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 Statistices is using the following scheme[1]:

	Original income
+	<u>Cash benefits</u>
=	Gross income
-	<u>Direct taxes and Employees' NIC and Local taxes</u>
=	Disposable income
-	<u>Indirect taxes</u>
=	Post-tax income
+	<u>Benefits in kind</u>
=	Final income

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[1] Office for National Statistics: The Effects of Taxes and Benefits on Household Income, 2010/2011 - Further Analysis and Methodology

or the same scheme graphically:

Stages of redistribution

BENEFITS		TAXES
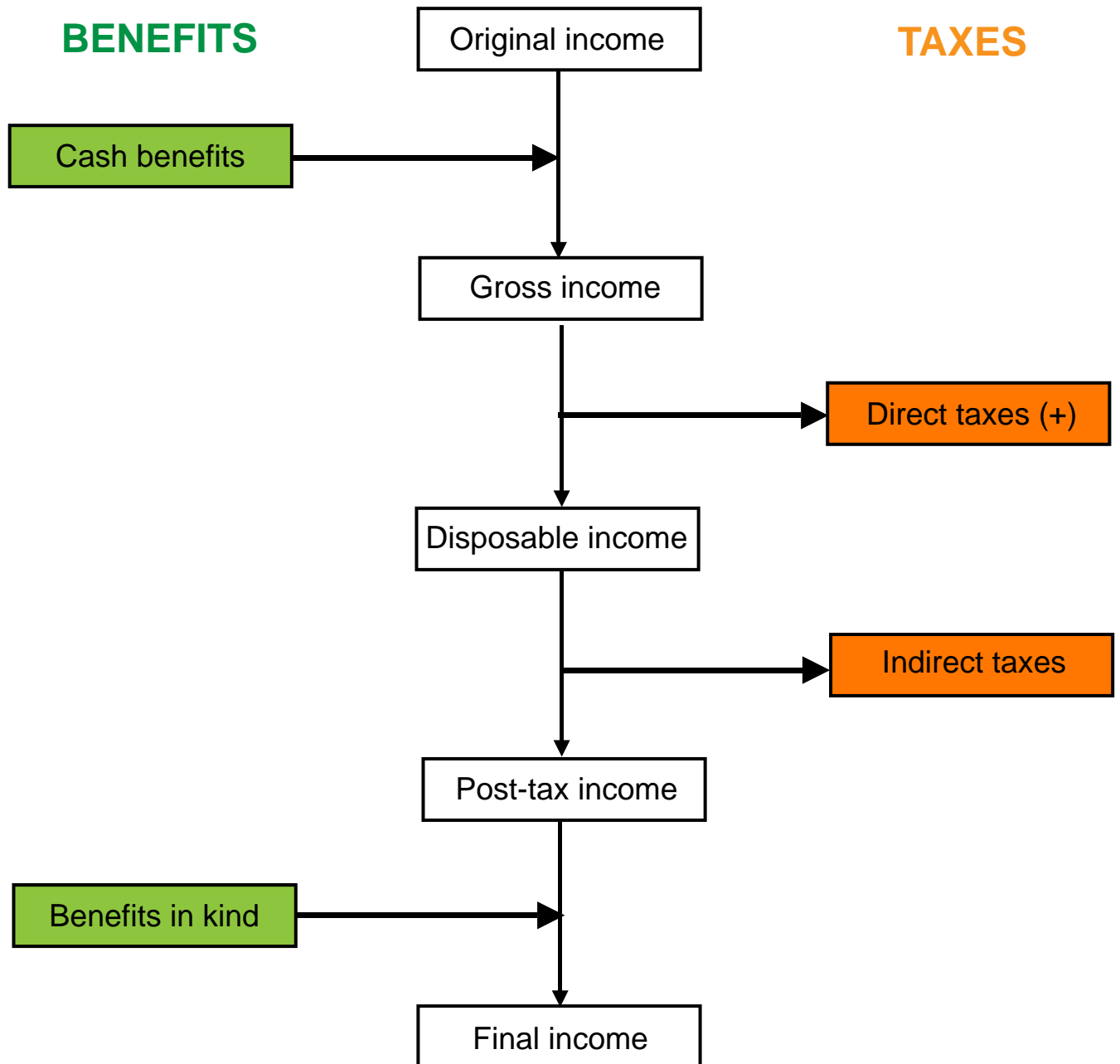
Does redistribution happen?

