A NEW POVERTY BENCHMARK FOR BASIC INCOME SCHEMES
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ABSTRACT

The official EU poverty benchmark, defined as 0.6 median household equivalised income, (with two versions – Before and After Housing Costs have been deducted), is inappropriate for BI schemes on four counts.

➢ It is based on the median, rather than the mean; the latter is a better measure of prosperity of society.
➢ It is based on net disposable income, rather than gross income. For BI, it is important to know who is at risk of poverty by looking at gross, rather than net, income
➢ It is based on the household, even though equivalised, rather than the individual.
➢ In the UK, the EU official poverty benchmark figures are published more than a year after the end of the fiscal year in which the data were collected, and there is a two-year gap between the end of that fiscal year and the beginning of the fiscal year to which the information can be applied as a base for a Basic Income (BI) scheme.

An alternative is proposed here: based on mean gross individual income, using 0.5 for a full BI Before Housing Costs have been deducted (BHC), or 0.4 of the mean for a full BI After Housing Costs have been deducted (AHC). The EU benchmark and the proposed measure are compared for the UK.

Each country is different, depending, for instance, on whether welfare services such as education and health are provided universally, or whether they have to be obtained privately, and on the extent of variations in the national housing market and on childcare provision. A debate, comparing the official EU benchmark and the one proposed here for different member states, would be welcome to see whether a consensus arises for change to a new benchmark.

Note. The material for this article was developed in (Miller, 2017: chap 10)

Measures of Prosperity in Society

Gross Domestic Product (GDP) measures the output / income / expenditure of a country in a given year. Although widely cited, it is a flawed standard and the flaws are usually listed in any introductory textbook. The flaws include the fact that GDP excludes the value of unpaid care and other domestic work contributed mainly by women, and the volunteer work, given by all ages and both sexes, that underpins the whole of the monetary economy. Another flaw is that GDP includes the cost of making good the bad outcomes of the economy, treating them as another good, rather than deducting them as a cost to society. However, GDP per person can be a useful measure of living standards.

An alternative measure of living standards is 'mean gross income per head', which contains the same flaws cited above. It measures the gross personal income that passes through wallets and purses of the inhabitants each year. This is then divided by the mid-year estimate of population for the country. The mean gross income per head is called here **Y-BAR**, (pronounced 'why-bar').

Both GDP per person and mean gross income per head reflect the prosperity of society in different ways.

Table 1 Measures of prosperity in the UK.

	GDP per person	Y-BAR	Y-BAR/GDP pc
2014	£28,120 pa, £539.29 pw	£20,560 pa, £394.30 pw	73.12%
2015	£28,714 pa, £550.68 pw	£21,477 pa, £411.89 pw	74.80%

Sources of Data:
United Kingdom National Accounts, The Blue Book: Tables 1.5, series, IHXT and Table 6.1.3, series QWMF, 'Total Resources of Households and Non-Profit Institutions Serving Households'.
Office of National Statistics (ONS), Mid-Year Estimates of Population

The difference between the two measures is the income that is paid directly to government without going through people's pockets or bank accounts, of which the largest component is 'Taxes on production and imports, less subsidies' (Compare *The Blue Book*, tables 1.2 and 6.1.3). Y-BAR used to be about 80% of GDP per person, but in recent years has slipped to about 74%.

It is claimed here that Y-BAR is:
➤ a better measure of the prosperity of society than *median* income;
➤ easier to relate to one's *own income* than GDP per person;
➤ a preferable basis for allocating BIs than our official EU poverty benchmark based on current median *equivalised net household income*; and
➤ it is useful when relating the levels of BI to *income tax rates*.

The EU's official poverty threshold and equivalisation.

The EU's official measure of poverty, '0.6 of median equivalised household income' for a nation's population (DWP, 2015: 11, section 1.2), is an example of an arbitrary benchmark, but it would appear to bear some relationship to the prosperity of the nation, and has some authority having been agreed across the EU. It is an important benchmark, incorporated into UK legislation in the Child Poverty Act 2010 (DWP, 2015: 19).

