Kristal, Orit; Achdut, Leah

Working Paper

Poverty in an International Perspective: A Reexamination

LIS Working Paper Series, No. 95

Provided in Cooperation with:
Luxembourg Income Study (LIS)

Suggested Citation: Kristal, Orit; Achdut, Leah (1993) : Poverty in an International Perspective: A Reexamination, LIS Working Paper Series, No. 95, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:
https://hdl.handle.net/10419/160767

Luxembourg Income Study Working Paper Series

Working Paper No. 95

Poverty in an International Perspective: A Reexamination

Leah Achdut and Orit Kristal

March 1993

(scanned copy)

Luxembourg Income Study (LIS), asbl

POVERTY IN AN INTERNATIONAL PERSPECTIVE:

A REEXAMINATION

by

Lea Achdut and Orit Kristal

Administration of Research and Planning
National Insurance Institute
Jerusalem, Israel

*Address: Lea Achdut, Director
Bureau of Research an Methods
National Insurance Institute
13 Weizman Avenue
Jerusalem 91909, ISRAEL

Tel: 972-2-709568
Fax: 972-2-514002

A B S T R A C T

International comparisons of poverty are usually based on the traditional Head Count and Poverty Gap measures. Using the Luxembourg Income Study (LIS) microdata, the present paper extends the comparative measurement of poverty to take account of the recently suggested Sen (1976), Kakwani (1980) and Foster et al. (1984) poverty measures. It is found that given any poverty line these three measures yield a completely different ranking than the traditional Head Count and Poverty Gap ratios. Also, whereas the traditional two measures lead to contradicting rankings, the recent measures register (with only few exceptions) exactly the same ranking. In spite of the fact that the ranking of countries by all the poverty measures examined is not preserved under alternative poverty lines, considerably less rerankings occur with respect to the measures which incorporate all three poverty dimensions.

INTRODUCTION

The problem of measuring poverty at the aggregate economy - wide level has three different dimensions: An identification of the individuals who should be considered poor, the quantification of their individual degree of poverty, and the aggregation of the individual measures of poverty to an overall measure for the economy as a whole. The identification and quantification problems are solved with the specification of the poverty line. An individual is considered poor if his income falls below the poverty line, and his degree of poverty is measured by the gap between his actual income and the poverty line. The aggregation problem - like all aggregation problems - requires appropriate weights for the individual poverty measures.

The most commonly used measures of poverty in empirical research and in particular in the Luxembourg Income Study (LIS) data based international comparisons (e.g., Buhmann et al. (1988), Smeeding et al. (1990), Achdut and Tamir (1990), Rainwater (1992)), are the Head Count and Poverty Gap ratios. Their weaknesses have been widely discussed in the literature (e.g., Sen (1976), Kakwani (1980), Foster et al. (1984)). The Head Count ratio does not reflect the size of the poverty gap, and the Poverty Gap does not reflect the size of the poor population, nor is it sensitive to the inequality in income distribution among the poor. The aggregate poverty measures proposed by Sen (1976) and by subsequent researchers incorporate three elements of overall poverty: (i) the percentage of the poor in the total population (i.e., the 'width' of poverty); (ii) the size of the poverty gap (i.e., the 'depth' of poverty); (iii) the income distribution among the poor (i.e., the 'relative deprivation' of the poor). The measures differ in their sensitivities to each of the three elements and thus may register different magnitudes of poverty and possibly even different directions for the change in poverty over time (See Achdut and Bigman (1991)).

The purpose of this paper is to reexamine the dimensions of poverty over time in an international perspective, focusing on the recently proposed poverty measures. Of special interest is the question of whether the various countries investigated could be ranked unequivocally according to all poverty measures and whether the ranking is preserved under alternative poverty lines. The data source for this study is LIS database for eight countries: Canada, France, Germany, Israel, the Netherlands, Sweden, the United Kingdom and the United States. The investigation is carried out with respect to two periods of time: the late 1970's and early 1980's (1979-1981) and the mid 1980's (1984-1987).