1

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

The Lorenz Curve (initially for gross income) moves towards the 45°-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.**
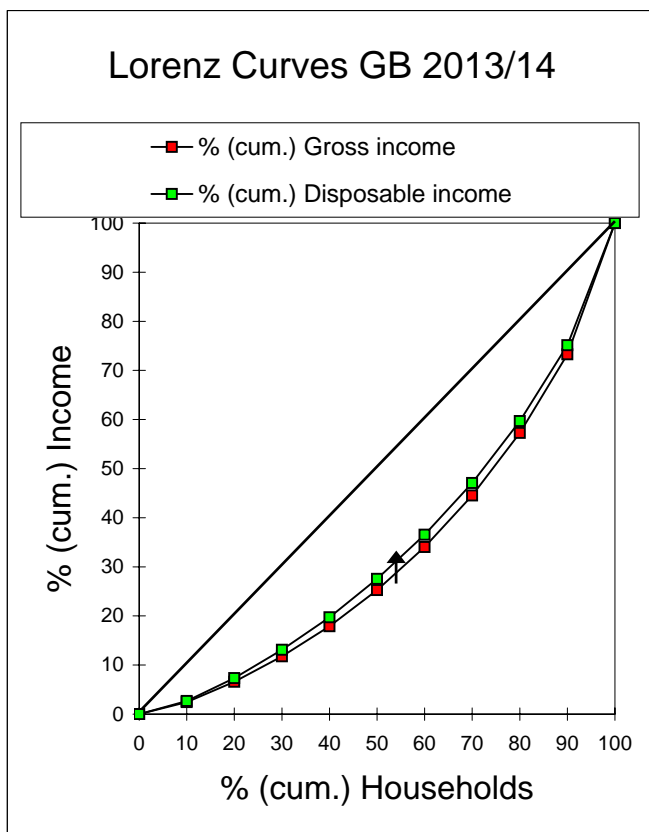
Lorenz Curves GB 2013/14

Appendix 1 — Redistribution by *direct* taxes

Zehntel	Haushalte in 000	%	Gross income	%	Disposable income	%
	Households		**Gross income**		**Disposable income**	
1	2664	10	9524	2.4	8468	2.7
2	2670	10	16307	4.2	14857	4.7
3	2661	10	20341	5.2	18342	5.8
4	2674	10	23947	6.1	21055	6.6
5	2666	10	28957	7.4	24826	7.8
6	2667	10	34277	8.7	28544	9.0
7	2669	10	41123	10.5	33545	10.6
8	2645	10	50026	12.8	40110	12.6
9	2689	10	62721	16.0	49066	15.4
10	2670	10	104779	26.7	79042	24.9
Sum	26675	100	392002	100.0	317855	100.0

= Average income in £

% (cum.) Households	% (cum.) Gross income	% (cum.) Disposable income
10	2.4	2.7
20	6.6	7.3
30	11.8	13.1
40	17.9	19.7
50	25.3	27.5
60	34.0	36.5
70	44.5	47.1
80	57.3	59.7
90	73.3	75.1
100	100.0	100.0

Lorenz Curves GB 2013/14
— % (cum.) Gross income
— % (cum.) Disposable income
% (cum.) Income vs % (cum.) Households

