1420	3243	-3893	1610
single hhold not working	5th	3722	181	3842	34	3876	105	120	184	154	209	-34	110
	10th	4460	112	4489	42	4704	85	30	120	244	141	-215	95
	25th	5820	107	5955	44	6190	61	136	116	370	123	-235	76
	median	7390	75	7763	37	7901	46	373	84	510	88	-137	59
	75th	10065	138	10259	76	10552	111	193	158	487	177	-293	135
	90th	12932	246	13188	115	13787	155	256	271	854	291	-599	193
	95th	15692	596	15466	225	16303	249	-226	637	611	646	-837	335
single hhold Working	5th	5427	180	6278	203	6481	355	851	271	1054	398	-204	409
	10th	6868	302	7709	92	8063	169	842	315	1195	346	-353	192
	25th	9345	135	10266	96	10500	90	921	166	1155	162	-234	132
	median	12374	299	13363	123	13827	291	989	323	1453	417	-464	316
	75th	17104	483	17776	134	18209	120	672	501	1105	498	-433	180
	90th	21967	913	23701	386	23981	288	1733	991	2014	957	-280	481
	95th	27302	1427	27600	756	28732	1054	298	1615	1430	1774	-1132	1297

8 Different sources of income

8.1 General

It is difficult to compare the FRS/HBAI data on the breakdown of income into, for example, benefits, investment income and earned income because of the different ways in which the data are collected in the surveys. In the FRS/HBAI, full details of all gross income are found and specific questions are asked about benefit so that benefit books are checked and detailed sources of investment income are also examined. On the SHS and the SHCS it appears to be net income which is requested but it is not clear whether this is net income after all tax has been paid or whether it is the net income as it comes to the householder. In many cases only estimated values are given so direct comparisons are almost impossible. However, by looking at some of the pre-imputation data in the surveys we can get some idea of where the major differences may lie.

8.2 Investment income

Because of the differences found in the previous two sections of the highest level of income, it seemed worthwhile investigating the extent to which investment income was reported in the different surveys. We have looked at the extent to which households report receiving any investment income. Note that on both of the SHS and the SHCS surveys there were more households where the value of the investment income was unknown than there were households with recorded values (Table 2). The extent of imputation in the FRS/HBAI data was much less. Estimates of the distribution of the distribution of investment income are given in Tables 10 and 11.

Table 10 Approximate estimate of investment income in the three surveys. (see text for explanations).

	<i>HBAI</i>	<i>SHS</i>	<i>SHCS</i>
Percentage with recorded investment income	61.6%	3.4%	4.1%
Percentage with imputed investment income	#	4.3%	5.4%
Mean investment income where recorded	£1,396	£8,795	£4,176
Mean investment income where recorded - corrected data (SHCS/SHS)	£1,396	£1,892	£2,429
Mean investment income, where imputed		£1,821	£2,123
Estimated mean for whole population	£857	£152	£302

Imputed values cannot readily be identified in the FRS/HBAI but imputed values are included in the data. Documentation suggests that only a very small proportion are imputed.

It can be seen that in the FRS/HBAI 62% of individuals report that they had received some investment or income or interest. However, the vast majority of that is very small amounts that probably relates to interest on bank accounts and only 30% of individuals report having an investment income of £100 or more (Table 11). However, the mean investment income for all households, which including some fairly high values, is £857. In comparison the SHS and the SHCS

each report fewer than 10% of individuals having any investment income or interest as part of their income. These included a few households with clearly outlying values including in the case of the SHS one household that reported an investment income of over £5,000,000. Many of these values, we noted, had been excluded as unreliable when the annual net income was calculated. After correction and editing, income from investments from the SHS and the SHCS mean income for all households was £152 and £302 respectively.

