

Drawing the Poverty Line

For a tourist arriving in Edinburgh on a drizzly August eve, the Scottish capital appears like a romantic postcard of rugged castles and wet cobble lanes.

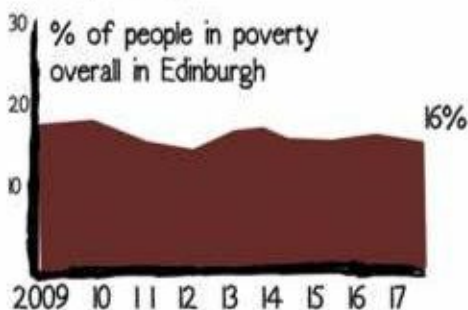
But for a sixth of its population, days are rainy in more than a literal sense.



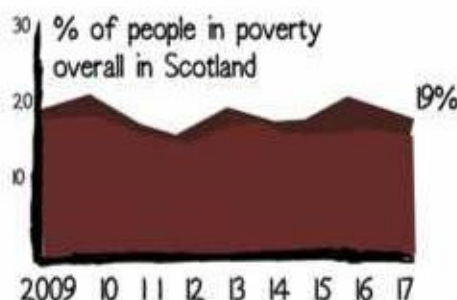
Around **82,250** people live below the poverty line - enough to reach Glasgow 70km away if they formed a line by holding hands.



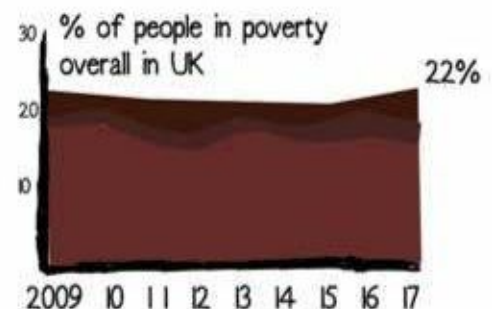
For the last decade, this poverty rate has remained virtually unchanged, hovering around 16%.



This is only slightly better than the poverty rate in Scotland overall, which in 2017 reached 19%.



... which itself is lower than the overall UK rate at around 22%.



But wait, surely a sixth of Edinburgh isn't threatened by starvation? Hasn't poverty been all but eliminated in the UK?

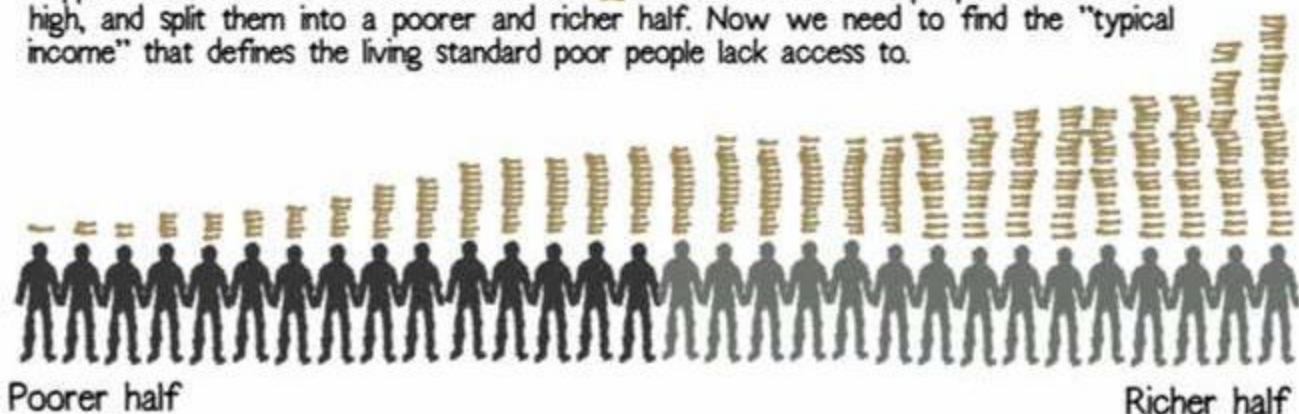
What is the "poverty line"?