Source:
Office for National Statistics:
The effect of taxes and benefits
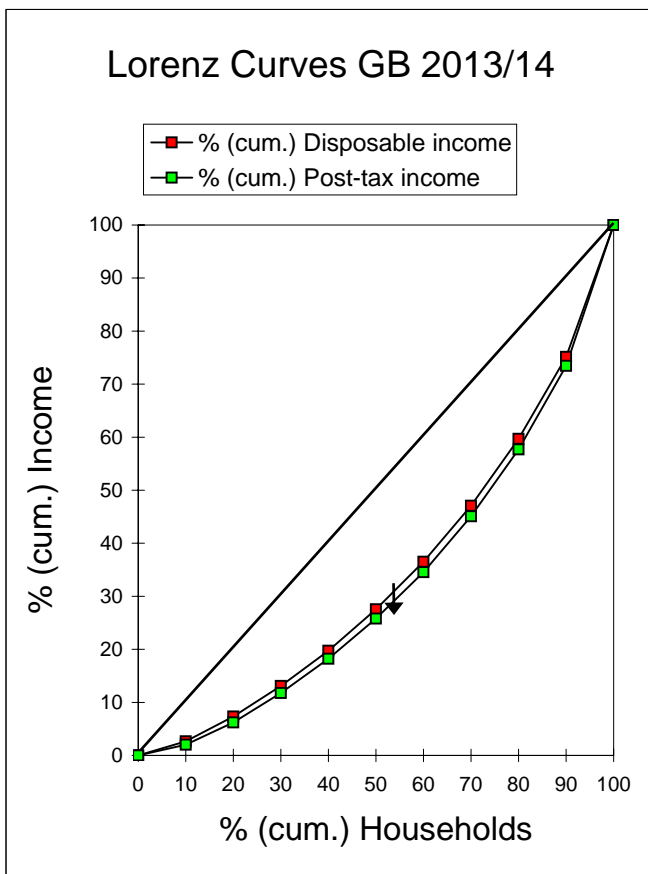on household income, 2013/14 (Table 14)

Lorenz Curves GB 2013/14

Appendix 2	Redistribution by *indirect* taxes					
	Households		**Disposable income**		**Post-tax income**	
Deciles	Households in 000	%	Disposable income	%	Post-tax income	%
1	2664	10	8468	2.7	5234	2.0
2	2670	10	14857	4.7	10826	4.2
3	2661	10	18342	5.8	14275	5.5
4	2674	10	21055	6.6	16647	6.5
5	2666	10	24826	7.8	19607	7.6
6	2667	10	28544	9.0	22539	8.7
7	2669	10	33545	10.6	27176	10.5
8	2645	10	40110	12.6	32537	12.6
9	2689	10	49066	15.4	40615	15.7
10	2670	10	79042	24.9	68532	26.6
Sum	26675	100	317855	100.0	257988	100.0

= Average income in £

% (cum.) Households	% (cum.) Disposable income	% (cum.) Post-tax income
10	2.7	2.0
20	7.3	6.2
30	13.1	11.8
40	19.7	18.2
50	27.5	25.8
60	36.5	34.5
70	47.1	45.1
80	59.7	57.7
90	75.1	73.4
100	100.0	100.0

Lorenz Curves GB 2013/14

Source:
Office for National Statistics:
The effect of taxes and benefits
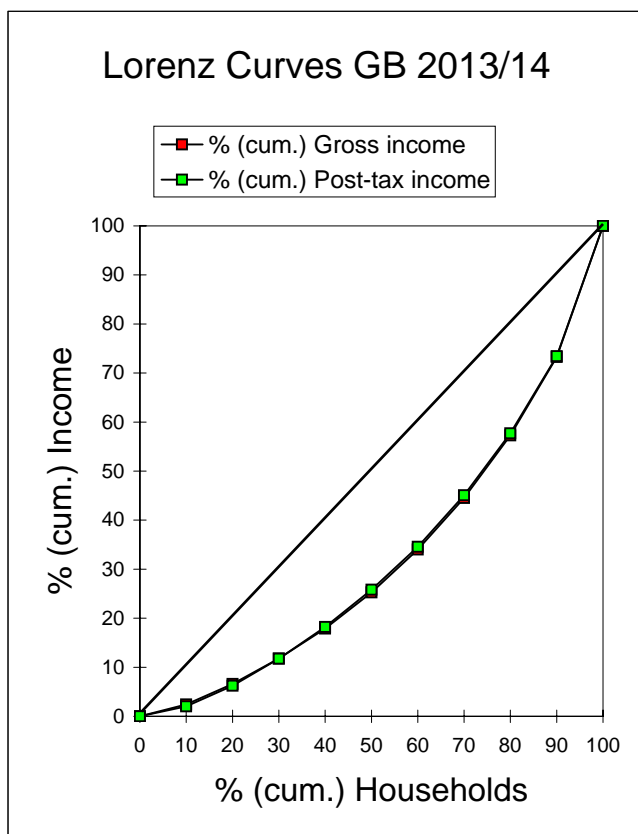on household income, 2013/14 (Table 14)