DESCRIPTION OF THE POVERTY MEASURES AND DATABASE

The poverty dimensions across countries will be examined in this paper by five poverty measures: the Head Count ratio (H), the Poverty Gap ratio (G), and the measures proposed by Sen (PS), Kakwani (PK) and Foster et al. (PS). The latter three poverty measures reflect all the elements of overall poverty mentioned above, where each one of them has the general form of the measure proposed by Sen (1976), i.e., a normalized weighted sum of the poverty gaps of the poor individuals. The weights may be <u>either</u> the position of the poor individuals in the poverty ladder <u>or</u> the poverty gap itself, or <u>both</u>. Rank order weights are embodied in Sen's and Kakwani's poverty measures, whereas poverty gaps are adopted in Foster's measure. All these measures are special cases of the following general family of poverty measures

$$P(Z, Y, \alpha, \beta) = A \sum_{i=1}^{q} [(g_i/Z)^{\alpha}(q+1-i)^{\beta}][g_i/Z], \qquad (1)$$

where q is the number of the poor, Z is the poverty line, g_i is the poverty gap of the i's individual, A is a normalization factor (which varies from one poverty measure to another) and $\alpha \geq 0$ and $\beta \geq 0$ are parameters reflecting sensitivities to income differences and rank differences, respectively. PS is defined for $\alpha=0$ and $\beta=1$, PK requires $\alpha=0$ and PF holds for $\beta=0$.

In order to emphasize the differences among PS, PK and PF, we may write them in the following form (choosing $\beta=2$ for PK and $\alpha=1$ for PF):

$$\begin{aligned} \text{PS:} \quad & P(Z,Y,0,1) = H[G + (1-G)I_p] \\ \text{PK:} \quad & P(Z,Y,0,2) = H[G + (1-G)EI_p] \\ \text{PF:} \quad & P(Z,Y,1,0) = H[G^2 + (1-G)^2(CV_p)^2], \end{aligned} \tag{2}$$

where $H = q/n$ (n denotes the size of the population), $G = (Z-Y_p)/Z$ (Y_p denotes the average income of the poor), I_p and EI_p are the Gini and the Extended Gini coefficients of income inequality among the poor, respectively,[1] and CV_p is the coefficient of variation of income of the poor. The different income inequality measures implicit in the poverty measures reflect different sensitivities to income changes at different ranges of the income distribution.

The data used in this paper were derived from the Luxembourg Income Study (LIS) database. The advantage of this database over other sources is that it is constructed on the basis of unified definitions of income and demographic variables which make income and households characteristics as comparable as possible across countries. The investigation unit in this research is the individual household. The measure of income used is the equivalent disposable household income defined as the post tax and transfer income divided by the appropriate equivalence factor according to the equivalence scale suggested by LIS.[2] Only households with positive disposable incomes were considered.[3]

The poverty line in the present study is defined as a certain percentage of the median equivalent disposable income. Five poverty lines are examined: 40%, 50%, 60%, 80% and 100%. In the calculation of the median income, households are weighted equally but in the calculation of the poverty and income inequality measures, each household is weighted by its number of persons.

POVERTY CHANGES OVER TIME

Table 1 shows, for the mid 1980's period, the values of the five poverty measures for the eight countries selected, using a poverty line of 50% 0f the equivalent median income. The dimensions of poverty measures vary widely among countries; the lowest percentage of poor persons is observed in Sweden, the Netherlands and West Germany - 5.8% to 6.6% - whereas the highest percentage is observed in the United States and Israel: 19.8% and 17.6%, respectively. The United Kingdom, France and Canada are ranked in the middle with poverty rates of about 9% in the first two countries and 12.4% in Canada.

The Poverty Gap ratio also differs considerably across these countries, ranging between 22.1% to 36.7%. However, the ranking of countries according to this measure is quite different from their ranking according to the Head Count ratio. The countries in which the Poverty Gap ratio is the lowest - 22.1% to 26.6% - are (in ascending order) West Germany, Israel, France and the Netherlands. Canada and the United Kingdom form the second group with a Poverty Gap ratio of about 29%, and Sweden and the United States experienced the highest Poverty Gap ratio: 35.2% and 36.2%, respectively.

One of the most noteworthy differences between the rankings of the countries by H and G is the relative position of Sweden and Israel; Sweden has the lowest Head-Count ratio but

the highest Poverty Gap ratio, with the exception of the United States. In contrast, Israel has almost the highest Head Count ratio (with the exception of the United States) but its Poverty Gap ratio is almost the lowest (higher only than that of West Germany). Only Canada and the United States maintain the same rank according to these two measures.

While the ranking of poverty among countries according to H and G differs, the poverty measures, PS, PF and PK, reflecting all three elements of poverty, i.e. the 'width', the 'depth' and the 'relative deprivation', indicate identical ranking. We observe four groups of countries: West Germany, the Netherlands and Sweden with the lowest level of poverty; France and the United Kingdom; Canada and Israel; and the United States with the highest poverty according to all poverty measures.