These numbers are based on a "poverty line" defined by statisticians. It doesn't measure access to basic necessities, but rather **"relative poverty"** - the ability to afford what society offers and expects from us.

This is because if we cannot afford the things a "typical" member of our society has, we may become socially excluded from it.

Relative poverty puts both our mental, physical and societal well-being at risk. To analyse it, we need to think carefully about how it is defined and measured.

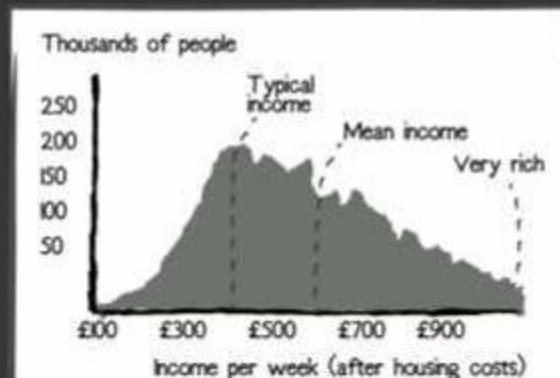
Suppose we base our measure on income. We can then sort people from low to high, and split them into a poorer and richer half. Now we need to find the "typical income" that defines the living standard poor people lack access to.



The mean average appears like a natural choice but if we look at the Scottish income distribution, we find that it is skewed. Much of the total wealth is owned by a few very rich people.

The rich drive up the mean far above what the typical income is. Therefore, statisticians instead let the median represent the average.

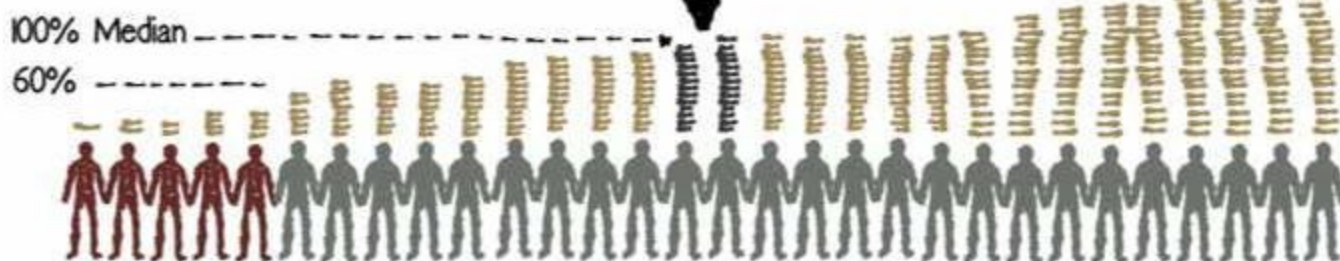
While the mean is the mid-point that splits the total amount of income into equal halves...



... the median splits the population into equal halves, even though above-median people have a much higher income in total.



It wouldn't be reasonable to classify the entire bottom half as poor, but knowing the median income we can define the poverty line in relation to it. Relative poverty is commonly defined as having an income that is below 60% of the national median.



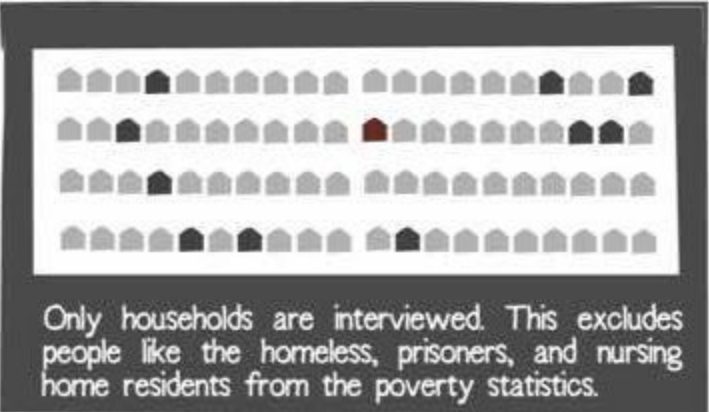
In Edinburgh, around 16% of the population (or 82,250) earn less than 60% of the UK median.

