Analysis

Education and age ease uncertainty of income development

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The ability to predict future income is essential for the wellbeing of households. While there have been no major changes in Finnish households' income uncertainty over the past 25 years or so, there would appear to be some ingrained differences across population groups. Income uncertainty has been higher for the less educated than for the highly educated, while risks to the income of the self-employed are high relative to their expected income development. Public transfers have moderated the risks associated with earnings development, notably for the less educated. The significance of public transfer schemes for levelling out income development becomes more apparent as the population ages, with a larger share of the population reliant on public transfers to make ends meet.



Uncertainties over income development reduce the wellbeing of households

The evolution of income uncertainty and the differences in income uncertainty across population groups can be roughly measured by simple statistical indicators representing changes in household income distribution over time. Income uncertainty often increases in response to a variety of cyclical or other external shocks that impact on different population groups in different ways.[1]

As well as mirroring cyclical and structural factors of the economy, changes in income distribution may also reflect households' own choices. Households may make different choices between labour supply and leisure in different phases of their life cycle and can adjust their income and consumption paths by saving and drawing on their savings. However, earnings uncertainty can also be offset by public transfers.

In the following, we will analyse Finnish households' income uncertainty in the period 1989–2014 using household-specific income distribution data. By combining data for consecutive years, we can calculate the growth rate of household income between two consecutive years. In this approach, the standard deviation of the income growth rate serves as an indicator of income

uncertainty. Past research literature has been successful in explaining the evolution of income uncertainty by structural factors of the economy, such as changes in the age structure and level of education of the population. Income dispersion is typically lower for older cohorts; also, the higher the level of education of a population group, the higher the dispersion. Income uncertainty may also have evolved differently in different income brackets. The following analysis explores changes in income distribution by age and socioeconomic group, as well as for the population as a whole.

The present study uses income distribution data from the late 1980s to 2014, collected by Statistics Finland. Rather than looking at individual earners, the study focuses on the household,[2] and can thus indirectly capture the significant intra-household equalisation of income risk.

Estimates of the changes in income distribution are partly dependent on the measure of income used. Growing uncertainty over earnings reflects cyclical developments and changes in the functioning of the labour market. However, at the end of the day, the economic wellbeing of households depends on disposable income, regardless of whether it consists of earned income or, for example, public transfers. Depending on the issue at hand, the following concepts of income are explored below: disposable household income, disposable money income and earned income.[3] Comparable data on disposable income were available from 1989 onwards, on cash income from 1997 onwards, and on earned income from 1993 onwards.

In past research literature, the evolution of income uncertainty was typically analysed using longitudinal household-specific data. In these studies, long-term earnings variance has been decomposed into a transitory and a permanent component. A study of the evolution of income uncertainty based on US data found that volatility in the income growth rate had moderated during the first halves of the 1980s and 1990s and had remained broadly unchanged thereafter.[4] The decline in income volatility has been related to transitory shocks rather than to changes in the permanent component. However, there were no Finnish longitudinal data available in which the same households were surveyed for more than four years.

A descriptive analysis similar to that presented here has also been carried out using US data.[5] According to the results, volatility in the growth rate of real household income increased markedly in the United States from the early 1970s to the late 2000s, despite a stabilisation of the macroeconomic environment. The observation is explained mainly by changes in income distribution in the tails of the distribution. Thus, the significant increase in the income of those with the highest earnings is primarily responsible for the widening of income distributions. A study has also been undertaken of household income volatility in European countries.[6] The study identified major cross-national differences in household income volatility.

Population ageing and the rising level of education are presumed to also be drivers of developments in households' income uncertainty in Finland. According to the findings of the present study, however, Finnish households' income uncertainty has not changed to any significant degree since the early 1990s, although distinct differences in earnings development are discernible across population groups. Income uncertainty has been higher for the less educated than for the highly educated, while risks to the income of the self-employed are high relative to their expected income development. However, public transfers have in many cases significantly compensated for the uncertainty of earnings development. The significance of public transfer schemes for levelling out income development has become more apparent with the ageing of the population, as a larger share of the population is reliant on public transfers to make ends meet.

Income uncertainty of Finns unchanged from the early 1990s

The income uncertainty of Finns has barely changed since the early 1990s (Chart 1). The standard deviation of the growth rate of disposable income was broadly the same in 2014 as in the early 1990s. Whereas dispersion in earnings growth has declined slightly since the mid-1990s, developments in other income variables show no distinct trend.