It is clear that the SHS/SHCS appear to be missing a high proportion of investment incomes at all levels (table 11). This clearly suggests a very large bias with the SHS and the SHCS missing a large proportion of investment income. This will probably go a long way to explaining the differences found in the previous section. It is perhaps surprising that this difference didn't seem to appear to quite such a large extent in the single adult households but it is also plausible that single adults would be much less likely to hold investments. Again detailed investigation of the FRS/HBAI data would be able to see whether that was a reasonable explanation but that would go beyond the remit of the present project.

Table 11 Investment income distributions, percentages of households by investment income band.

	<i>HBAI</i>	<i>SHS</i>	<i>SHCS</i>
none	38.61	92.24	90.55
under £10	13.68	0.15	0.25
£10 to £100	16.44	1.19	1.63
£100 to £500	13.44	2.15	2.83
£500 to £1,000	5.13	0.78	1.16
£1,000 to £3,000	6.45	2.06	1.96
£3,000 to £5,000	2.31	0.58	0.54
£5,000-£10,000	2.23	0.47	0.67
over £10,000	1.7	0.38	0.42
Total	100.00	100.00	100.00

8.3 Income from benefits

Income from benefits was, for similar reasons, difficult to compare between the surveys. However, it was possible to look at the detailed sources of benefits and to calculate to the percentage of households claiming different types of benefits. The results are shown in Table 12. We can see that there is reasonably good agreement here between the percentages claiming benefits in the SHS, SHCS and the FRS/HBAI. There are some cases in which the FRS/HBAI reports a higher percentage in receipt of benefits and other cases where it reports less. Because of the age bias we had noted between the surveys previously, we had expected that we would have found a higher percentage of the SHS and the SHCS in receipt in state retirement pensions. However, this was not a feature of the data in Table 12. An explanation of this was found by checking the percentage of individuals over 65 in receipt of state retirement pension. This differed between the FRS/HBAI and the other two surveys. In the case of FRS/HBAI the uptake of state retirement pension was around 99%, however on the other two surveys it was only around 90%. When the other sources of income were investigated for the 10% not claiming a state pension at this age, it

was found that other sources were quoted the most common of which was receipt of widows' pension which can be seen to be somewhat higher in these surveys than in the FRS/HBAI. In other cases other benefits or no benefits were quoted instead.

It is difficult to compare the total benefit uptake between the surveys because of the wider range of benefits asked in the FRS and the way in which FRS/HBAI data are reported. Overall some further analysis of these data suggest that the FRS/HBAI may get a slightly higher estimate of benefit income because of its more comprehensive coverage.

It seems from this that the benefit data between the two surveys is likely to be very comparable and this is borne out by the relatively good agreement at the lower end of the income distribution for the majority of cases. The data on the exact sources of data from the SHS/SHCS are likely to be less reliable than the FRS/HBAI.

Table 12 Percentages of 1 adult or 2 adult partner households in receipt of different types of benefit in the three surveys.

Benefit	% of households		
	SHS	SHCS	HBAI
Receives Income Support	13.6	13.2	12.7
Receives Family Credit	4.3	3.9	4.9
Receives JSA	1.8	2.3	2.2
Receives Housing Benefit	19.7	21.3	18.6
Receives Council Tax Benefit	24.0	25.7	23.4
Receives Child Benefit	27.7	26.8	24.7
Receives Maternity Allowance	0.1	0.1	0.2
Receives State Retirement Pension	33.5	31.1	32.7
Receives Statutory Maternity Pay	0.2	0.2	¶
Receives other state benefit	0.8	0.8	7.6*
Receives Widow's Payment	0.4	0.2	0.6
Widowed mothers allowance	0.1	0.1	0.6
Widows pension	1.5	1.9	0.6
Receives Incapacity Benefit	7.0	7.1	7.6
Receives Disabled person's tax credit	0.1	0.1	0.1
Receives Disability living allowance (care)	5.5	4.7	5.0
Receives Disability living allowance (mobility)	5.4	5.3	5.6
Receives Industrial Injury/Disablement Benefit	0.6	0.8	0.8
Receives Invalid Care Allowance	0.9	1.0	1.0
Receives Severe Disablement Allowance	0.7	0.8	0.8
Receives Statutory Sick Pay	0.3	0.3	¶
Receives War Disablement Benefit	0.5	0.6	0.6
Receives Disability Premium with IS/HB	0.2	0.5	¶
Receives Attendance Allowance	3.2	3.2	4.2

¶ Not included in list of benefits in FRS/HBAI

* This is the total for a longer list of benefits mentioned specifically in the FRS/HBAI. Details are in Table A . Some households will be counted more than once in this total.