Equivalisation is the process of adjusting household incomes according to the size and composition of a household, usually taking an adult couple without children as the reference point (DWP, 2015, 12-13). Weighting systems vary in the differentiations that they make between members of the household, (first adult, spouse, other second adult, third adult, subsequent adults, children aged 14 years

and over, and children aged under 14 years), and the weights that are applied (DWP, 2015: 13, Table 3). The distribution of weights among the members of the household reveal the different assumptions, perceptions or prescriptions made by those allocating them, about the relative material living standards of the household members for the consumption of goods and services. In other words, no weighting system can be anything other than subjective. The intention of attaching weights is to enable comparisons to be made of the incomes of households of different composition. The actual household income is divided by the sum of the current weights for the members of the household to arrive at a comparable household income level for each size and composition of household. 'The process … increases relatively the income of single person households (since their incomes are divided by a value of less than one) and reduces relatively the incomes of households with three or more persons, which have an equivalence value of greater than one' (DWP, 2015: 12).

The official benchmark used to be 0.5 of *mean* income, and it is roughly equivalent to the 0.6 of *median* income benchmark, as illustrated in Table 1 below. The Department for Work and Pensions (DWP) publishes figures for the EU official poverty threshold for the UK in its annual publication, '*Households Below Average Income*' (HBAI) (DWP, 2016). It gives both the mean and the median equivalised household income for the UK, using data for net disposable weekly household income from the Family Resources Survey. The current equivalisation process for households Before Housing Costs are deducted (BHC) uses a standard weighting of 0.67 for the first adult in the household, 0.33 for every additional adult and each child aged 14 years and over, and 0.20 for each child under 14 years. A different set of weights is used for After Housing Costs have been deducted (AHC), such that the first adult receives a weight of 0.58; it is 0.42 for all other adults and children aged 14 years and over, and 0.20 for children aged under 14 years.

Table 2. EU official poverty benchmark: Income Before Housing Costs (HBC) and Income After Housing Costs (AHC) for 2014-15.

2014-15		Poverty benchmark		Proportion of household income		
£ pw		0.5 for couple		First adult	Second	Child < 14
Mean income BHC	£581	£290.50		£194.64	£95.87	£58.10
Proportions	*1.00*	*0.5*		*0.5 x 0.67*	*0.5 x 0.33*	*0.5 x 0.2*
Mean income AHC	£504	£252.00		£146.16	£105.84	£50.40
Proportions	*1.00*	*0.5*		*0.5 x 0.58*	*0.5 x 0.42*	*0.5 x 0.2*
		0.6 for couple				
Median income BHC	£473	£283.80		£190.15	£93.65	£56.76
Proportions	*1.00*	*0.6*		*0.6 x 0.67*	*0.6 x 0.33*	*0.6 x 0.2*
Median income AHC	£404	£242.40		£140.59	£101.81	£48.48
Proportions	*1.00*	*0.6*		*0.6 x 0.58*	*0.6 x 0.42*	*0.6 x 0.2*

Source: HBAI report: 2016 edition.

None of the measures is perfect, and this poverty benchmark has four obvious drawbacks. It is based on the median, net disposable income, for a household, and

the figures for the UK are published relatively late for use as a benchmark for setting the levels of BI.

a) The *median* was welcomed because the large variations in high incomes could be ignored. It is not clear why this was considered to be an advantage to anyone other than high-income people.   If the population was very markedly divided into a majority on very low incomes and a minority of very wealthy people, it could skew the outcome. A very contrived example will illustrate this. Suppose that 70 per cent of the population has an income of 10 units each, and the other three deciles have average incomes of 80, 100 and 150 units each, giving a total income of a multiple of 400 units. In this example, the median income is 10 units, and 0.6 of the median would be 6 units, therefore no one is in poverty. However, the mean is 40 units, and 0.5 of the mean is 20 units, and therefore 70 per cent of the country is in poverty. The income of the top three deciles could double, and while the median would remain the same, the mean would rise to 73 units. In other words, the median does not necessarily represent the prosperity of society. This suggests that the mean is the more appropriate measure of central tendency - unless the use of the median is intended to mask the levels of poverty in extremely unequal societies.

