

Redistribution of income

(in Great Britain/explained by Lorenz curves)

The government can redistribute income from the rich to the poor by progressive taxes or by regressive benefits.

Taxes are progressive if they rise more than proportionately with higher incomes. They can be either direct (as income taxes) or indirect (as VAT).

Benefits are regressive if people with lower incomes get more benefits (in proportion to their income) than those with higher incomes. They can be in cash (as pensions) or in kind (as education services).

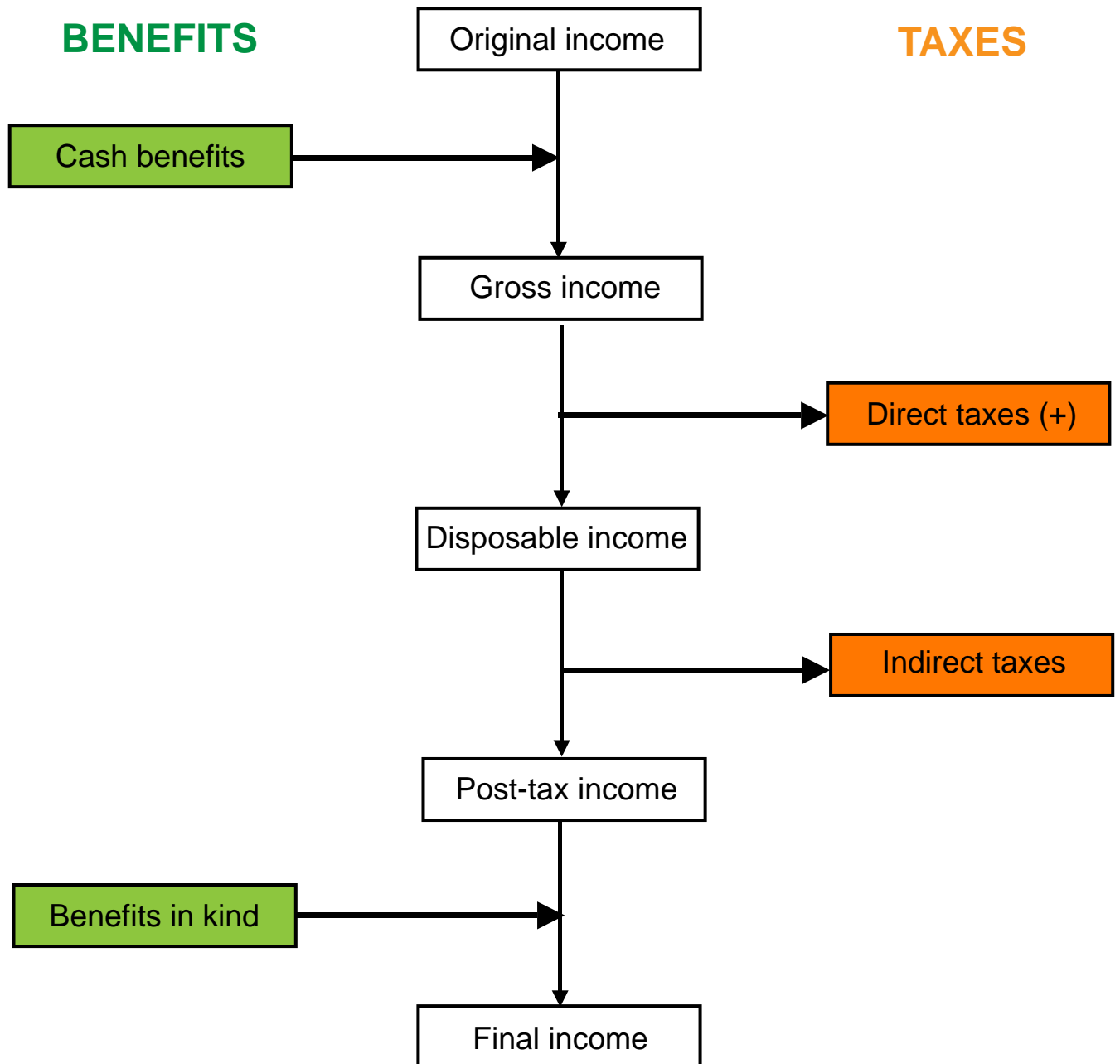
The Office for National Statistics is using the following scheme¹:

Original income
+ Cash benefits
= Gross income
- Direct taxes
= Disposable income
- Indirect taxes
= Post-tax income
+ Benefits in kind
= Final income

¹ Office for National Statistics: Effects of taxes and benefits on household income: financial year ending 2017, pp. 5 and 6

or the same scheme graphically:

Stages of redistribution



Does redistribution happen?