Earnings growth dispersion has shown some variation in the short term, regardless of the concept of income employed, but the uncertainty has not clearly mirrored cyclical developments. In 2009–2011, after the recession in the wake of the financial crisis, dispersion in the growth of disposable income and money income increased temporarily, but uncertainty over earnings development has not grown notably. A marked change in earnings growth dispersion can be seen only around the turn of the millennium, and again in 2003. The first statistical peak did not disappear with the elimination of exceptionally large observations from the data. Earnings growth dispersion increased only for the highly educated group. This is likely to be at least partly attributable to the effects of the IT bubble bursting at the turn of the millennium. This phenomenon will require closer examination in the future.

Income dispersion has been notably greater for household earnings (Chart 1, right-hand scale) than for total disposable income or money income. In addition to earned income, money income includes e.g. public transfers to households, which have produced a significant moderation in income volatility. Total disposable income includes imputed housing income, as well as money income. Dispersion in the growth rate of total disposable income has been slightly lower than in the growth of money income, pointing to a somewhat more steady development in imputed housing income than in money income. Hence, owner-occupation of housing has offered some protection against the risks to income.

Households have been notably more successful in sustaining their level of income during the

protracted recession than in the depression of the early 1990s (Chart 2). In 1993, around 45% of households remained in the same income bracket as in the previous year, while more than a quarter of households dropped at least one income bracket from the year before. In 2008, the proportion of households remaining in the same income bracket had already climbed to around 55%, rising further to around 57% in 2013. Households today are also less likely to move up an income bracket than households in the 1990s. Compared with the early 1990s, the fall in the proportion of households that have moved up or down at least two income brackets has been the steepest.

Chart 1.

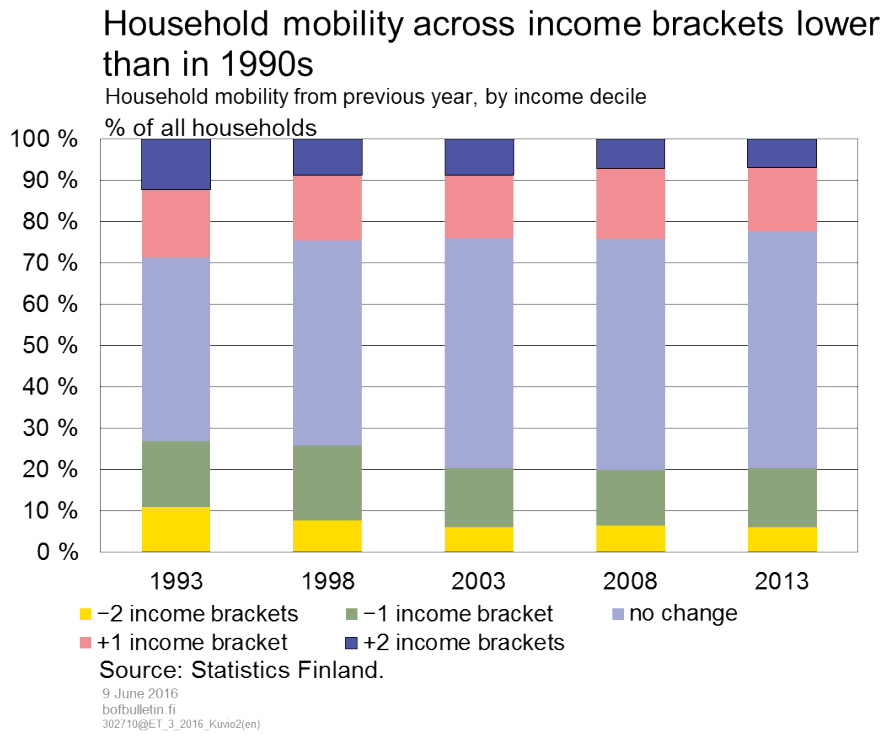
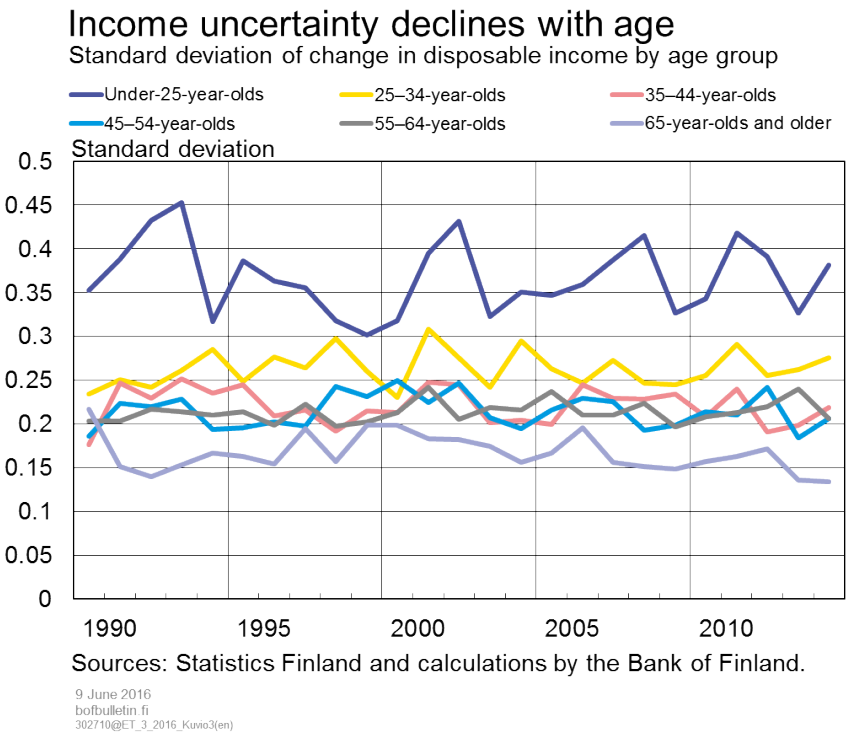