Table 2 shows the poverty measures for the earlier reference period. The results for the second period cited above also apply for the first period, namely, the rankings of the countries, according to H and G differ quite notably, whereas the ranking according to PS and PK are identical. The ranking according to PF differs slightly, only in the rank order of Sweden and West Germany.

The changes over time in the extent of poverty in each country - as registered by the different poverty measures - are presented in Table 3, whereas the changes over time in income inequality among the poor according to the Gini and the Extended Gini coefficients and the Coefficient of Variation, which are implicit in the PS, PK and PF poverty measures, respectively, are shown in Table 4.[4] In Canada and France poverty declined according to all measures; West Germany also experienced a decline in poverty by all measures, with the exception of a slight rise (6%) in the

Head Count ratio. The largest decline in the Head Count ratio was in Canada - 6.2%; the largest decline in the Poverty Gap ratio and in the PS measure - in France, and the largest decline in the PF measure - occured in West Germany. The decline in the PS, PF and PF measures was also the result of a reduction in income inequality among the poor in these countries, which was at a relatively high rate in West Germany.

In contrast, the other countries - Israel, the Netherlands, Sweden, the United Kingdom and The United States - experienced a rise in poverty by all measures, except for Israel in which the Head Count ratio remained unchanged between the mid and early 1980's. The United Kingdom witnessed the largest rise in poverty according to all measures; the Head Count ratio rose by 25%, the Poverty Gap ratio by 18.2% , the PS and PK measures by 33% and the PF measure by 76.5%. This might be explained in part by the high rise in the unemployment rate - from 4.7% in 1979 to 11.8% in 1986. In these countries the income disparities among the poor widened according to all income inequality measures, in particular in the United Kingdom, Israel and Sweden, whereas in the United States income inequality increased only slightly.

The results discussed above imply that poverty measures differ quite markedly in the magnituide of the changes which they register. These differences reflect the sensitivities of each poverty measure to the changes in the various factors of the overall poverty. Of the three poverty measures which incorporate the three factors, the PS and PK measures exhibit the same rate of change since the Gini and the Extended Gini coefficients change by the same rate (which means that the relative position of the poorest families remained more or less unchanged). The Coefficient of Variation - implicit in the PF poverty measure - changed at a higher rate than did

the other two measures of income inequality. This and the fact that the PF measure is more sensitive to changes in income inequality among the poor than are the PS and the PK measures led to a greater rate of change in the former than in the latter measure.

To evaluate the 'relative contribution' of each one of the three factors that jointly determine the level of poverty to the overall change in poverty, we make use of the logarithmic time differentials of the poverty measures PS, PK and PF, obtaining, for example,

$$\hat{PS} = \hat{H} + \hat{G}\left[\frac{G(1-I_p)}{G(1-I_p)+G}\right] + \hat{I}_p\left[\frac{I_p(1-G)}{G(1-I_p)+G}\right] \qquad (3)$$

for the percentage change in the PS measure (where $\hat{}$ denotes percentage change).

Table 4 shows that in the Netherlands about 90% of the total rise in poverty was contributed by the increase in the relative size of the poor population, whereas the contributions of the slight rise in the average poverty gap and in income inequality were negligible. The increase in the percentage of the poor populatuion in the United States was also the main contributor to the rise in the overall poverty (70%), while the income inequality remained almost the same in the two surveyed periods. In contrast, in Israel, which experienced a slight decrease in the size of the poor population, the rise in the overall poverty was contributed mainly by the rise in the average poverty gap (about 70% and 60% of the rise in the PS and PF measures, respectively). In France and in the United Kingdom, the three components contributed to the change in the overall poverty more equally than in other countries. It should be noted that across all countries, with the exception of the United States, the contribution of the change in income inequality to the change

in poverty as measured by PF was greater than that measured by PS. The PS measure is more sensitive to the changes in the size of the poor population, while the PF is more sensitive to changes in the average poverty gap and in the income distribution of the poor.[5]

POVERTY RANKINGS UNDER ALTERNATIVE POVERTY LINES

The literature on aggregate poverty measures does not offer any guidelines for selecting the poverty line. The choice of a particular poverty line - which is usually arbitrary - may considerably affect the magnitude of poverty according to all measures and well reverse the countries' poverty rankings.