Lorenz Curves GB 2013/14

Appendix 3	Redistribution *by direct and indirect* taxes					
	Households		**Gross income**		**Post-tax income**	
Deciles	Households in 000	%	Gross income	%	Post-tax income	%
1	2664	10	9524	2.4	5234	2.0
2	2670	10	16307	4.2	10826	4.2
3	2661	10	20341	5.2	14275	5.5
4	2674	10	23947	6.1	16647	6.5
5	2666	10	28957	7.4	19607	7.6
6	2667	10	34277	8.7	22539	8.7
7	2669	10	41123	10.5	27176	10.5
8	2645	10	50026	12.8	32537	12.6
9	2689	10	62721	16.0	40615	15.7
10	2670	10	104779	26.7	68532	26.6
Sum	26675	100	392002	100.0	257988	100.0

= average income in £

% (cum.) Households	% (cum.) Gross income	% (cum.) Post-tax income
10	2.4	2.0
20	6.6	6.2
30	11.8	11.8
40	17.9	18.2
50	25.3	25.8
60	34.0	34.5
70	44.5	45.1
80	57.3	57.7
90	73.3	73.4
100	100.0	100.0

Lorenz Curves GB 2013/14

— % (cum.) Gross income
— % (cum.) Post-tax income

% (cum.) Income vs % (cum.) Households

Source:

Office for National Statistics:
The effect of taxes and benefits
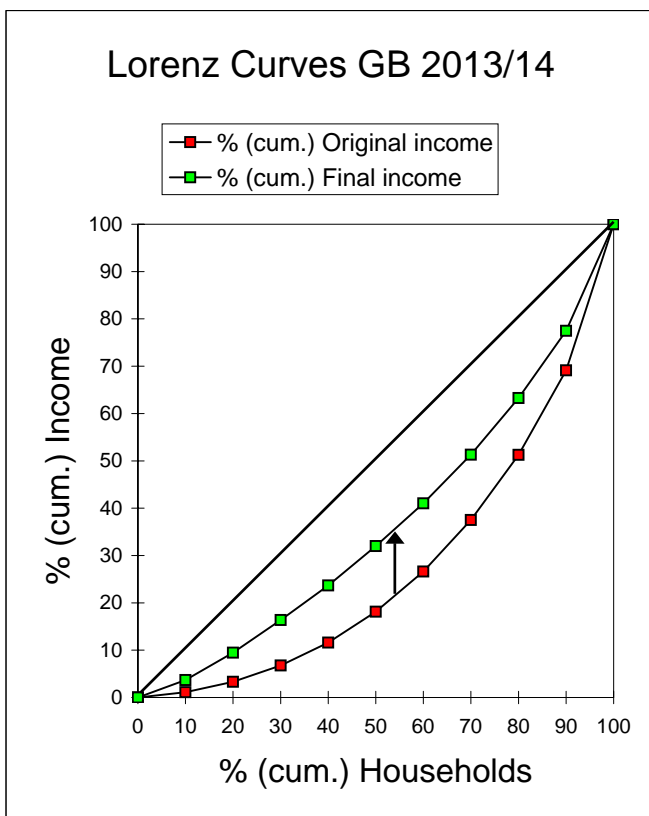on household income, 2013/14 (Table 14)

Lorenz Curves GB 2013/14

Appendix 4	Redistribution by *taxes and benefits*					
	Households		**Original income**		**Final income**	
Deciles	Households in 000	%	Original income	%	Final income	%
1	2664	10	3738	1.1	12050	3.7
2	2670	10	7304	2.2	18958	5.8
3	2661	10	11411	3.4	22450	6.9
4	2674	10	16051	4.8	23895	7.3
5	2666	10	21609	6.5	27230	8.3
6	2667	10	28074	8.5	29486	9.0
7	2669	10	36105	10.9	33700	10.3
8	2645	10	45654	13.8	39102	12.0
9	2689	10	59239	17.9	46372	14.2
10	2670	10	102366	30.9	73682	22.5
Sum	26675	100	331551	100.0	326925	100.0