Chart 2.



Ageing causes moderation in earnings growth

In step with the ageing of the population, as an increasing share of disposable household income is accounted for by pensions, income growth dispersion should decrease permanently as measured for the economy as a whole. The income of retirement-age people has shown a much more steady development than that of other age groups throughout the reference period, with income uncertainty being highest for the youngest cohort of under-25-year-olds (Chart 3). Income uncertainty appears to decline slightly in response to the initial labour force attachment of the young at the age of 25–34, but remains higher than for age groups of prime working age, i.e. those in age brackets 35–44 and 45–55, and those in age bracket 55–64 and already approaching retirement age. The three last-mentioned age groups no longer show any significant differences in income uncertainty.

A cohort-based dispersion in the level of income portrays the development of income inequalities within the age groups (Chart 4). In contrast to dispersion in income development, dispersion in the level of income of people of working age is greater for the older age groups, where income inequality has increased with number of years in work.

Whereas dispersion in the level of income appears to have increased steadily for all age groups since the beginning of the 1990s, income dispersion has remained largely unchanged for the

population as a whole. The ageing of the population offers at least a partial explanation for this observation. Income inequalities are smaller for people of retirement age than for people of working age. Consequently, a rise in the share of this population group will moderate income inequalities for the population as a whole.

Chart 3.