Figures 1-5 present, for the mid 1980's period, the values of the PS, PF, PK, H and G poverty measures, respectively, obtained under poverty lines set at 40%, 50%, 60%, 80% and 100% of the equivalent median income. The most striking finding arising from the first three figures is the formation of two groups: Israel and the United States on the one hand and the other countries on the other hand. The former group exhibits considerably higher poverty values at any poverty line, with the exception of the 40% poverty line where Israel has the same values of PS and PK as Canada but a lower value of PF than Canada and the United Kingdom. In the latter group Canada has the highest values of PS and PK and, with the exception of the 40% poverty line, of PF as well. The other countries in this group cross each other at various poverty lines: for example, according to the PS and PK measures West Germany has lower poverty rates than Sweden at poverty lines of 40%, 50% and 60% of the median income but higher rates at the 80% and 100% poverty lines. It is interesting to note that almost all the crossings occur in the range of the 40%-60% poverty lines and that thereafter the ranking is nonambiguous. In spite of the fact that France and the United Kingdom cross each other they have very similar poverty rates

at all poverty lines.

Considering the Head Count[6] and the Poverty Gap ratios the picture is much more complicated (Figures 4 and 5): what immediately meets the eye is the large number of crossings for both measures and the absence of any trend for the Poverty Gap ratio. Consequently, it is impossible to unequivocally rank the countries with respect to the alternative poverty lines.

Since a complete ordering of all eight countries under all poverty lines is impossible, we may restrict ourselves to pairwise comparisons (partial ordering). Given a poverty measure P and two distributions x and y, we will say that x has unambiguously less poverty than y if $P(x, Z) \geq P(y,Z)$ for all positive Z, with strict inequality for some Z. This criterion provides the basis for the results presented in Tables 5 and 6. A"+" means that a country in a row has less poverty than a country in a column, according to all poverty lines. A"-" denotes that a country in a row has more poverty than a country in a column, according to all poverty lines. A "x" means that we cannot say unequivocally that a country in a row has more (less) poverty than a country in a column.

The findings in Table 5 show, for example, that West Germany is less poor than the other countries except Sweden with which the comparison is inconclusive. The Netherlands has more poverty than West Germany but less poverty than the other countries, and again except Sweden with which the comparison is inconclusive. It is apparant that the PS and PK measures yield the same results (i.e., more poverty, less poverty or inconclusive) with respect to the pairwise comparison. The PF measure yields the same results as the other two measures, with the exception of the pairwise comparisons relating to Israel, Canada and the United Kingdom. Table 6 stresses the fact that even the above conclusions are not possible as far as the Head Count and the

Poverty Gap ratios are concerned.

Comparing the poverty levels under alternative poverty lines between the mid and early 1980's, we have found that France and the United Kingdom became more similar in the second period. This is due to the rise of poverty in the United Kingdom side by side with a fall in France. Sweden came closer to the other countries as a result of the high rise in its poverty dimensions. Israel moved away from the United States due to a higher increase in poverty in the United States.

CONCLUSIONS

The paper extends the literature on poverty comparisons based on the Luxembourg Income Study (LIS) microdata to take account of the recently suggested Sen (1976), Kakwani (1980) and Foster et al. (1984) poverty measures. The findings concerning the ranking of countries by poverty levels emphasize the importance of the use of poverty measures reflecting not only the size of the poor population (measured by the Head Count ratio) and the depth of poverty (measured by the Povrty Gap ratio) but also the income disparities among (or the relative deprivation of) the poor. We have found that given any poverty line these three measures yield a completely different ranking than the traditional Head Count and Poverty Gap ratios. Also, whereas the traditional two measures lead to contradicting rankings, the recent measures register (with only few exceptions) exactly the same ranking. In spite of the fact that the ranking of countries by all the poverty measures examined is not preserved under alternative poverty lines, considerably less rerankings occur with respect to the measures which incorporate all three poverty dimensions.

F O O T N O T E S

[1]The rank order (attached to each individual) embodied in the Extended Gini coefficient (EI_P) is raised to the power of 2, as required when PK is calculated for ß=2.

[2]The equivalence scale used in this study allocates a weight of 0.5 to the first individual in any household, a value of 0.25 for each additional individual from the second to the ninth (so that a nine-person household has an equivalwence factor of 2.5), and a weight of 3.0 to households with ten or more persons.

[3]The percentage of households with negative or zero incomes in the mid 1980's surveys ranges from 0% (Germany and Israel) to 2.3% (in the Netherlands).

[4]The values of the various income inequality measures are presented in the Appendix.

[5]West Germany is not included in Table 5 since the logarithmic approximation explains only 75% of the change in overall poverty (whereas in all other countries the explanation rate was above 90%).

[6]Notice that at the equivalent median income (100% poverty line) the Head Count ratio is not unique (50% of the population) across countries. The reason is that in the calculation of the equivalent median income we have attached an equal weight to each household whereas in the calculation of the poverty measures we used the size of the household as a weight.

