Income changes and their determinants over the lifecycle: Executive Summary

IFS Working Paper W15/33

Andrew Hood
Robert Joyce
Income changes and their determinants over the lifecycle: Executive Summary

Andrew Hood and Robert Joyce

Institute for Fiscal Studies

What explains the large differences across individuals in how earnings and incomes evolve? This is a key question for understanding the risks people face, and hence assessing the adequacy of their wealth accumulation.

Many analyses of how earnings or income evolve over the lifecycle look at how changes in average earnings or average household income, and how that compares to the changes seen among individuals of the same age in different years. However, average changes mask large and important differences in changes between individuals. For example, in a sample of adults drawn from those born around 1950, median household earnings (before tax) increased by around 10% between the ages of 35-44 and 50-59. However, a quarter of those individuals saw a fall in household earnings of at least 25%, while another quarter saw an increase of over 50%. Looking at equivalised net household income - the most common measure of living standards, which adjusts for household composition and includes unearned income such as state benefits, and subtracts direct taxes - the variation in changes was smaller but still significant: while the increase at the median was around 30%, a quarter of individuals saw an increase of over 50%.

1 The authors would also like to thank Carl Emmerson and members of the IFS Retirement Savings Consortium for providing useful comments throughout the course of this work. This report was funded by the IFS Retirement Savings Consortium and the Economic and Social Research Council. The IFS Retirement Savings Consortium comprises Age UK, Department for Work and Pensions, Financial Conduct Authority, HM Treasury, Institute and Faculty of Actuaries, Investment Association, Just Retirement and Money Advice Service. Responsibility for interpretation of the data, as well as for any errors, is the authors’ alone.

2 For analysis of this kind, see A. Hood and R. Joyce, The economic circumstances of cohorts born between the 1940s and the 1970s, Institute for Fiscal Studies, Report R89, 2013.

3 Individuals in the sample are born between 1948 and 1956. For more details of our sample, see Section 2 of the working paper.
increase of less than 5% (or a fall), while another quarter saw an increase of over 70%.

Some of this variation may be the result of planned choices, such as taking time out of the labour market to care for children, but some will reflect the uncertainty that individuals face about their income when planning for the future. Ultimately, a challenge for research is to distinguish between these two kinds of variation, though that will inevitably involve making assumptions about what people know about their future and what they do not know. In this work we take a simpler first step, which is to document the observed factors which explain the variation in how incomes evolve over the lifecycle (without taking a definitive view about which of these are known in advance to the individuals concerned).

We consider two periods of the lifecycle: prime working-age life (35-44 to 50-59) and the transition into retirement (50-59 to 66-75). In doing so, we focus on time-varying factors that might have an important effect on incomes: labour market factors (employment status and occupation), demographic factors (the presence and characteristics of partners and children), health, caring responsibilities, region of residence and, when looking at the older age group, private pension provision. The box below provides an overview of the methodology we use to assess the relative importance of these different factors in explaining the variation in income changes over time. Essentially, the most important factors will be those that have both a large effect on incomes and also change differently over time for different individuals.
Methodology

We conduct our analysis using data from the British Household Panel Survey, which followed individuals annually over the eighteen years from 1991 to 2008. There are two main steps in the estimation of the relative importance of different factors in explaining earnings and income changes:

1. We estimate the relationship between an individuals’ time-varying characteristics and their incomes in a given year using fixed effects regressions. This method allows us to control for all time-invariant characteristics of people, whether or not they are actually observed in the data, as well as observed time-varying characteristics.

2. Using these estimates, combined with the characteristics observed for each individual in our sample, we predict income for each individual in each year. In turn this means we can predict the change in income for an individual between two periods, given observed changes in their characteristics. This is done with and without accounting for changes in particular characteristics (e.g. employment status). By comparing the variation in the change in predicted incomes with and without each characteristic, we can estimate how much of the explained variation is accounted for by differential changes in that characteristic.

For a more detailed and technical explanation, see Section 4 of the accompanying working paper.

Focusing on changes during working-age life, the key findings are:

- Most of the differences between people in how earnings and incomes evolve with age cannot be explained by the characteristics observed in our relatively rich dataset. The factors listed above explain only 2% of the variation in male earnings growth, and only 7% of the variation in female earnings growth. More of the variation in (unequivalised) net household income changes is explained – 10% for men and 17% for women.

- Looking at the variation that is explained, the two most important factors are labour market changes and demographic changes. Health and caring responsibilities do evolve differently for different individuals, but their association with income is not large enough for them to explain much of the variation in income changes.

- Focusing just on individuals in work, changes in their occupations are the most important explanation for variation in changes in individual hourly wages and weekly earnings of those that we can observe. But when looking at household-level measures of earnings or income across all individuals, it is actually demographic factors that are more important. In particular, explained variation in the evolution of net household incomes (both equivalised and unequivalised) is mostly accounted for by changes in the presence and characteristics of
partners (specifically their work status and education level), and the presence of children.

- The relative importance of labour market and demographic factors in explaining variation in income changes differs greatly by sex: demographic factors are more important for women than for men, and labour market factors are particularly important for men.

Looking in more detail at this last finding, Figure 1 shows the estimated impact of selected labour market and demographic changes on net household incomes for men and women. Compared to being out of work, unskilled work increases net household income by an average of 14% for women, but by over 20% for men. Professional work increases net household income by 22% for women, but by over 30% for men. By contrast, for adults without dependent children, living with a partner increases net household income by around 30% on average for men but by nearly 70% for women. This all reflects the fact that women are more likely to be secondary earners in couples: hence labour market changes are less important for their household income, and demographic changes are more important.

**Figure 1. Estimated impact of changes in selected characteristics on net household income**

Source: Tables 4 and 5 of the working paper. Note that changes in log incomes have been converted to percentage changes in incomes.