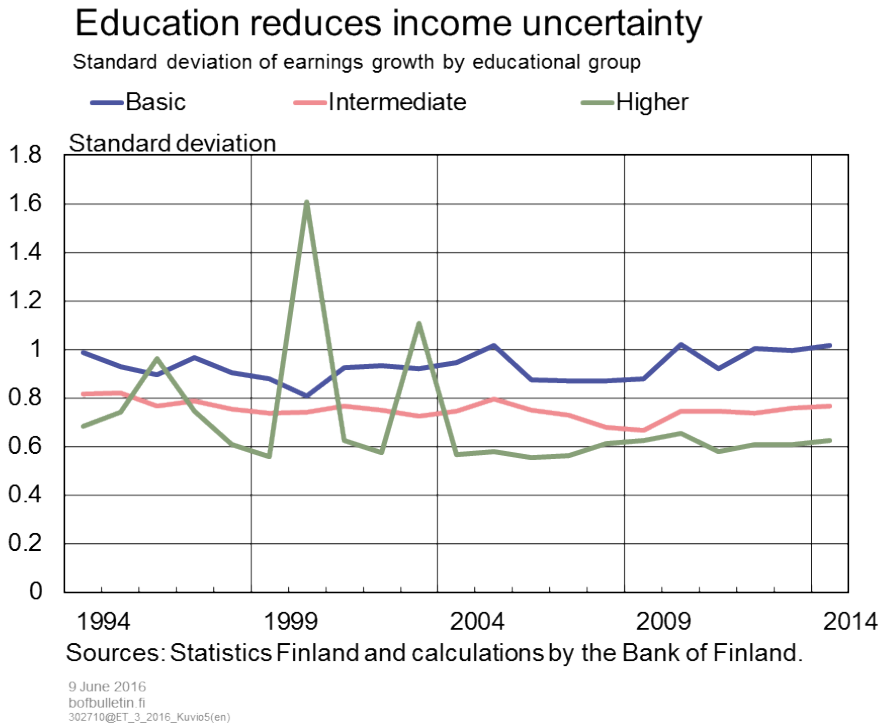
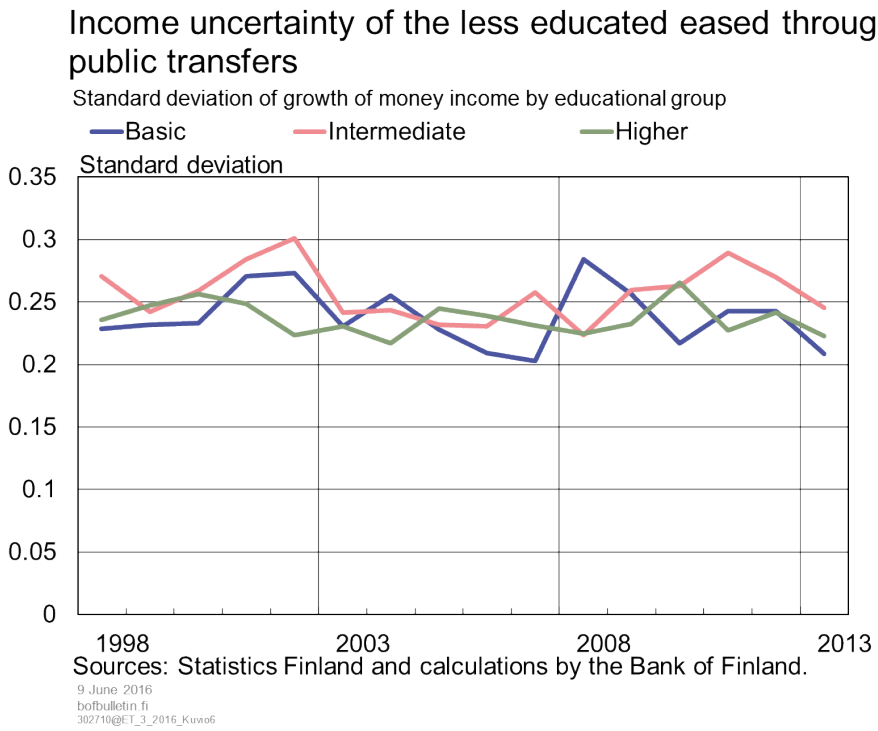


Chart 4.



More stable working careers ease income uncertainty among the highly educated

Previous research has found that the distribution of earnings is typically less wide for the young who are only in the early years of their working career, while differences in income and the income growth rate increase with years at work.[7] Correspondingly, differences in earnings development are generally smaller for the less educated than for the highly educated. For the purpose of exploring the significance of these underlying structural factors, we divided households into groups according to the level of education of the reference person, i.e. basic, intermediate and high level of education.

Dispersion in growth of disposable income has shown a relatively steady development for all levels of education, regardless of whether earned income, cash income or total disposable income is used as the concept of income. However, for Finnish households, earnings growth dispersion, surprisingly, appears to decline with a higher level of education (Chart 5). Earnings dispersion is much greater for those with only a basic education than for the more highly educated groups. The income development of the highly educated has been the most stable. Rather than a more unstable wage and salary development, this may reflect the higher uncertainty surrounding the working careers of the less educated.

Public transfers have clearly levelled out earnings development across different educational groups, as no permanent significant differences in disposable income and cash income are discernible between the groups (Chart 6). In the intermediate educational group, dispersion in cash income, somewhat surprisingly, appears to be slightly higher than in the other groups.