R E F E R E N C E S

Achdut, L. and Bigmam, D. (1991), "The Anatomy of Changes in Poverty and Income Inequality under Rapid Inflation: Israel 1979-1984", *Structural Change and Economic Dynamics*, 2; PP.229-243.

Achdut, L. and Tamir, T. (1990), "Retirement and Well-Being among the elderly", in: T.M. Smeeding, M. O'Higgins and L. Rainwater (eds.)(1990); pp.105-125.
Smeeding, T.M., O'Higgins, M. and Rainwater, L. (eds.)(1990), *Poverty, Inequality and Income Distribution in Comparative Perspective - The Luxembourg Income Study*, Hertfordshire (Harvester / Wheatsheaf).

Buhmann, B., Rainwater, L., Schmaus, G. and Smeeding, T.M. (1988), "Equivalence Scales, Well-Being, Inequality and Poverty", *Review of Income and Wealth*, 34; PP.115-142.

Foster, J.E. (1984), "On Economic Poverty: A Survey of Aggregate Measures", *Advances in Econometrics*, 3; PP.215-251.

Kakwani, N.C. (1980), "On a Class of Poverty Measures", *Econometrica*, 48; PP.437-446.

Rainwater, L. (1980), "Poverty in American Eyes", *Luxembourg Income Study Working Paper* #80, Walferdange, Luxembourg.

Sen, A. (1976), "Poverty: An Ordinal Approach to Measurement", *Econometrica*, 44; PP.219-231.

Smeeding T.M., Rainwater, L., Rein, M., Hauser, R. and Schaber, G. (1990), "Income Poverty in Seven Countries: Initial Estimates from the LIS Database", in: T.M. Smeeding, M. O'Higgins and L. Rainwater (eds.) (1990); PP.57-76.

Smeeding, T.M., O'Higgins, M. and Rainwater L. (eds.)(1990), *Poverty, Inequality and Income Distribution in Comparative Perspective - The Luxembourg Income Study*, Hertfordshire (Harvester / Wheatsheaf).

Table 1: Poverty Measures in Eight Selected Countries and Rank Order (in parentheses) - the Mid 1980's Period

	H		G		PS		PF		PK	
Canada (1987)	12.4	(6)	29.1	(6)	0.0508	(6)	0.0162	(6)	0.0594	(6)
France (1984)	9.3	(5)	26.4	(3)	0.0364	(4)	0.0114	(4)	0.0435	(4)
Germany (1984)	6.6	(3)	22.1	(1)	0.0211	(1)	0.0053	(1)	0.0249	(1)
Israel (1986)	17.6	(7)	25.4	(2)	0.0619	(7)	0.0167	(7)	0.0715	(7)
Netherlands (1987)	6.1	(2)	26.6	(4)	0.0243	(2)	0.0079	(2)	0.0290	(2)
Sweden (1987)	5.8	(1)	35.2	(7)	0.0285	(3)	0.0108	(3)	0.0331	(3)
United Kingdom(1986)	9.1	(4)	28.8	(5)	0.0394	(5)	0.0143	(5)	0.0479	(5)
United States (1986)	19.8	(8)	36.7	(8)	0.0992	(8)	0.0375	(8)	0.1136	(8)

Table 2: Poverty Measures in Eight Selected Countries and Rank Order (in parentheses) - the Early 1980's Period

	H	G	PS	PF	PK
Canada (1981)	13.2 (6)	29.8 (6)	0.0558 (7)	0.0185 (7)	0.0655 (7)
France (1979)	9.8 (5)	28.4 (5)	0.0406 (5)	0.0133 (5)	0.0483 (5)
Germany (1981)	6.2 (3)	23.7 (2)	0.0222 (3)	0.0064 (2)	0.0264 (3)
Israel (1979)	17.8 (8)	22.6 (1)	0.0557 (6)	0.0134 (6)	0.0642 (6)
Netherlands (1983)	5.0 (2)	26.3 (4)	0.0198 (1)	0.0063 (1)	0.0237 (1)
Sweden (1981)	4.8 (1)	31.8 (7)	0.0214 (2)	0.0074 (3)	0.0249 (2)
United Kingdom(1979)	7.3 (4)	24.4 (3)	0.0265 (4)	0.0081 (4)	0.0320 (4)
United States (1979)	17.4 (7)	34.2 (8)	0.0829 (8)	0.0304 (8)	0.0965 (8)

Table 3: Percentage Change in Poverty Measures Between the Mid and Early 1980's Periods

	H	G	PS	PF	PK
Canada	-6.2	-2.5	-9.0	-12.4	-9.3
France	-4.6	-7.0	-10.3	-14.3	-9.0
Germany	6.0	-6.8	-5.0	-17.2	-5.7
Israel	-0.7	12.0	11.1	24.6	11.4
Netherlands	20.0	1.2	22.7	25.4	22.4
Sweden	20.0	10.8	33.2	45.9	32.9
United Kingdom	25.1	18.2	48.7	76.5	49.7
United States	14.0	7.3	19.7	23.4	17.7

Table 4: Percentage Change of income Inequality Measures between the Mid and Early 1980's Periods.