1

Redistribution by **direct taxes** (from gross income to disposable income)?

The Lorenz Curve (initially for gross income) moves towards the 45^o-diagonal line (finally for disposable income). Thus, according to appendix 1, **direct taxes** are **progressive**.

2

Redistribution by **indirect taxes** (from disposable income to post-tax income)?

Appendix 2 shows that the Lorenz Curve moves outwards. This means that **indirect taxes** are **regressive**.

3

Redistribution by **all taxes** (from gross income to post-tax income)?

It is very difficult to see two different Lorenz Curves in appendix 3. This means that the tax system (direct and indirect taxes) does not change distribution. The **tax system** as a whole is therefore (practically) **proportional**. This means that on average the same amount of taxes per unit of income has to be paid, irrespective of the level of income.

4

Redistribution by **taxes and benefits** (from original income to final income)?

If (as in appendix 4) we compare the Lorenz Curve for the original income with that for the final income, we get the **overall redistribution due to taxes and to benefits**. Because taxes are almost proportional, the inward shift of the Lorenz Curve can be nearly completely attributed to benefits. **Benefits** are **regressive**.

It can be concluded that redistribution of income in Great Britain occurs because of the benefits, and not because of the taxes.

Lorenz Curves GB 2016/17

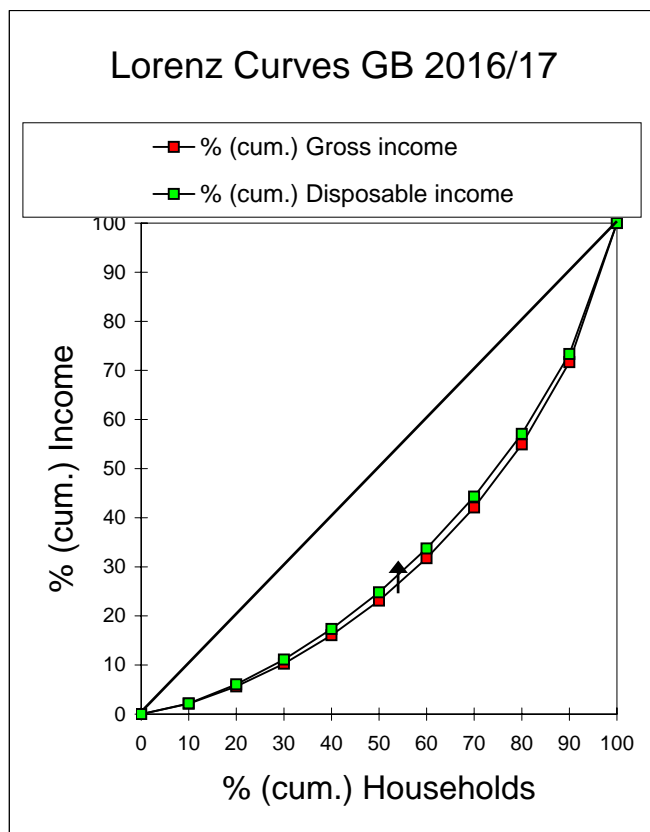
Appendix 1

Redistribution by direct taxes

Zehntel	Households		Gross income		Disposable income	
	Haushalte in 000	%	Gross income	%	Disposable income	%
1	2719	10	9228	2.1	7744	2.2
2	2721	10	15330	3.5	13662	3.9
3	2719	10	20223	4.6	17727	5.0
4	2722	10	25285	5.8	21932	6.2
5	2721	10	30744	7.0	26378	7.5
6	2721	10	37734	8.6	31509	8.9
7	2721	10	45130	10.3	37151	10.5
8	2720	10	56021	12.8	45063	12.8
9	2720	10	73113	16.8	57358	16.3
10	2726	10	123637	28.3	93949	26.7
Sum	27210	100	436445	100.0	352473	100.0