b) The income measure used is weekly *net (disposable)* equivalised household income from all sources after income tax, national insurance and other deductions (DWP, 2015:141). Elsewhere it is implied that benefit receipt has also been taken into account. The result indicates the prosperity of households after some redistributive measures have taken place, and some further marginal changes are being considered. But sometimes it is important to know the distribution of *gross (pre-tax and benefits) income*, to be able to identify who is most at risk of poverty before taxes are levied and benefits are administered.

c) The EU poverty threshold is based on *equivalised household* income. The couple household without children used as the standard, but BIs are based on the individual. That of an individual living on his/her own would be 0.6 x 0.58 = 0.348 of the AHC measure. 'HBAI assumes that all individuals in the household benefit equally from the combined income of the household. Thus, all members of any one household will appear at the same point in the income distribution' (DWP, 2015:12). This is a heroic assumption that clearly is unsafe. Household measures of income ignore and mask intra-household inequality. It would be far more instructive if the population of individual men, women and children were laid out in order of income.

The distribution of the *gross income of the individual*, including all who have no source of gross income, would give a much more accurate picture of the actual distribution of income in the population. This information is not collected in the UK. Individual incomes are collected only for taxpayers, who by definition comprise the wealthier section of the population.

d) The information for the UK is published (eg in June 2016) more than a year after the period to which the data refer (fiscal year, 6 April 2014 – 5 April 2015), and when used as a poverty benchmark, it will be applied nearly a year later (fiscal year 2017-18). Thus, there are considerable delays before it can be applied. This can be a problem during periods of high or accelerating inflation.

Note: average *earnings* are even more difficult to calculate than average *income* – who comprises the population, does earnings include overtime, and the earnings of part-time workers, seasonal workers, unemployed workers, and domestic workers, etc?

The distribution of income in the UK, 2014-15

Table 3. Non-taxpayers and income tax payers by age in the UK, 2014-15

AGE	Non-taxpayers 000s	Taxpayers 000s	Total in each age group 000s	Proportions of total population 2014
Basic rate taxpayers, @ 20%				
Aged 0-15	12,153	0	12,153,462	0.1881
Aged 16-64	16.620	24,430	41,049,578	0.6355
Aged 65 or over	5,324	6,070	11,393,760	0.1764
TOTAL at basic rate	34,097	30,500	64,596,800	1.0000
Of which higher rate taxpayers, @ 40%		4,430		0.0686
Of which additional rate taxpayers, @ 45%,		329		0.0051

Sources: Office of National Statistics (ONS): population, mid-year estimates
          Her Majesty's Revenue and Customs (HMRC), Table 2.1

The population of the UK in 2014 was 64,596,800 (ONS).
Income tax is based on the individual.
In fiscal year 2014-15:
  ➢ the Personal Allowance of income tax-free income in 2014-15 was £10,000, (£192 pw).
  ➢ the basic rate of income tax was 20%
  ➢ the higher rate of income tax was 40%, which was charged on gross incomes of £41,866 and over.
  ➢ the additional rate of income tax was 45%, which was charged on gross incomes of £150,001 and over.

The population of children aged 0-15 inclusive was 12,153,462. The few of these who will have had income in his/her own right will have been treated in the same way as an adult for income tax. A negligible number will have had any significant level of income. Thus effectively 18.81% of the population of individuals has zero income. The population aged 65 or over, (11,393,760) represents 17.64% of the population

The number of people paying income tax in the UK in 2014-15 with a gross income greater than the Personal Allowance of £10,000 was 30.5m. This was 47.22% of the population. Of these, 4.43m (6.86%) paid the higher rate of income tax, indicating that they had gross incomes greater than £41,865 In 2014-15.   Of these 329,000

(0.51%) paid the additional rate of income tax, indicating that they had a gross income of £150,001 or over.