Chart 5.

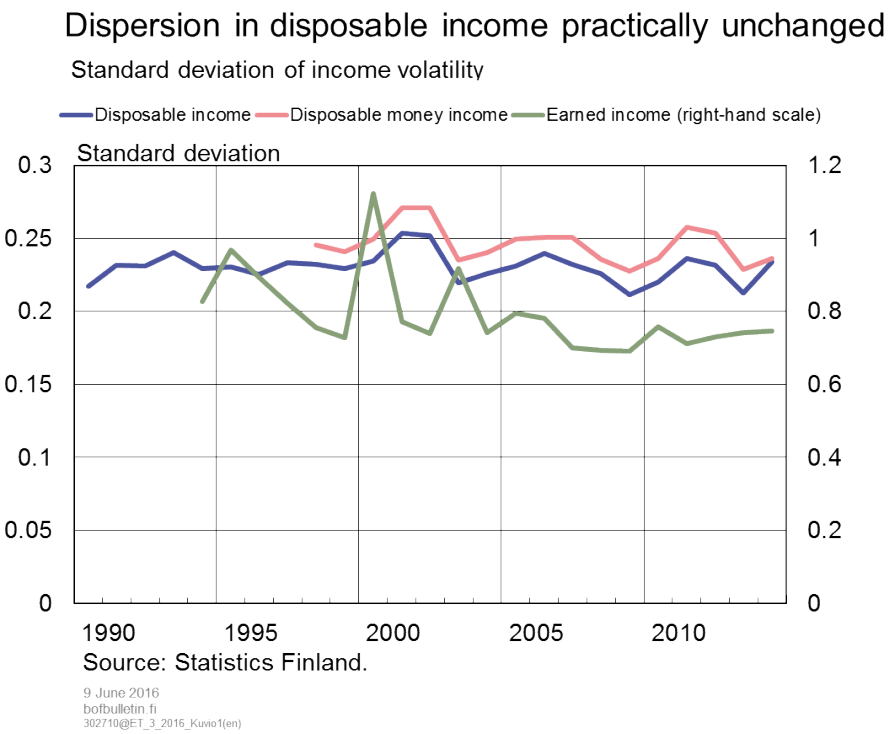
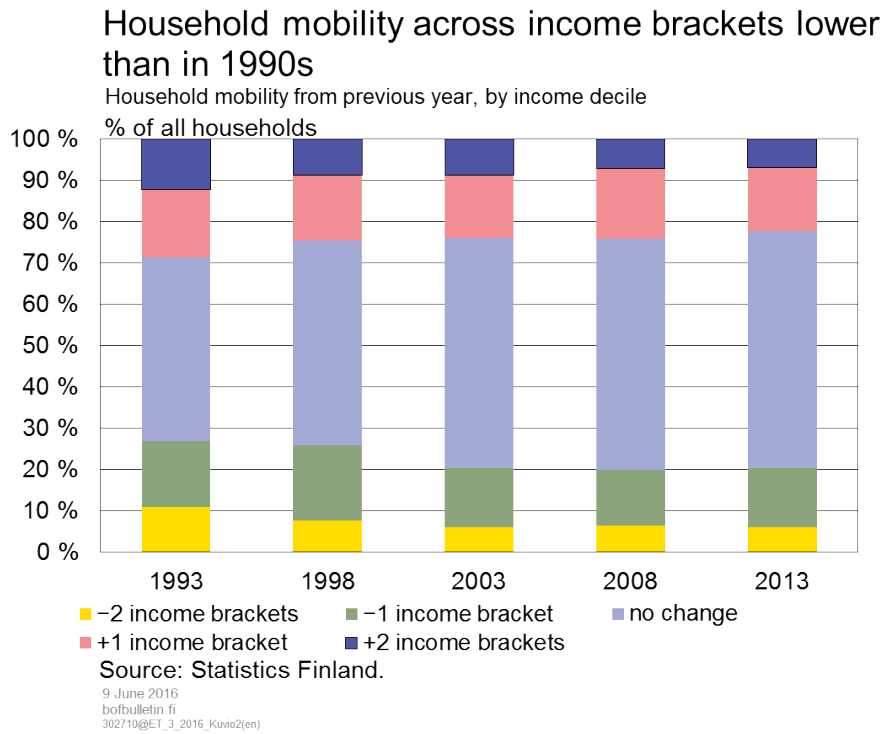


Chart 6.