= Average income in £

% (cum.) Households	% (cum.) Gross income	% (cum.) Disposable income
10	2.1	2.2
20	5.6	6.1
30	10.3	11.1
40	16.1	17.3
50	23.1	24.8
60	31.7	33.7
70	42.1	44.3
80	54.9	57.1
90	71.7	73.3
100	100.0	100.0



Source:

Office for National Statistics:
 The Effects of Taxes and Benefits
 on Household Income, 2016/17 (Table 14)

Lorenz Curves GB 2016/17

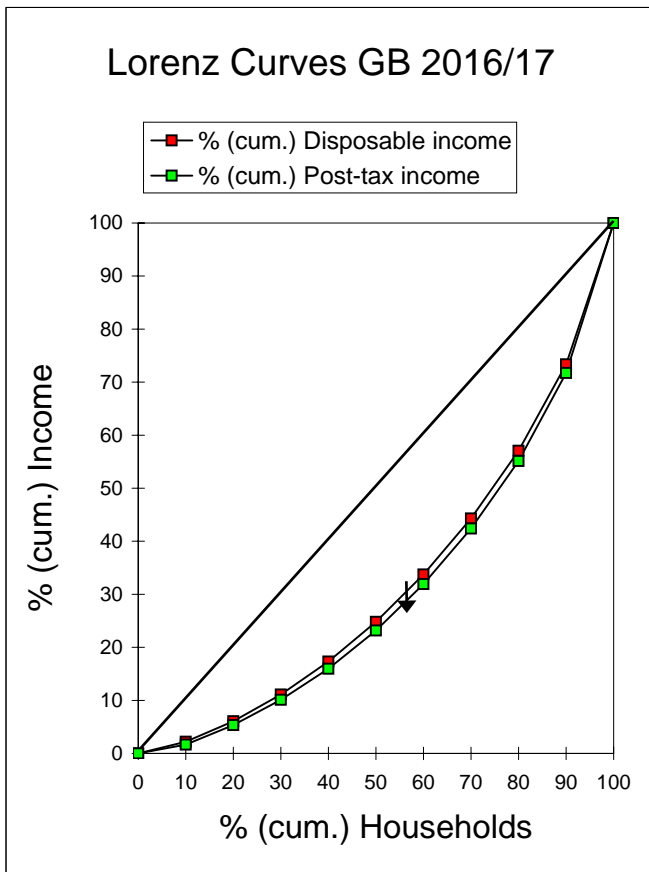
Appendix 2

Redistribution by indirect taxes

Deciles	Households		Disposable income		Post-tax income	
	Households in 000	%	Disposable income	%	Post-tax income	%
1	2719	10	7744	2.2	4746	1.7
2	2721	10	13662	3.9	10592	3.7
3	2719	10	17727	5.0	13736	4.8
4	2722	10	21932	6.2	16756	5.8
5	2721	10	26378	7.5	20772	7.2
6	2721	10	31509	8.9	25119	8.7
7	2721	10	37151	10.5	30082	10.5
8	2720	10	45063	12.8	36545	12.7
9	2720	10	57358	16.3	47680	16.6
10	2726	10	93949	26.7	81268	28.3
Sum	27210	100	352473	100.0	287296	100.0

= Average income in £

% (cum.) Households	% (cum.) Disposable income	% (cum.) Post-tax income
10	2.2	1.7
20	6.1	5.3
30	11.1	10.1
40	17.3	16.0
50	24.8	23.2
60	33.7	31.9
70	44.3	42.4
80	57.1	55.1
90	73.3	71.7
100	100.0	100.0



Source:

Office for National Statistics:
The Effect of Taxes and Benefits
on Household Income, 2016/17 (Table 14)