9 Appendix : Additional tables.

Table A 1 Household social interviews per month for SHCS

Month of interview				
MONTH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Jan	2212	12.01	2212	12.01
Feb	4046	21.97	6258	33.98
Mar	3918	21.27	10176	55.25
Apr	2991	16.24	13167	71.49
May	1791	9.72	14958	81.22
June	994	5.40	15952	86.62
July	884	4.80	16836	91.42
Aug	693	3.76	17529	95.18
Sep	767	4.16	18296	99.34
Oct	69	0.37	18365	99.72
Nov	52	0.28	18417	100.00

Table A 2 Trends over time in the FRS/HBAI and SHS income data all households

Semester	HBAI					SHS				
	p10	p25	median	p75	p90	p10	p25	median	p75	p90
y1999q12	£5,664	£8,602	£13,845	£23,924	£34,216	£5,661	£8,070	£13,017	£20,975	£29,269
y1999q34	£5,554	£8,483	£13,876	£23,171	£33,551	£5,515	£8,108	£13,311	£21,760	£31,080
y2000q12	£6,136	£8,886	£14,015	£23,388	£34,489	£5,559	£8,269	£13,502	£21,631	£29,982
y2000q34	£5,627	£8,539	£14,060	£22,976	£34,104	£5,622	£8,102	£13,168	£21,327	£29,971
y2001q12	£6,424	£9,150	£15,093	£25,159	£36,897	£5,911	£8,719	£14,000	£22,416	£31,016
y2001q34	£6,559	£9,420	£15,193	£24,583	£36,527	£6,205	£8,963	£14,435	£23,601	£32,959
y2002q12	£6,238	£9,190	£15,042	£24,633	£37,176	£6,500	£9,201	£14,739	£23,898	£33,375
y2002q34	£6,264	£9,358	£15,168	£24,676	£36,166	£6,257	£9,109	£14,838	£23,701	£32,700
1999q34	-2%	-1%	0%	-3%	-2%	-3%	0%	2%	4%	6%
2000q12	8%	3%	1%	-2%	1%	-2%	2%	4%	3%	2%
2000q34	-1%	-1%	2%	-4%	0%	-1%	0%	1%	2%	2%
2001q12	13%	6%	9%	5%	8%	4%	8%	8%	7%	6%
2001q34	16%	10%	10%	3%	7%	10%	11%	11%	13%	13%
2002q12	10%	7%	9%	3%	9%	15%	14%	13%	14%	14%
2002q34	11%	9%	10%	3%	6%	11%	13%	14%	13%	12%

Table A 3 Items used to define imputation groups in SHS and SHCS

INCOME	SHCSⁱⁱ	SHS
Highest income earner main income	Highest income earner (HIH) was in full time work Age of HIH Sex of HIH Number of rooms in house Household type HIH had more than one job HIH was in receipt of WFTC HIH was in receipt of housing benefits Owned or rented	Age of HIH Sex of HIH Number of rooms in house <i>In receipt of means tested benefits</i> Number of cars Sex * SEG interaction SEG of HIH
Highest income earner other income	Owned or rented HIH was self employed	Age of HIH Sex of HIH
Partner main income	Number of rooms in house Partner's age Partner's sex Household type Partner had more than one job Owned or rented Partner was in full time Work Partner was self employed	Number of rooms in house Partner's age Partner's sex Number of cars <i>In receipt of means tested benefits</i> Econ * hhtype(in12 int6 2 interactions) Computer Renting Employment status of partner Household type (6 category) HIH earning
Partner other income	Household type Partner in full time work	Age of partner