Some 34.1m individuals (52.78% of the population) had an income less than £10,000, and therefore did not pay income tax, of whom 12.2m (18.81%) were dependent children with zero income, 5.3m were OAPs and 16.6m were working-age adults. The median for the distribution of individuals would be slightly below the Personal Allowance, £10,000 (£192 pw), and 0.6 of this median would be slightly less than £6,000 (£115 pw). For a couple household, it would be slightly less than £384 pw and £230 pw respectively.

Mean income for the UK in 2014 was £20,560 pa, (£394.30 pw), and roughly 30% of the population in the UK has an income greater than the mean income.

Table 4. Estimated distribution of gross income of individuals in the UK, 2014-15

Gross income range, £	0 (children)	0- 10,000	10,001- 20560	20,561- 4,865	41,866- 150,000	150,001+	Total
Population of individuals, m	12.153	21.944	11.131	14.939	4.101	0.329	64.597
Proportions of population	0.1881	0.3397	0.1722	0.2314	0.0635	0.0051	1.0000
Accumulated distribution	0.1881	0.5278	0.7000	0.9314	0.9949	1.0000	1.0000

Source: HMRC, Table 2.1

53% of the population had gross incomes of less than £10,000.
70% of the population had gross incomes of less than £20,560.

41.8% of all 52.443m adults had gross income of less than £10,000
21.2% of all 52.443m adults had gross income between £10-20,560. Clearly, this is the middle-income sector of the population.
63.0% of all 52.443m adults had gross income of less than the mean £20,560.

37.0% of all 52.443m adults had gross income greater than £20,560, including
  7.0% who had gross income greater than £41,865, including
  0.5% who had gross income greater than £150,000.

An alternative poverty benchmark

The official EU poverty benchmark is defined as '0.6 of median equivalised household income'. As noted above, this benchmark has four drawbacks:
   ➢ It is based on the median rather than the mean.
   ➢ It uses net disposable weekly income, rather than gross income.
   ➢ It is based on household income, rather than that of the individual.

➢ In the UK, two whole years elapse between the period in which the HBAI information was collected, eg 2014-15, and the fiscal year for which it is required, 2017-18. This means that, by the time the information is available, it is already out of date for the purpose for which it is required. This is less of an issue when inflation is low and stable, but could be a problem if inflation is high and/or accelerating.

It was suggested above that the easily accessible measure, Y-BAR, the mean gross income of individuals, (ie BHC), might be a more appropriate basis for the poverty benchmark. Thus, an alternative BHC poverty benchmark akin to the older version of the EU benchmark is '0.5 of mean gross income of individuals' that can be measured by 0.5 of Y-BAR.

[Table 5 near here]

How well do the mean income figures match up, ie Y-BAR in row 2 of Table 5 below, and the mean income BHC for the first adult in row 5? The 0.5 figures are given in rows 3 and 6. The figures are relatively close, and are definitely of the same order of magnitude.

However, given the chaotic state of the UK housing market, it would not be possible to include a housing cost element in the BI. An AHC version is required.

The ratio of the AHC means to BHC means (rows 7 and 4) varies between 0.864 and 0.869 in Table 5. The ratio of AHC to BHC medians (rows 13 and 10) varies between 0.850 and 0.859. These figures imply that very small proportions of income are allocated for housing costs, compared with how these have become such a large element in people's budgets. It is proposed here that the ratio of AHC to BHC should be at 0.8. Thus the AHC poverty benchmark would be 0.4 of Y-BAR. This figure can be seen in row 3. It is slightly higher than the current AHC poverty threshold (row 15), although curiously, and quite spuriously, the figures in row 3 for 2010-12 appear to predict the figures in row 15 for 2012-13 to 2014-15 by 15 months.