Lorenz Curves GB 2016/17

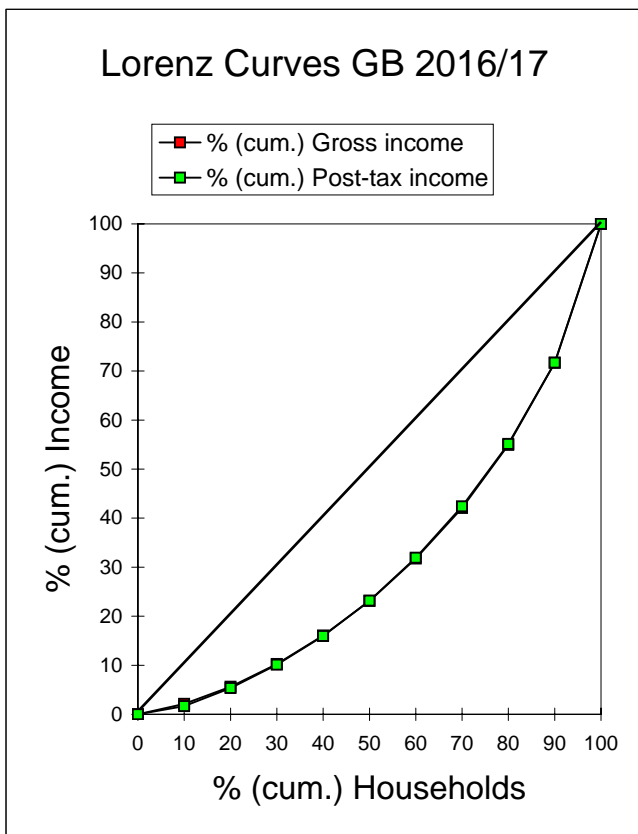
Appendix 3

Redistribution by direct and indirect taxes

Deciles	Households		Gross income		Post-tax income	
	Households in 000	%	Gross income	%	Post-tax income	%
1	2719	10	9228	2.1	4746	1.7
2	2721	10	15330	3.5	10592	3.7
3	2719	10	20223	4.6	13736	4.8
4	2722	10	25285	5.8	16756	5.8
5	2721	10	30744	7.0	20772	7.2
6	2721	10	37734	8.6	25119	8.7
7	2721	10	45130	10.3	30082	10.5
8	2720	10	56021	12.8	36545	12.7
9	2720	10	73113	16.8	47680	16.6
10	2726	10	123637	28.3	81268	28.3
Sum	27210	100	436445	100.0	287296	100.0

= average income in £

% (cum.) Households	% (cum.) Gross income	% (cum.) Post-tax income
10	2.1	1.7
20	5.6	5.3
30	10.3	10.1
40	16.1	16.0
50	23.1	23.2
60	31.7	31.9
70	42.1	42.4
80	54.9	55.1
90	71.7	71.7
100	100.0	100.0



Source:

Office for National Statistics:
The Effect of Taxes and Benefits
on Household Income, 2016/17 (Table 14)