Only modest compensation for income risk of the self-employed

As well as age and education, occupational status, too, has an impact on income uncertainty. The income development of those relying on public transfers for their living is more easily predictable than that of the employed, while the income uncertainty of employed people, in turn, is lower than that of the self-employed. In some instances – notably in the case of the self-employed – the higher risk associated with income development may be offset by higher average expected earnings. Educational and occupational choices as well as the decision to become self-employed may, in turn, be interpreted as investment decisions, which means that higher expected income uncertainty must be offset by higher expected earnings. On the other hand, better predictability of income may compensate for a low average income.

The development of income uncertainty across social groups has been compared with the development of the income growth rate for the same groups (Chart 7) in 1998–2014. Households have been divided, according to the socio-economic group of the reference person, into upper level employees, lower level employees and manual workers, self-employed people (incl. self-employed farmers) and pensioners. Student and long-term unemployed households fall outside the scope of this study, as do own-account households and unclassified households. The concept

of income used in the study was money income, which in the case of the self-employed also includes income from self-employment other than earned income. The income growth rate of the median household for each socio-economic group, rather than average income growth, is used to represent the income growth rate. In this way the variation in the width of the income distribution within the groups was accounted for; the self-employed, in particular, are a highly heterogeneous group in this respect.

The real earnings of salaried staff and other employees grew fairly steadily over the years 1998–2014, while the dispersion in the level of income remained broadly unchanged. In the reference period, the median earnings of lower level employees and manual workers increased in real terms from just over EUR 31,000 to just under EUR 40,000[8], while those of upper level employees increased from just under EUR 45,000 to EUR 58,000. As expected, the income uncertainty of pensioners was slightly lower than that of the employed, while the income uncertainty of lower level employees and manual workers was higher than that of upper level employees. However, the differences between these groups are small.

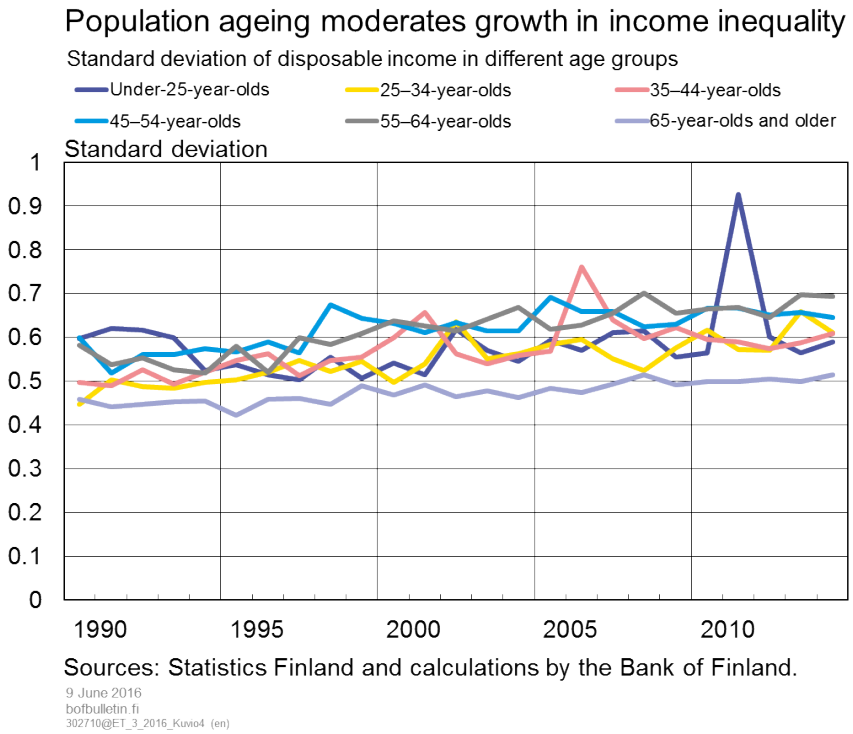
Income uncertainty appears to be much greater for the self-employed than for wage and salary earners and pensioners. Similarly, income growth rates and dispersion in growth have shown stronger variation over time for the self-employed than for wage and salary earners or pensioners in the reference period, which further supports the contention that income uncertainty is higher for the self-employed.