Relative poverty doesn't mean that poverty will always exist, irrespective of how prosperous a country becomes. In theory, if everyone earned more than 60% of the middle person's income, nobody would have to live in relative poverty.

How is income measured?

Let's have a closer look at how poverty is measured by inspecting how income was measured in the first place.

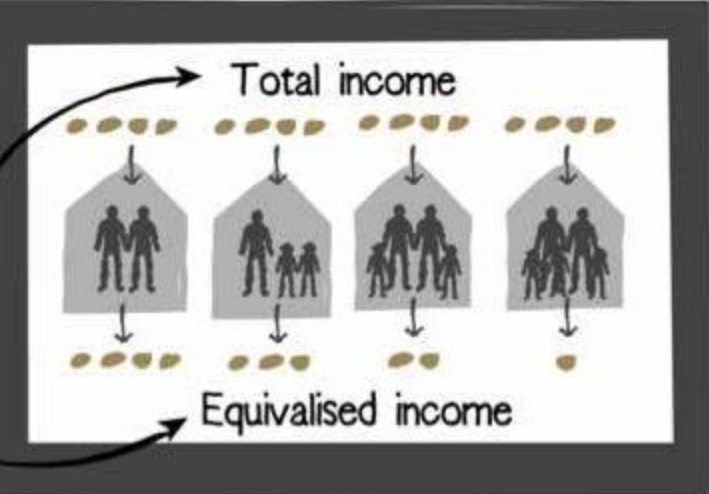
Because the state does not store all income data centrally, it has to do this through surveys. For example, the Family Resource Survey samples around 3200 randomised Scottish households.



An income measure by itself does not take into account that family compositions vary in their expenses. A single student may survive on £291 per week, but a family of four would struggle.

To account for this, statisticians divide the **total income** with a number that represents the family composition. The bigger the necessary expenses, the bigger the number.

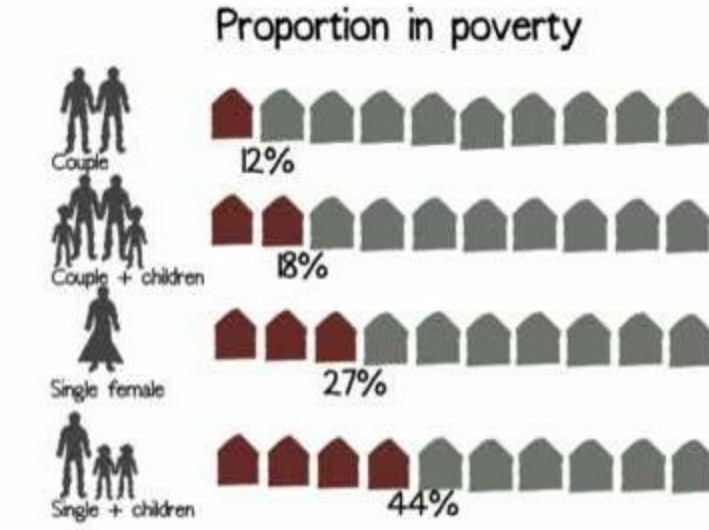
The result, called **equivalised income**, is what goes into the distribution calculations.



Does poverty depend on family composition?

Then again, although a family of four may have higher expenses, they also may have a higher income, such as multiple children grants. Does this cancel out the risk for poverty among families that resulted from equalisation?