Lorenz Curves GB 2016/17

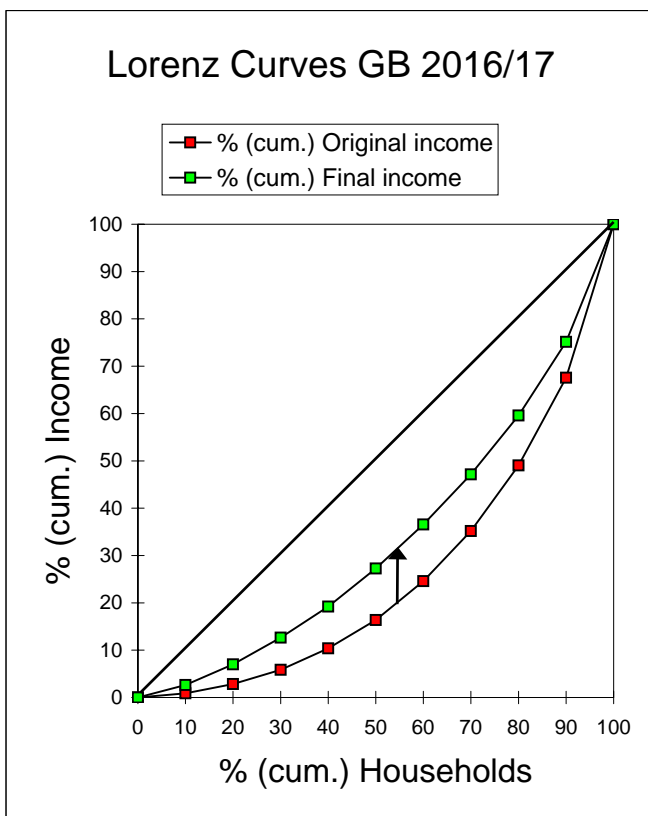
Appendix 4

Redistribution by *taxes and benefits*

Deciles	Households		Original income		Final income	
	Households in 000	%	Original income	%	Final income	%
1	2719	10	3298	0.9	9531	2.6
2	2721	10	7247	1.9	15808	4.4
3	2719	10	11267	3.0	20331	5.6
4	2722	10	16863	4.5	23817	6.6
5	2721	10	22320	6.0	29035	8.0
6	2721	10	30654	8.2	33593	9.3
7	2721	10	39471	10.6	38310	10.6
8	2720	10	51650	13.9	44933	12.4
9	2720	10	69029	18.5	56280	15.6
10	2726	10	120903	32.4	89798	24.8
Sum	27210	100	372702	100.0	361436	100.0

= average income in £

% (cum.) Households	% (cum.) Original income	% (cum.) Final income
10	0.9	2.6
20	2.8	7.0
30	5.9	12.6
40	10.4	19.2
50	16.4	27.3
60	24.6	36.6
70	35.2	47.2
80	49.0	59.6
90	67.6	75.2
100	100.0	100.0



Source:

Office for National Statistics:
The Effect of Taxes and Benefits
on Household Income, 2016/17 (Table 14)

Appendix 5:**TABLE 6: Gini coefficients for the distribution of income at each stage of the tax-benefit system for all households, 1977-2016/17, UK**

	Equivalised income ¹			
	Original	Gross	Disposable	Post Tax
1977	42.9	30.0	27.3	29.4
1978	42.9	29.8	26.6	28.1
1979	43.6	30.1	27.4	29.1
1980	44.5	31.2	28.6	30.9
1981	45.9	31.8	29.0	31.4
1982	47.0	31.5	28.6	31.3
1983	48.5	32.7	29.4	32.2
1984	48.6	31.7	28.4	30.8
1985	49.5	33.6	30.4	33.3
1986	50.5	34.5	31.6	35.3
1987	51.1	36.1	33.2	36.7
1988	50.9	37.1	35.1	38.8
1989	49.7	36.3	34.4	37.8
1990	51.4	38.6	36.8	40.6
1991	51.2	37.8	35.6	39.4
1992	51.7	37.3	34.7	38.4
1993	53.3	37.8	34.8	38.7
1994/95	52.8	37.0	33.8	37.5
1995/96	52.0	36.5	33.0	36.9
1996/97	52.6	37.6	34.4	38.2
1997/98	52.6	37.8	34.5	38.3
1998/99	52.7	38.6	35.4	39.3
1999/00	52.6	38.7	35.8	40.0
2000/01	51.3	37.9	35.0	39.2
2001/02	52.6	39.3	36.3	40.6
2002/03	51.1	37.4	33.8	37.7
2003/04	51.7	37.6	34.0	38.1
2004/05	50.7	36.4	32.8	36.6
2005/06	51.8	37.5	33.9	37.6
2006/07	51.5	38.0	34.7	38.8
2007/08	51.6	37.6	34.2	38.0
2008/09	52.1	37.6	34.2	37.7
2009/10	52.0	36.9	33.3	36.8
2010/11	52.2	36.9	33.7	37.7
2011/12	51.7	36.1	32.3	36.3
2012/13	52.2	36.9	33.3	37.2
2013/14	50.3	35.9	32.4	36.2
2014/15	50.0	35.8	32.6	36.4
2015/16	49.3	35.0	31.6	35.5
2016/17	48.9	35.4	32.2	36.4

Source: Office for National Statistics

Notes:

1 Equivalised using the modified-OECD scale.

2 An improved process for calculating the Gini Coefficient has been implemented which has resulted in a change to the levels of rounding applied. Although not significant, there are minor differences to previously published Gini estimates.