As noted earlier, the second determinant of whether a factor explains much of the variation in income changes across individuals is whether it evolves very differently across individuals. Figure 2 shows changes in
partnership status and employment by sex. As one would expect, the pattern of changes in partner status is similar among both men and women. However, there are significant differences in the pattern of employment changes. In particular, almost 80% of men had the same employment status at the end of the window when we track them (i.e. the last time they are observed aged between 50 and 59) as at the start (i.e. the first time they are observed aged between 35 and 44), with the vast majority of those simply being in work in both periods. This is only true of two thirds of women, who were more likely to move into or out of employment. When thinking about the importance of labour market factors in explaining variation in income trajectories, this will act to counteract the pattern shown in Figure 1: although a given labour market change will tend to have less of an impact on the incomes of women than those of men, such changes occur more frequently among women than among men.

Figure 2. Changes in key labour market and demographic characteristics between the ages of 35-44 and 50-59
Note: Calculated using the first and last observations of each individual within the relevant age category.
Source: Table 6 of the working paper.

Overall though, Figure 3 shows that the relative importance of labour market and demographic factors in explaining variation in income changes is very different for men and women. For men, labour market and demographic factors are of roughly similar importance. Labour market changes account for just over 40% of the explained variation in household income changes, with almost all of that coming from changes in employment status (rather than changes in occupation for those in work). Demographic factors account for around 60% of the explained variation, with changes in partner status (24%), partner’s employment and education (28%) and the presence of children (9%) all playing a role. For women, demographic changes account for over 80% of the explained variation in household income changes, with over 60% accounted for by changes in partner status alone. By contrast, labour market changes account for only around 10% of explained variation in household income changes.

Figure 3. Proportion of explained variation in net household income changes accounted for by labour market and demographic factors

Looking at the transition into retirement, the key findings are:

- Changes in employment status account for a larger proportion of the explained variation in income changes over this part of the lifecycle.
This reflects the greater prevalence of individuals moving out of employment. Among men, employment status accounts for 50% of the explained variation in net household income changes; the figure is 40% for women.

- Demographic factors are again of greater relative importance in explaining variation in income changes among women than among men. Changes in the presence and characteristics of a partner, along with the presence of children, account for 64% of the explained variation in changes in net household income among women, compared to 36% among men.

- Variation in occupational pension provision for retired individuals actually does relatively little to explain variation in the path of income between late working-age life and retirement. One reason for this is that since higher-paying jobs are more likely to offer better pension provision, people who stop working and receive an occupational pension may actually see a similar proportional change in their income to those who stop working and do not receive one.

**Implications**

*For individuals:*

- Savings should not be thought of as being needed solely for retirement. There is significant variation in the path of income during working-age life, and some of this is likely to reflect risk. This suggests that it may be important for some individuals to self-insure against shocks during this stage of the lifecycle.

- The appropriate amount of precautionary saving for someone to undertake depends at least as much on their demographic characteristics as labour market characteristics. For example, our estimates suggest that, on average, single individuals should save less for reasons of self-insurance against future shocks than members of couples, all else equal, since they do not face the downside risk of separation. The impact of separation on incomes also varies within couples, with women – or perhaps more accurately secondary earners – tending to be more exposed than their partners.
For providers and advisers:

- Given the variability in income in late working-age life, it is likely that individuals will want to have at least some of their savings in a form that is accessible prior to retirement. The end of compulsory annuitisation (along with the other reforms announced in Budget 2014) makes saving in a pension more attractive from this perspective.

- In assessing how much an individual should be saving (for later working-age life or retirement), our analysis suggests that it is important to take account for risk relating to their demographic characteristics (e.g. separation and the timing of the departure of children) as labour market factors, and that this is particularly true for women (as they are more likely to be secondary earners).

For policymakers:

- While replacement rates are a useful tool for assessing the adequacy of retirement incomes, they do not account for the large variation in income changes during working-age life, since they are usually based on comparing income in retirement with income measured relatively late in working-age life. A high replacement rate might reflect a sharp drop in income mid-career rather than an adequate retirement income, particularly for those who have seen significant demographic changes during working-age life.

- Even when we observe the changes in a wide range of variables over time, we are unable to predict the vast majority of the variation in how earnings and incomes evolve with age. This indicates the challenge facing policymakers in assessing how well individuals have done in preparing themselves for retirement, and whether their current saving rates are adequate.

- The tax and benefit system provides a large amount of insurance against income changes: the variation in net income changes is significant smaller than the variation in household earnings changes. If people are to plan appropriately for the future, and in particular to decide how much precautionary saving to do, it is important that uncertainty over the future shape of the tax and benefit system is no larger than necessary. Given the amount of income fluctuation during working-age life, this applies not just to pension systems but to
working-age benefits too. One way to help achieve this is to set out a broad strategy and to consider reforms carefully against that strategy. For similar reasons it is also important that long run plans, such as those implied by indexation policies, are seen as sustainable.

For researchers:

- Models of household consumption and saving behaviour across the lifecycle that focus exclusively on uncertainty over future earnings as a source of income risk fail to incorporate an important explanatory factor for variation in income changes across the lifecycle – changes in demographic circumstances. This might limit the ability of such models to explain, or lead to the misattribution of, observed variation in savings behaviour across individuals.

- Empirical analyses of consumption and savings behaviour that focus exclusively on those whose household structures do not change fail to account for a potentially important motivation for saving – (unrealised) risk of change in household structure.

---

4 We are not the first researchers to make this point. See, for example, S.M Burgess, K. Gardiner, S.P. Jenkins and C. Propper, *Measuring income risk*, DIW Discussion Paper No. 213