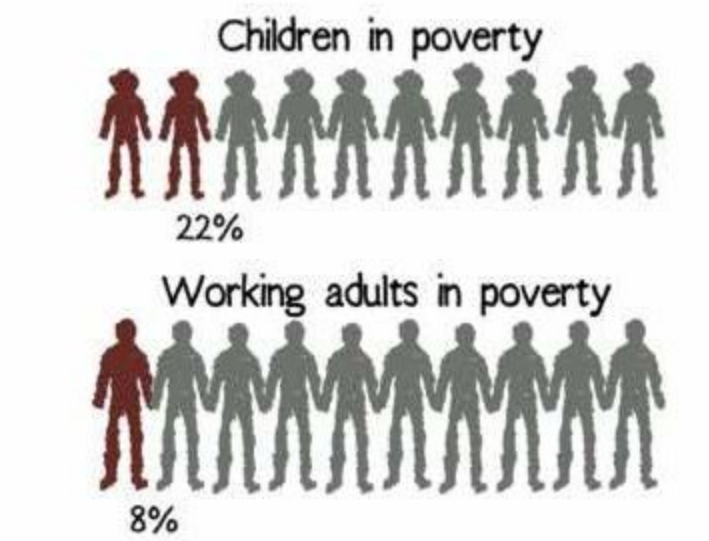
No. The poverty rate among a single adult with children is almost 4 times that among a couples.



Can children be poor if they have no income?

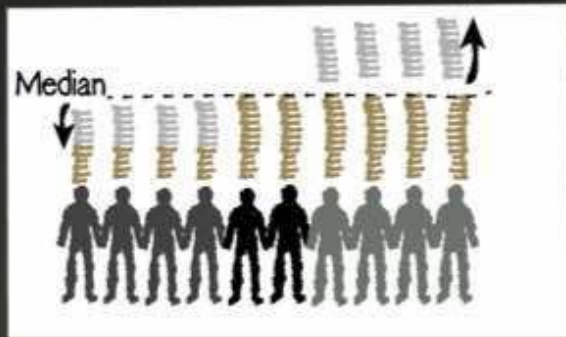
What does this say about child poverty? A child is defined as poor if the household they live in is poor. Does this mean more children are poor than adults?

Yes. Child poverty has had a consistently higher rate than in-work adults and is now at 22% in Edinburgh, compared with 8% among in-work adults.

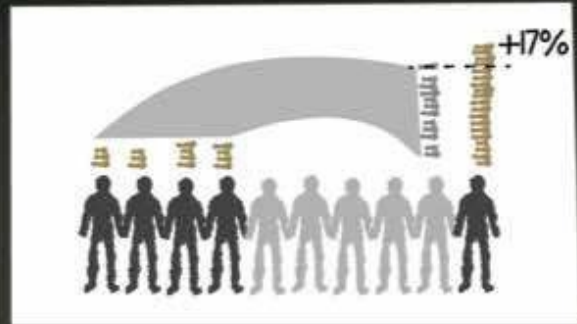


What does relative poverty mean for inequality?

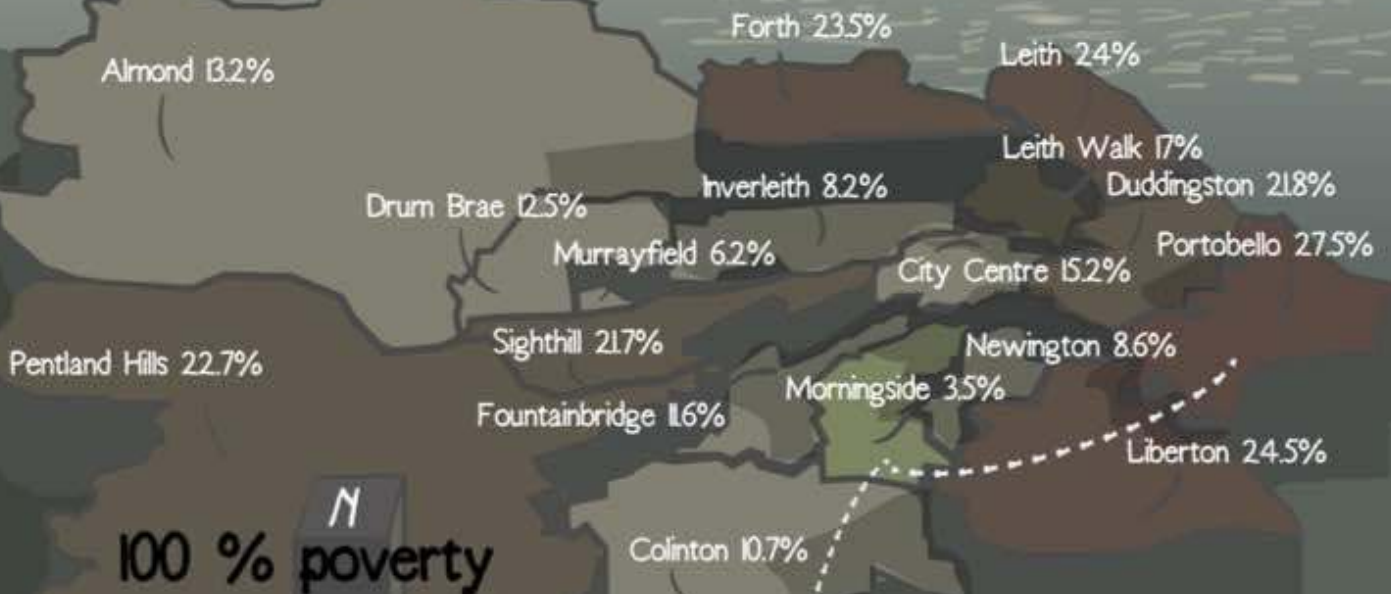
By itself, the median doesn't tell us much in terms of inequality. If the middle values stay the same, the median won't change no matter how much richer the rich get, or poorer the poor get.



