The Gini coefficient

Basic conditions for measurement of inequality

- Measures of (relative) inequality have to satisfy the following principles:
  - The Pigou-Dalton principle of transfers
  - The principle of scale invariance

$$G = \frac{1}{2}\left(\frac{average\ of\ all\ pairwise\ income\ differences}{mean\ income} \right)$$

$$G = \frac{\frac{1}{3}\left[\left(X_3 - X_2\right) + \left(X_3 - X_1\right) + \left(X_2 - X_1\right)\right]}{2\frac{1}{3}\left[X_1 + X_2 + X_3\right]}$$

Example

- Three individuals with incomes NOK 300 000, NOK 600 000 and NOK 1 200 000
  - Mean income = NOK 700 000
  - Average income difference = NOK 600 000
  - G = 0,43

- The total income NOK 2 100 000 is received by one individual, whereas the two others get 0. In this case
  - Avergae income difference = NOK 1 400 000
  - G = 1,00

Table 2. Trend in income inequality in Norway, 1986-1998

Year	C_1	C_2=G	C_3
1986	0.331	0.224	0.177
1987	0.330	0.224	0.177
1988	0.327	0.223	0.176
1989	0.340	0.233	0.186
1990	0.343	0.232	0.183
1991	0.340	0.232	0.185
1992	0.348	0.23	0.18
1993	0.352	0.240	0.191
1994	0.366	0.249	0.199
1995	0.358	0.247	0.198
1996	0.364	0.255	0.207
1997	0.371	0.260	0.212
1998	0.355	0.249	0.202
Average of (1986-92)	0.337	0.229	0.181
Average of (1993-98)	0.361	0.250	0.201
Percentage change, (1986-92) - (1993-1998)	7.14	9.07	10.96

Source: Aaberge (2007)