	Inequality Measure		
Country	CV_p	I_p	EI_p
Canada	-11.7	-5.3	-5.7
France	-10.4	-6.4	-6.4
Germany	-35.0	-18.2	-18.1
Israel	34.7	15.2	16.4
Netherlands	7.9	3.7	3.3
Sweden	32.4	16.5	16.5
United Kingdom	61.1	28.7	29.1
United States	1.8	3.1	0.7

Table 5: The Relative Contribution of H, G and Income Inequality to the Change in the Overall Poverty

Country	Poverty Measure	Percentage Change	'Widening'	'Deepening'	'Relative Deprivation'	Total
Canada 1981/1987	PS	-9.0	67	16	17	100
	PF	-12.4	48	19	33	100
France 1979/1984	PS	-10.3	44	37	19	100
	PF	-14.3	31	40	29	100
Israel 1979/1986	PS	11.1	-6	68	38	100
	PF	24.6	-3	57	46	100
Netherlands 1983/1987	PS	22.7	91	3	6	100
	PF	25.4	82	4	14	100
Sweden 1981/1987	PS	33.2	65	20	15	100
	PF	46.0	48	25	27	100
United Kingdom 1979/1986	PS	48.7	56	23	21	100
	PF	76.5	37	20	43	100
United States 1979/1986	PS	19.7	73	22	5	100
	PF	23.4	64	33	3	100

Table 6: Pairwise Comparisons: PS, PK and PF Poverty Measures

	CANADA	FRANCE	GERMANY	ISRAEL	NETHERLANDS	SWEDEN	UNITED KINGDOM	UNITED STATES
CANADA	*							
FRANCE	+ + +	*						
GERMANY	+ + +	+ + +	*					
ISRAEL	- - x	- - -	- - -	*				
NETHERLANDS	+ + +	+ + +	- - -	+ + +	*			
SWEDEN	+ + +	+ + +	x x x	+ + +	x x x	*		
UNITED KINGDOM	+ + x	x x x	- - -	+ + x	- - -	- - -	*	
UNITED STATES	- - -	- - -	- - -	- - -	- - -	- - -	- - -	*