= average income in £

% (cum.) Households	% (cum.) Original income	% (cum.) Final income
10	1.1	3.7
20	3.3	9.5
30	6.8	16.4
40	11.6	23.7
50	18.1	32.0
60	26.6	41.0
70	37.5	51.3
80	51.3	63.3
90	69.1	77.5
100	100.0	100.0

Lorenz Curves GB 2013/14
- % (cum.) Original income
- % (cum.) Final income

% (cum.) Income vs % (cum.) Households

Source:

Office for National Statistics:
The effect of taxes and benefits
on household income, 2013/14 (Table 14)

Appendix 5:

TABLE 27: Gini coefficients for the distribution of income at each stage of the tax-benefit system and P90/P10 and P75/P25[1] ratios for disposable income for all households, 1977 to 2013/14[2]

| | Gini coefficients (per cent) | | | | Ratios for disposable income | |
| | Equivalised income[3] | | | | | |
	Original	Gross	Disposable	Post-tax	P90/P10	P75/P25
1977	42.9	30.0	27.2	29.4	3.4	2.0
1978	42.9	29.8	26.6	28.1	3.3	2.0
1979	43.6	30.1	27.4	29.1	3.4	2.1
1980	44.5	31.2	28.6	30.9	3.6	2.1
1981	45.9	31.8	29.0	31.4	3.5	2.1
1982	47.0	31.5	28.6	31.3	3.4	2.0
1983	48.5	32.7	29.4	32.2	3.6	2.1
1984	48.6	31.7	28.4	30.8	3.5	2.1
1985	49.5	33.6	30.4	33.3	3.8	2.2
1986	50.5	34.5	31.6	35.3	3.8	2.2
1987	51.1	36.1	33.2	36.7	4.2	2.3
1988	50.9	37.1	35.1	38.8	4.6	2.5
1989	49.7	36.3	34.4	37.8	4.7	2.5
1990	51.4	38.6	36.8	40.6	5.0	2.7
1991	51.2	37.8	35.6	39.4	5.0	2.6
1992	51.7	37.3	34.7	38.4	4.7	2.5
1993	53.3	37.8	34.8	38.7	4.6	2.4
1994/95	52.8	37.0	33.8	37.4	4.4	2.3
1995/96	52.0	36.5	33.0	36.9	4.3	2.3
1996/97	52.6	37.6	34.4	38.2	4.5	2.4
1997/98	52.6	37.8	34.5	38.3	4.6	2.4
1998/99	52.7	38.6	35.4	39.3	4.7	2.4
1999/00	52.5	38.7	35.8	40.0	4.7	2.4
2000/01	51.3	37.9	35.0	39.2	4.7	2.4
2001/02	52.6	39.3	36.2	40.6	4.8	2.4
2002/03	51.1	37.4	33.8	37.7	4.4	2.3
2003/04	51.7	37.7	34.0	38.1	4.2	2.2
2004/05	50.7	36.6	32.8	36.5	4.2	2.1
2005/06	51.8	37.6	33.9	37.5	4.4	2.2
2006/07	51.5	38.2	34.7	38.7	4.5	2.3
2007/08	51.6	37.7	34.2	38.0	4.6	2.2
2008/09	52.1	37.8	34.3	37.7	4.4	2.2
2009/10	52.0	37.0	33.2	36.8	4.2	2.1
2010/11	52.2	37.1	33.7	37.6	4.2	2.1
2011/12	51.7	36.3	32.3	36.3	4.0	2.1
2012/13	52.2	37.1	33.3	37.2	4.1	2.1
2013/14	50.3	36.0	32.4	36.3	4.2	2.1

Notes:

Source: Office for National Statistics

1 P90/P10 is the ratio of the income at the 90th percentile to the 10th; P75/P25 is the ratio of the income at the 75th percentile to the 25th.

2 From 1990 this includes company car benefit and beneficial house purchase loans from employers. From 1996-97 values are based on estimates for the sample grossed to population totals.

3 Ranked by equivalised disposable income, using the modified-OECD scale.