Table A3 (contd)

BENEFIT	SHCS ⁱⁱ	SHS
Income support	Household type (collapsed) HIH in ft work HIH retired	Information on entitlement and total income used to determine groups for imputation
Working families tax credit	Household type HIH in ft work Banded total household income*	Median
Jobseeker's allowance	HIH marital status HIH in ft work	Median
Housing benefit	HB calculated directly where rent qu allows If rent after HB given calculated from gross rent Remaining cases hotdeck based on: Tenure Year moved in Number of rooms Age of highest income earner HIH in ft work Tied accommodation	Directly from rent where available, or hot deck imputation using tenure income number retired age of hih number of adults
Council tax benefit	Household type HIH in ft work	Local authority Income support Tenure
Earnings top-up	Not carried out	
Child benefit	Total number of children Household type	?missing code
Child benefit at one parent rate	Total number of children Household type	?missing code
Maternity allowance	HIH in ft work	Median
Maternity payment	HIH in ft work	Median
State retirement pension	HIH retired Partner retired	Number of retired
Other benefit	Household type	Median
Widow's payment	Household type	
Widowed mother's allowance	Household type	
Widow's pension	HIH in ft work Sex of HIH	Median
Incapacity benefit	HIH long term ill/ disabled Partner is long term ill/disabled	Number of adults Age of HIH Number retired In receipt of means test benefits
Disabled persons tax credit	HIH in ft work Collapsed household type	?
Disability living allowance care	HIH long term ill/ disabled Partner long term ill/disabled	Age of HIH
Disability living allowance mobility	HIH long term ill/ disabled Partner long term ill/disabled	Age of HIH

Table A3 (contd)

BENEFIT	SHCS ⁱⁱ	SHS
Industrial injury/disablement	HIH in ft work Collapsed household type	Median
Invalid care allowance	HIH in ft work Collapsed household type	Median
Severe disablement benefit	Household type	Number of adults
Statutory sick pay	HIH in ft work Partner in ft work	Median
War disablement allowance	HIH in ft work Partner in ft work	Median
Disability premium	HIH long term ill/ disabled Partner long term ill/disabled	Median
Attendance allowance	Partner retired	No group

*given or imputed

Figure A 1 Trends over time by semester of the financial year in the SHS and FRS/HBAI income data