Table 7: Pairwise Comparisons: H and G Poverty Measures

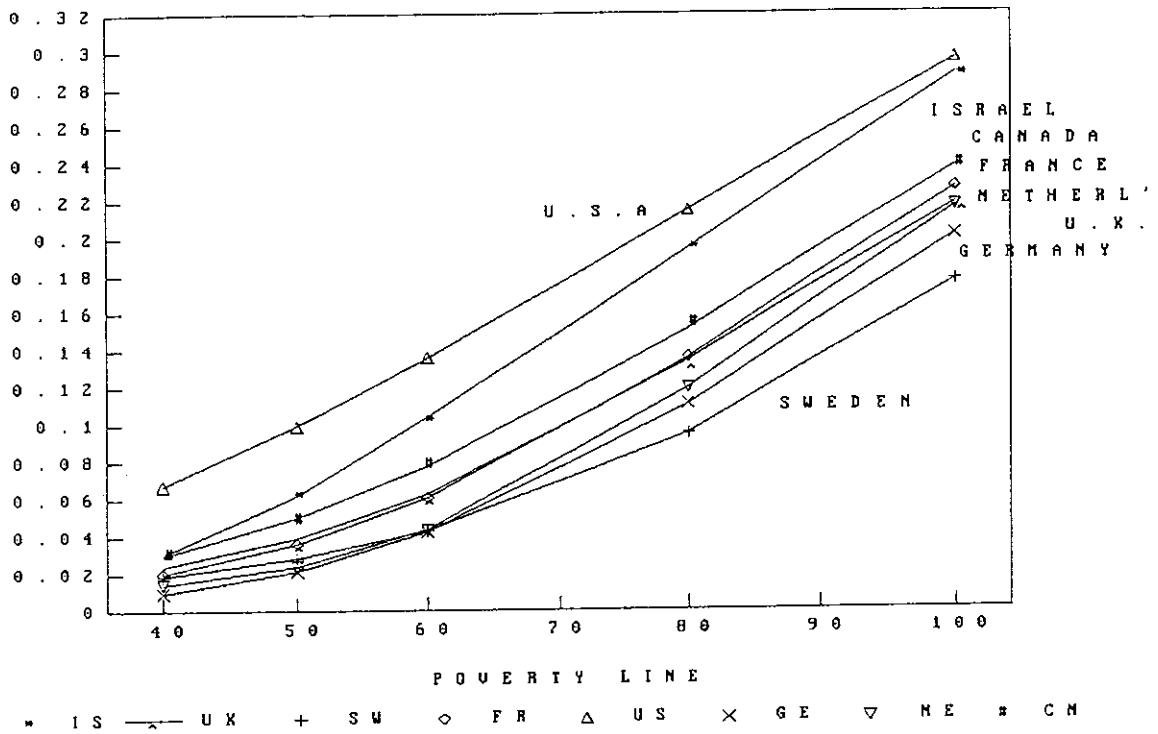
	CANADA	FRANCE	GERMANY	ISRAEL	NETHERLANDS	SWEDEN	UNITED KINGDOM	UNITED STATES
CANADA	*							
FRANCE	x x	*						
GERMANY	+ +	+ +	*					
ISRAEL	- x	- x	- x	*				
NETHERLANDS	x x	x x	x x	+ x	*			
SWEDEN	+ x	+ x	x x	+ x	x x	*		
UNITED KINGDOM	+ x	+ -	x -	+ x	x -	- x	*	
UNITED STATES	- -	- -	- -	x -	x -	- x	- x	*

APPENDIX

Poor Population: Inequality Measures (Disposable Income)

	Gini Coefficient	Extended Gini	CV^2
Canada (1987)	0.1685 (3)	0.2669 (3)	0.0922 (3)
France (1984)	0.1715 (4)	0.2741 (4)	0.0967 (4)
Germany (1984)	0.1299 (1)	0.2032 (1)	0.0527 (1)
Israel (1986)	0.1306 (2)	0.2037 (2)	0.0547 (2)
Netherlands (1987)	0.1844 (5)	0.2909 (5)	0.1112 (5)
Sweden (1987)	0.2194 (8)	0.3447 (8)	0.1517 (8)
United Kingdom (1986)	0.2055 (6)	0.3365 (7)	0.1471 (7)
United States (1986)	0.2103 (7)	0.3250 (6)	0.1355 (6)
Canada (1981)	0.1779 (5)	0.2831 (5)	0.1044 (5)
France (1979)	0.1832 (6)	0.2927 (6)	0.1079 (6)
Germany (1981)	0.1588 (2)	0.2480 (2)	0.0811 (2)
Israel (1979)	0.1134 (1)	0.1750 (1)	0.0406 (1)
Netherlands (1983)	0.1778 (4)	0.2816 (4)	0.1031 (4)
Sweden (1981)	0.1883 (7)	0.2958 (7)	0.1146 (7)
United Kingdom (1979)	0.1597 (3)	0.2607 (3)	0.0913 (3)
United States (1979)	0.2039 (8)	0.3229 (8)	0.1331 (8)

