






Measuring Income Risk

-  Simon Burgess, Karen Gardiner, Stephen Jenkins and Carol Propper have analysed the issues involved in measuring household income risk, paying particular attention to the role of demographic factors as a source of such risk. Using the British Household Panel Study they show how methodological choices affect estimates of income risk and quantify the relative importance of demographic influences.
-  Estimates of average household income risk for Great Britain imply that for someone with a gross household income of £400 per week, their income is likely to be above £620 or below £260 per week ten per cent of the time.
-  Total income risk tends to be lower for older individuals and is slightly less for women than men, holding other factors constant. Individuals who are well-off are likely to experience less income risk than those at the bottom of the income distribution.
-  The study argues that previous analyses have taken an unduly narrow approach which have therefore produced results which are not broadly applicable to the whole population and systematically exclude certain sources of risk, particularly those relating to demographic events such as partnering, divorce and a grown-up child leaving home.
-  Examining separately the amount of income risk related to demographic and labour market factors, demographic risk declines substantially with age and is lower for those in the poorest and richest income groups than for those with middle incomes. Labour market risk is quite differently related to characteristics: it is highest for those aged under 30 and nearing retirement (51 to 65), and tends to fall as individuals' household income rises.

Further Information

A detailed account of this research can be found in CASEpaper 40, *Measuring Income Risk* by Simon Burgess, Karen Gardiner, Stephen Jenkins and Carol Propper. Copies are available free of charge from Jane Dickson, CASE at the address below or can be downloaded from our internet site: <http://sticerd.lse.ac.uk/Case>.

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Motivation and policy relevance

Understanding more about income risk faced by households is of interest for several reasons. We know it will affect individuals' behaviour with, for example, implications for how much they save for their retirement. The welfare state has always had an important role in providing insurance against certain income risks such as those associated with unemployment, sickness, old age and the birth of a child. At a more aggregate level, information about how much income risk there is, and how this has been changing over time, has been useful in assessing the dramatic increases in earnings and income inequality in the UK. Addressing any of these issues requires good empirical measures of income risk.

What this study of household income risk does differently

In responding to the literature on income risk measurement, we have addressed two key issues:

- for whom should we calculate measures of household income risk?

We do so for *all adults* but most previous studies have focussed only on prime aged employed heads of households (typically men), who only make up a small fraction of our more comprehensive sample. The results from taking the 'traditional' approach are therefore only relevant for a minority of the individuals we may be interested in.

- what income influences are not predictable and therefore sources of income risk?

We take the position that individuals can predict their household income only on the basis of their own characteristics, such as age, ability and education. This means, for example, they cannot predict income fluctuations due to future unemployment or from a spouse leaving the household. This is in contrast with other studies which have often treated (either through sample restrictions or choice of income model) these income influences as known and therefore not a source of risk.

Results for Great Britain – who has the most risk?

Using our preferred measure of risk we found that total income risk tends to be lower for older individuals and is slightly less for women than men, holding other factors constant. Individuals who are well-off are likely to experience less income risk than those at the bottom of the income distribution.

Does it matter which measure of risk we use?

Table 1 presents estimates of average (median) risk for Great Britain across the whole sample and for selected subgroups, calculated using two different measures. Our preferred approach is captured by the results labelled 'ideal', which only treat as predictable the income movements associated with information that the individual knows about themselves and which does not change over time. So, for example the income shifts which can be related to their age, gender and education are predictable but those linked to the number of people they live with are not. Furthermore, some of this information known to the individual is not observable by the researcher (such as their ability). In this case we need panel data which tracks the same individuals over time to allow for these income effects. The other measure in the table is labelled 'traditional' because it approximates the approach most commonly used in previous studies. This has been applied to cross sectional data which only contains 'snapshots' of individuals and their incomes and hence does not provide a full picture of their income movements. In this method, income risk is approximated by treating as predictable even those factors which may vary, such as employment status of adults in the household.

The median for the whole population is similar using both methods but the average estimates for some of the subgroups differ substantially. For example, our 'ideal' measure of risk produces an

average for the richest group of men aged 31 to 50 which is only about one third of the traditional estimate. Hence, the choice between the two approaches has a significant impact on the final results.

Table 1: Median income risk for all persons and for selected subgroups

	Income risk measure	
	'traditional'	'ideal'
All persons	0.050	0.049
Men, aged 31-50, poorest quintile group	0.103	0.105
Men, aged 31-50, richest quintile group	0.078	0.027
Women, aged 31-50, poorest quintile group	0.088	0.097
Women, aged 31-50, richest quintile group	0.078	0.028

In the full paper the 'traditional' and 'ideal' measures are labelled π^1 and π^3 respectively.

Demographic versus labour market factors - which matter more for income risk?

Our starting point in examining the importance of demographics was to look at the income risk of those households which experienced a change in composition, and compare it with the risk estimates for constant households. We classify adults as living in either 'intact' households (those for which the person's household head and the head's marital status remain unchanged during the time the person is in the sample) or in 'non-intact' households (the remainder). Other studies of income risk have entirely excluded those living in non-intact households. The first interesting thing to note is that over a third of the sample (37 per cent) live in a non-intact household. Overall, average (median) income risk is 0.05, while the averages for persons living in non-intact and intact households are 0.07 and 0.04 respectively. For an individual with a weekly income of £400, risk of 0.07 means that ten per cent of the time their income lies outside the range £240 to £670; with risk of 0.04 this range falls to between £270 and £590.

We looked in to this further by splitting total risk into a component associated with the demographic characteristics of the household, such as number of children and the region where they live, and a labour market component, including the occupational category of adults in the household. Table 2 shows who has relatively more demographic than labour market risk (and vice versa), by individual's age and household income group. Over a third of the sample (38 per cent) experience greater demographic than labour market risk, and this is particularly likely to be true for those aged under 50 or with higher household incomes.

Table 2: Is demographic risk greater or less than labour market risk?

Characteristics	Number in subgroup as percentage of all individuals	Percentage of individuals with	
		Demographic risk greater than labour market risk	Labour market risk greater than demographic risk
Column percentages			
Age			
30 & under	27	37	25
31-50	34	43	33
51-65	19	12	25
66+	20	8	17
Household average income group			
bottom fifth	18	9	17
group 2	21	16	23
group 3	20	22	21
group 4	21	27	19
top fifth	21	25	20
Row percentages			
Overall Percentage	100	38	48

More generally, our analysis of the amount of risk associated with demographic and labour market factors indicates that demographic risk declines substantially with age and is lower for those in the poorest and richest income groups than for those with middle incomes. Labour market risk is quite differently related to characteristics: it is highest for those aged under 30 and nearing retirement (51 to 65), and tends to fall as individuals' household income rises.

About the study

The results are based on analysis of gross household income information for 7,072 individuals from the first six waves (1991 to 96) of the British Household Panel Study. We are grateful to the ESRC Data Archive for providing the data.