Chief economist's comment

Is inequality worse than it seems?

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- Nominal income inequality has risen in most major economies in the past 20 years.
- The rise in nominal income inequality has been made worse by the fact that lower-income households generally face a higher inflation rate than higher-income households.
- Older people also generally face a higher inflation rate than younger people (this also implies that women face a higher inflation rate than men over their lifetimes).
- Inflation inequality has clear social implications. It also matters for investors. Saving to achieve a standard of living in retirement is more difficult than might have been supposed. Investing to finance philanthropy may be more complicated than supposed.
- Conventional inflation protection in the form of inflation-linked government bonds may not, in fact, offer complete protection against the inflation rate an investor really faces.

Why inequality is worse than it seems

The rise of income inequality over the past couple of decades is well documented. Things are worse than they seem, however. The widening divide in living standards is more significant than is implied by income alone. Alongside income inequality, almost every major economy has experienced inflation inequality. The inflation rates faced by lower-income and older people are higher than average. In inflation terms, it is best to be young and rich if you can manage it.

Inflation inequality arises because inflation is a plutocratic statistic. The decision on what makes up an "average" consumption basket is broadly based on average spending. However, average spending is based on "one dollar, one vote" rather than the democratic "one person, one vote." The more an individual spends on a product, the higher the weighting of that product in an average basket, and the more influence that product has over average consumer price inflation. This means that headline inflation typically represents the spending habits of someone in the top third of the population.

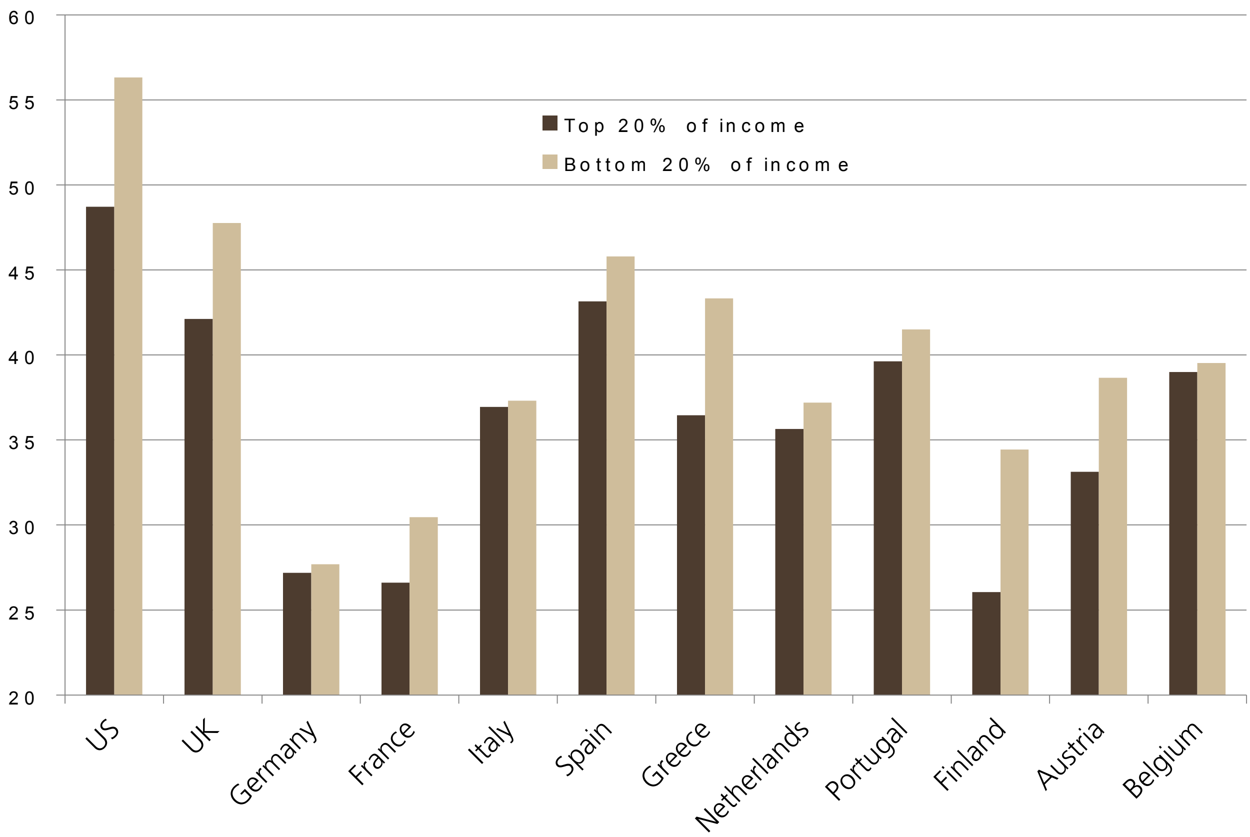
Consumer spending is easily broken down into 40 or 50 categories, which can be used to reweight the consumer price inflation measure. This is not as precise as the official headline consumer price data, but the reweighted indexes are indicative of inflation inequality across income and age groups.