But when we divide the Edinburgh population into ten equal parts instead of just two, we find that the top 10% earn 17% more than the lowest 40% combined. This has worsened in the last few years.



The inequality is seen most starkly when poverty rates are shown for each Edinburgh ward. Poverty is lower near the centre, and highest along the north eastern coast.



For example, in Morningside poverty is as low as 3.5% while around Portobello they spike at 27.5%. These are districts only a 30 minute stroll away from each other!

Can poverty based on income be misleading?

Besides, how informative is income as a measure if what we are really after is whether a person is relatively deprived?



If a family is supported by relatives, their living standard may be decent despite the income being low.



And if a person above the poverty line supports others financially, it could result in deprivation despite the income.



To measure deprivation more directly, the Scottish government also asks people whether they can afford 21 goods or services deemed necessary for a comfortable life.

If a family checks more than three of the following boxes, they are considered "materially deprived".

As an adult, I don't have money to:

- ☐ save money regularly
- ☐ replace electrical goods
- ☐ make regular pension payments
- ☐ get proper dental treatment
- ☐ decorate home decently
- ☐ take part in exercise activities
- ☐ buy job interview clothes
- ☐ buy home contents insurance
- ☐ ensure a damp free home
- ☐ pay unexpected expenses (£500)

The data show that many are materially deprived without being classified as poor based on low income, and vice versa.



"I've got to go to the library because we don't have a computer at home and I've had to hand in homework late or rush it"

"When the kids are in school I don't use my heating and save it for them coming home."

Even in a modern welfare state like Scotland, there are people deprived of basic necessities.

In supermarkets it is not uncommon to find collection points for food bank donations.

You have probably seen people sleep rough on Old Town streets, or beg for money in the shopping district.



In 2017, an Edinburgh food bank handed out more than **9000** emergency kits.



In 2017, more than **3100** people submitted homelessness applications in Edinburgh.

What can we do to reduce poverty in Edinburgh?

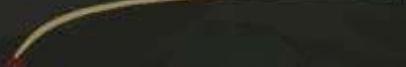
In addition to short-term redistribution of money like donations to food banks and beggars...



... we need mid-term solutions like an effective benefit system...



... and long-term initiatives at the level of policy-makers.



For this reason, Edinburgh City Council is starting a new poverty commission. It will run for a year to bring together representatives from charities, the NHS, businesses, government and citizens who have personally experienced poverty.

When it comes to poverty, it is time to draw the line.

The artwork and design of the graphics are copyright of the University of Edinburgh 2018. They are the output of the "Data Comics" project (www.datacomics.net), drawn by Lovisa Sundin (www.menimagerie.com), funded through an EFi Research Award given to Benjamin Bach, Catherine Magill, Ewan Klein, and Dave Murray-Rust, University of Edinburgh.