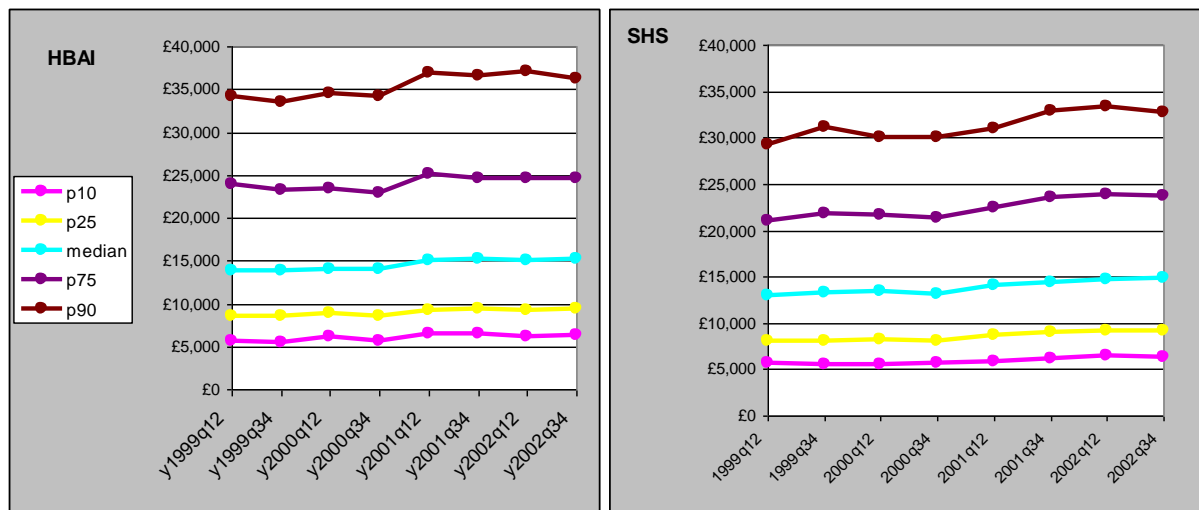


Figure A 2 SHCS income distribution

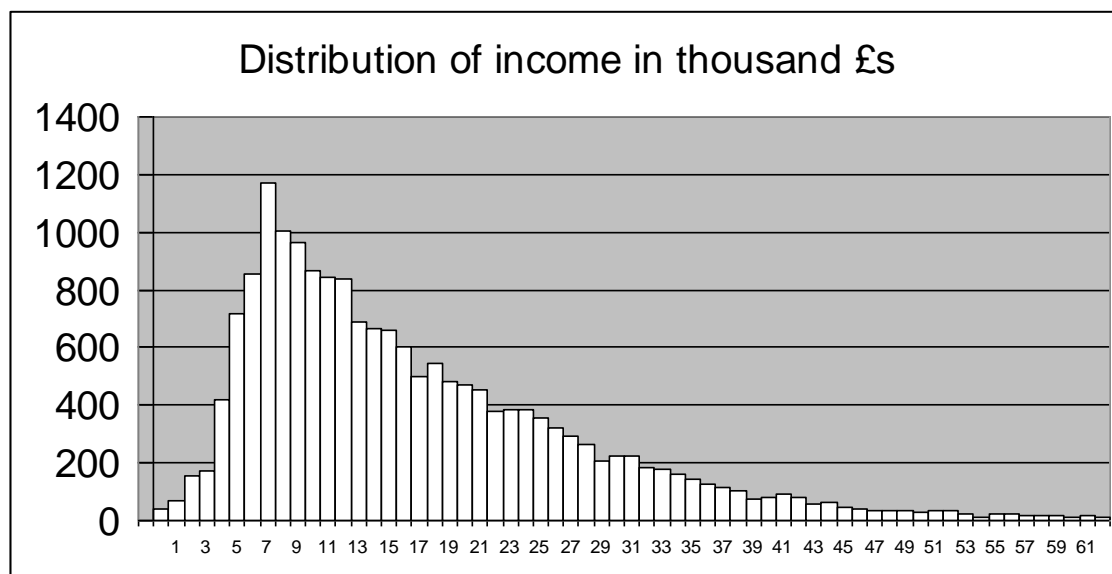


Table A 4 Additional benefits reported in FRS/HBAI data

Benefit	% receiving
War Widows Pension	0.12
Funeral Grant from Social Fund	0.10
Community Care grant from Social Fund	0.33
Back to Work Bonus (received)	0.14
Guardians Allowance	0.01
Social Fund Loan: Budgeting	1.89
Social Fund Loan: Crisis	0.60
Working Families' Tax Credit - Lump Sum	0.06
Future: DLA Self Care	0.15
Future: DLA Mobility	0.08
Future: Attendance Allowance	0.27
Child Maintenance Bonus	0.03
Lone Parent Benefit run-on	0.07
Widow's Payment	0.10
Unemployment/Redundancy Insurance	0.05
DSS direct payments - JSA	0.21
Social Fund Loan: Repayment from ISA	3.12
Social Fund Loan: Repayment from JSA	0.23
Total Percentage (including households counted more than once)	7.59

ⁱ 'Methods used to impute missing data for the 2002 Scottish House Condition Survey' Sarah Tipping, Susan Purdon, National Centre for Social Research