Why people misunderstand inflation
There are two reasons why middle- and higher-income people may believe that their inflation rates must be higher than they are. Middle- and higher-income people will spend more of their income acquiring assets; generally, lower-income people will not. Asset prices have risen faster than average consumer price inflation in the years since the global financial crisis. However, asset prices have absolutely no place in calculating inflation. Asset prices represent the value of the income that an asset will generate in the future. Ownership of assets increases future spending power. Inflation reduces future spending power. Asset prices are the exact opposite of what inflation is trying to measure.

In addition, perhaps almost everyone (other than economists) believes that their inflation is higher than it is. This is because of two behavioral economic concepts. The first of these is frequency bias. People remember the price of things like food, or school fees, purchased frequently or regularly. People do not remember the price of the television they bought three years ago. If goods and services purchased frequently are rising in price, people will overemphasize those prices in their mental calculation of inflation. The second behavioral trait is loss aversion. People dislike losing something roughly three times as much as they like gaining something. That means humans are genetically programmed to regard a price increase (a loss of living standards) as being three times as important as an equivalent price drop.

Inflation inequality by income

Low-income group's inflation exceeds high-income group's inflation
Cumulative percentage change in inflation since 2000



Source: UBS calculations, as of 21 June 2017

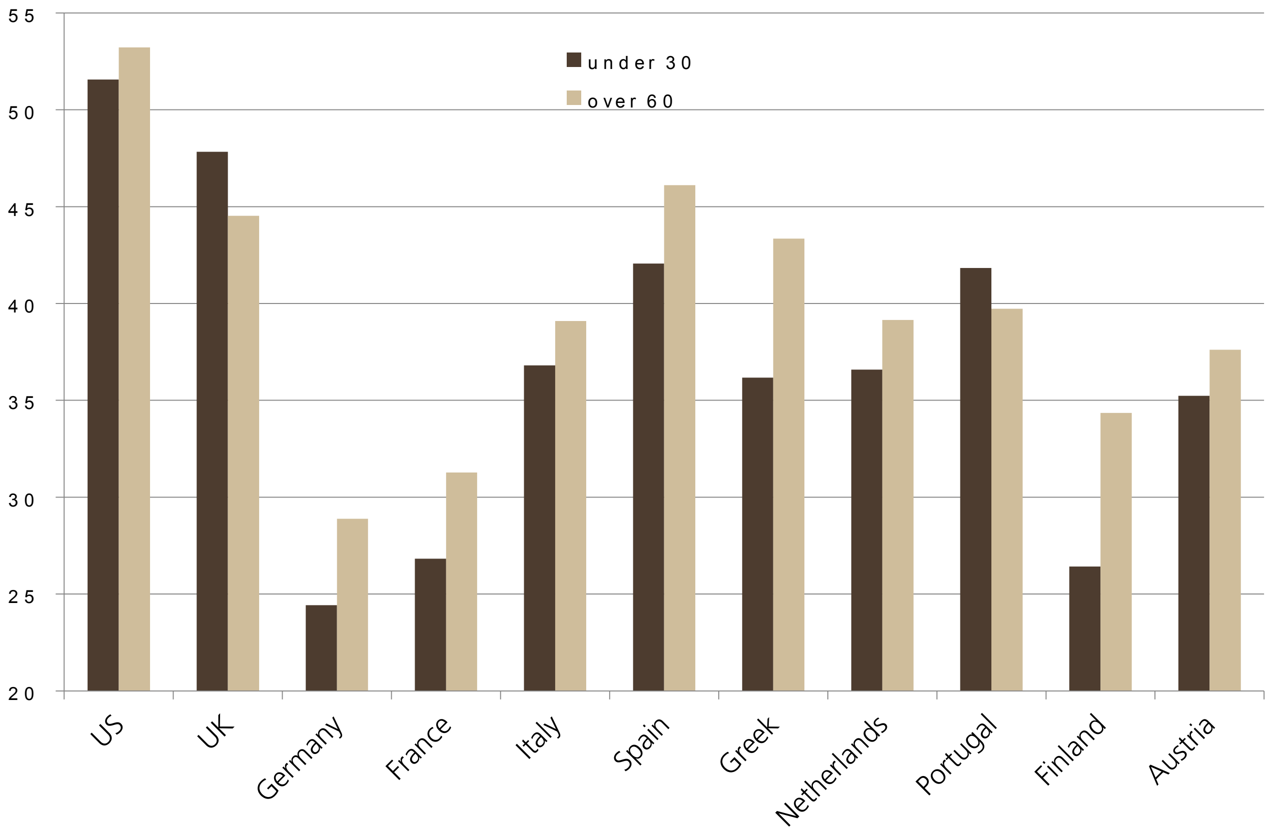
Since 2000, the cumulative inflation rate faced by low-income groups has exceeded the inflation rate faced by high-income groups in most economies. This is mainly because low-income consumers spend more of their income on food, energy (for the home), and housing. Food, energy, and housing have tended to have higher inflation. In the case of the UK and Europe, post-crisis increases in value-added taxes have constrained inflation inequality (because VAT is rarely levied on food).