Table 5 Comparison of mean and median figures for the UK, 2010 to 2014

Row	UK £ pw	Calendar year 2010	2011	2012	2013	2014
1	GDP per person	451	464	471	513	539
2*	Mean gross income (BHC) of individuals, **Y-BAR**	332	337	348	379	394
3 § +	0.5 of Y-BAR	166	169	174	190	197
	0.4	133	135	139	152	158
	0.375	125	126	131	142	148
	0.32	106	108	111	121	126
	0.25	83	84	87	95	99
	0.16	53	54	56	61	63
	Equivalised household incomes: Fiscal year	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
	Mean BHC					
4	*Mean* net disposable income of couple households, *BHC*	511	528	535	561	581
5*	1st adult allocated 0.67 of mean HH income, *BHC*	342	352	358	376	389
6 §	*BHC* poverty threshold = 0.5 x 0.67 of mean HH income.	171	176	179	188	195
	Mean AHC					
7	*Mean* net disposable income of couple households, *AHC*	443	459	462	487	504
8	1st adult allocated 0.67 of mean HH income, *AHC*	297	308	310	326	338
9	*AHC* poverty threshold = 0.5 x 0.67 of mean HH income	148	154	155	163	169
	Median BHC					
10	*Median* net disposable income of couple households, *BHC*	419	427	440	453	473
11	1st adult allocated 0.58 of median HH income *BHC*	243	248	255	263	274
12	*BHC* poverty threshold = 0.6 x 0.58 of median HH income	146	149	153	158	165
	Median AHC					
13	*Median* net disposable income of couple household *AHC*	359	367	374	386	404
14	1st adult allocated 0.58 of median HH income *AHC*	208	213	217	224	234
15+	*AHC* poverty threshold = 0.6 x 0.58 of median HH income	125	128	130	134	141

DWP, *Households Below Average Incomes*,
- ➢ editions 2012 and 2013, Chart 2.1;
- ➢ editions 2014 and 2015, Chart 1;
- ➢ edition 2016, Figure 2.1, 'Income distribution for the total population (BHC) and (AHC)', and Table 2.1 for the mean AHC.

Table 6 The proposed poverty benchmarks for BI purposes

	Proportion of Y-BAR		Proportion of GDP per cap	
	BHC	AHC	BHC	AHC
Pension BI and full BI for working age (aged 16-64)	0.50	0.40	0.375	0.30
Partial BI = 0.8 of full BI (aged 16-64)	0.40	0.32	0.30	0.24
Child BI (aged 0-15)	0.20	0.16	0.15	0.12
Premium for boy or girl aged (14-15)	0.10	0.08	0.075	0.06
Premium for Parent with Care of dependent child (aged 0-15)	0.10	0.08	0.075	0.06

The figure for Y-BAR for a given calendar year, eg 2015, that becomes available the following year, 2016, provides the benchmark for the fiscal year starting in the next year, 2017-18. Thus another important advantage of using Y-BAR as the benchmark is that there would be only a 15-month gap between the end of the calendar year to which it refers and the fiscal year to which it is applied, compared with two whole years for the HBAI data.

It might be thought that GDP per head would be a better benchmark. The data could be more easily accessed for many countries around the world, or even in some parts of the EU. The EU official poverty benchmark is based on an income measure. Certainly, if the BIs are to be financed out of income tax, then an income measure is more closely related to the levels of the BIs.

GDP per person could be more relevant if the BIs were to be financed out of some other source of funding. In Table 1, it can be seen that the ratio of Y-BAR to GDP per person in the UK was 73% in 2014 and 75% in 2015. Based on this latter ratio, a comparable poverty benchmark based on GDP per person could be based on 75% of the proportions given for Y-BAR in Table 6 above. However, this ratio is likely to vary across countries.

Each country is different in other ways, too, depending, for instance, on whether welfare services such as education and health are provided universally, or whether they have to be obtained privately, and on the extent of variations in the national housing market and on childcare provision. A debate, comparing the official EU benchmark and the one proposed here for different member states, would be welcome to see whether a consensus arises for change to a new benchmark for BI purposes.

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August 2017