It is noteworthy that there is no clear connection between the higher income uncertainty of the self-employed and higher average income growth. The income of a median self-employed household increased, on average, at the same rate as that of a median employee or manual workerhousehold. A rough analysis indicates that the higher income uncertainty of the self-employed does not appear to have been offset to any major degree by stronger growth in expected income. The higher income uncertainty compared to wage and salary earners may partly reflect the weaker social protection of the self-employed as compared with the other groups analysed.

In previous research, the decision to take up self-employment has been explained by e.g. the higher risk appetite of the self-employed compared with the rest of the population. Alternatively, those planning to become self-employed may underestimate the risks of self-employment or value the independent status or other potential non-pecuniary benefits higher than do wage and salary earners. Some may also have chosen to become self-employed in the absence of other options. The high uncertainty surrounding self-employment may, nevertheless, be one of the explanatory factors underlying the relatively few new businesses created in Finland in recent years see article

'Job creation in firms – does Finland lack gazelles?').[9]

Chart 7.



Public transfers reduce income uncertainty

Rising uncertainty over income development typically reduces the wellbeing of households. While being mainly dependent on cyclical conditions in the short term, in the long term, income uncertainty is related to structural factors such as population ageing and structural factors such as educational and occupational structure. In the present study, differences in income dispersion across households were described by exploring the standard deviation of growth in disposable income, a simple measure for representing growth in income uncertainty.

Measured for the economy as a whole, Finnish households' income uncertainty is broadly in line with the experience of the early years of the 1990s. Despite even major fluctuations in uncertainty in the short term, no clear trend is discernible.

Population ageing has eased income uncertainty in the economy as a whole. Most of the income of those of retirement age consists of public transfers and, consequently, shows a more steady development than that of the working-age population. The increase in the population share of people of retirement age partly obscures the greater income inequality in the working-age cohorts.

Differences in the development of disposable household income have been much smaller than the corresponding earnings growth dispersion. Public transfers to households have significantly moderated income volatility throughout the reference period, 1990–2014.

For people of working age, level of education has a significant impact on earnings growth dispersion between people with the same level of education. Previous research has found that the differences in earnings development are larger for the highly educated than for the less educated. In Finland, earnings dispersion, nevertheless, surprisingly appears to decline with a higher level of education. In the group with basic education only, both earnings dispersion and dispersion in earnings growth are much greater than for more highly educated groups. Those with an academic degree display the steadiest earnings development. This may reflect the higher uncertainty surrounding the working careers of the less educated. However, public transfers appear to efficiently moderate differences between the groups, in that there have been no permanent differences in income uncertainty between the groups as regards disposable income and cash income.

As well as age and education, occupational status also has an impact on income uncertainty. Differences in income uncertainty are small between groups of wage and salary earners and pensioners, while income growth dispersion has been highest for the self-employed, as expected. Average income development has not, however, been faster on average for the self-employed than for wage and salary earners. The high risk of self-employment may, in fact, be a factor discouraging the creation of new businesses in Finland.

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Notes

1. Income uncertainty can also be understood to mean the perceived income uncertainty of households, which is not necessarily dependent on the development of the income distribution. Here, income uncertainty is, nevertheless, used exclusively to refer to the statistically measurable risk to income development. ↑
2. Household is defined consistently with the Income Distribution Survey of Statistics Finland, i.e. a household is formed of all those persons who live together and have meals together or otherwise use their income together. ↑
3. In addition to money income, disposable income includes some imputed items, most importantly the imputed income from owner-occupied housing. ↑
4. Sabelhaus – Song (2010). ↑
5. Dynan – Elmendorf – Sichel (2012). ↑
6. E.g. Van Kerm (2003). ↑
7. See e.g. Sabelhaus & Song (2010). ↑
8. At 2014 prices. ↑
9. The connection between risk aversion and self-employment has been supported by e.g. Cramer & al. (2001) in a study based on US data. Rosen & Willen (2001), however, argue that the self-employed are so greatly rewarded for the risk of self-employment that risk aversion behaviour is not sufficient to explain the decision to become self-employed. According to the results of Hamilton (2000), the income development of the self-employed has been much weaker than that of the employed, explaining the decision to become self-employed with benefits of self-employment not measurable in monetary terms. ↑

Keywords

households, income development, income uncertainty