Countries with significant inflation inequality have also tended to have successful anti-establishment political movements. The divergence of living standards is made worse by inflation inequality; realization of this may fuel anti-establishment politics.

Countries with significant *income* inequality are more likely to experience *inflation* inequality. If there is significant income inequality, then there is likely to be a larger difference in the composition of a high-income consumer basket and a low-income consumer basket. This will encourage inflation inequality.

Inflation inequality by age

Older group's inflation exceeds younger group's inflation
Cumulative percentage change in inflation since 2000



Source: UBS calculations, as of 21 June 2017. US data compares over-65-year-old with under-25-year-old groups

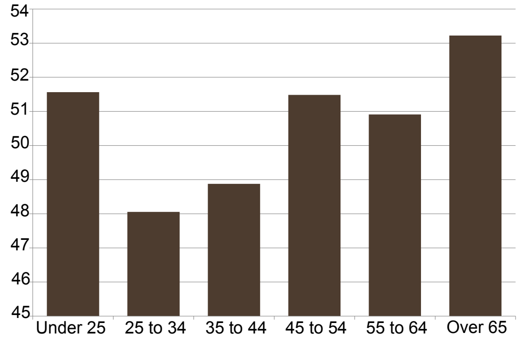
Inflation inequality by age groups has tended to benefit younger people and hurt the living standards of older people. The cost of healthcare is the main driver of this (socialized healthcare in the United Kingdom helps explain why inflation inequality is reversed in the country).

US inflation inequality by age is less dramatic because younger people have faced very rapid inflation of education prices (not a form of inflation that tends to affect older people). The complete age profile of US inflation indicates this.

Inflation data is based on the spending habits of households, not of individuals. This means that gender-based inflation is not easy to calculate. The fact that women tend to outlive men implies that women will face higher average lifetime inflation than will men, as a result of inflation inequality by age.

US inflation by age cohort

Cumulative percentage increase since 2000



Source: UBS calculations, as of 21 June 2017

What does inflation inequality mean?

- Inequality in living standards is generally greater than suggested income inequality alone.
- Inflation-generated differences in standards of living may encourage anti-establishment politics.
- While inflation-linked securities will offer some compensation for inflation inequality (as income- and age-specific inflation rates are correlated with average inflation), investing in inflation-linked securities may not guarantee a stable standard of living for retirement.
- Philanthropic investors may need to consider how best to hedge inflation risks to maintain their real impact over time. The inflation rate faced by an education charity (for instance) is very unlikely to match overall inflation.

Appendix

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