FFIGURE 1 - SEN POVERTY MEASURE



FFIGURE 2 - FOSTER POVERTY MEASURE

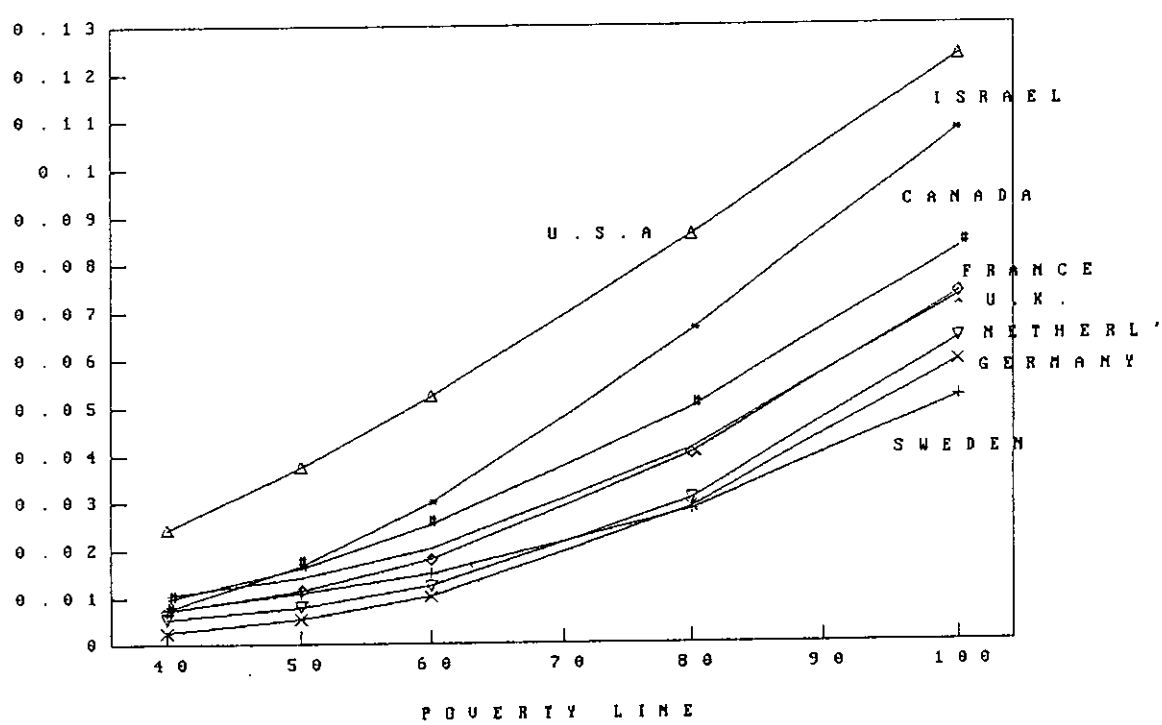


FIGURE 3 - KAKWANI POVERTY MEASURE

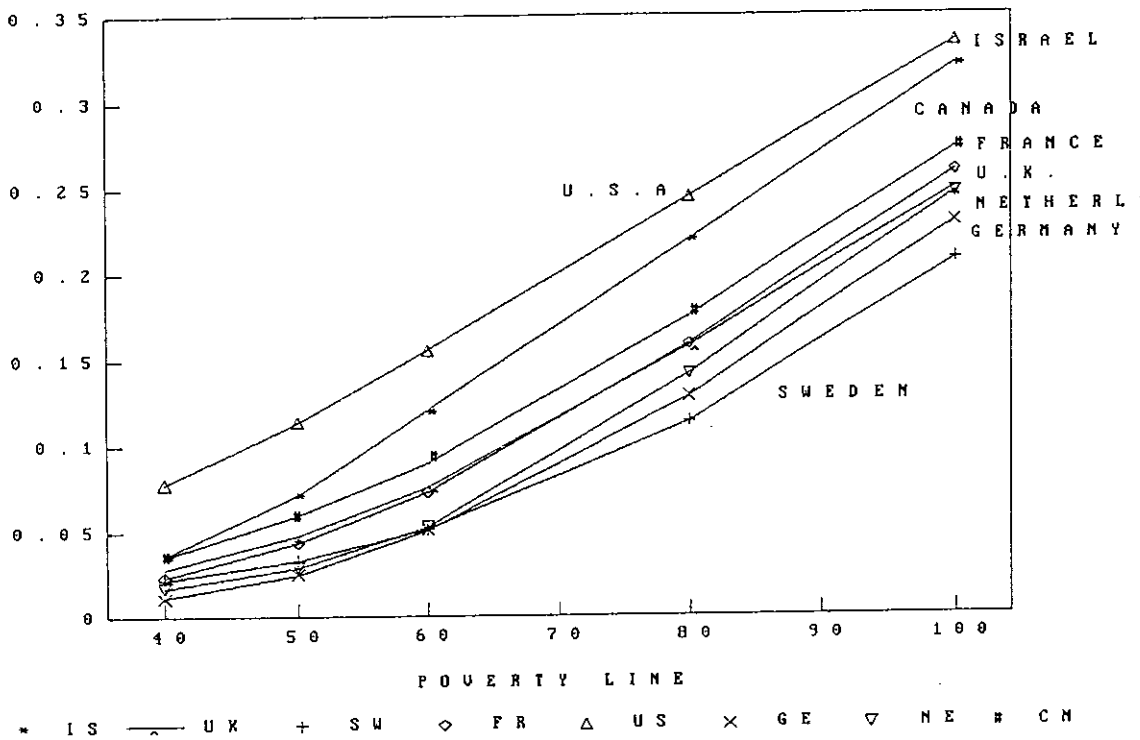


FIGURE 4 - HEAD-COUNT RATIO

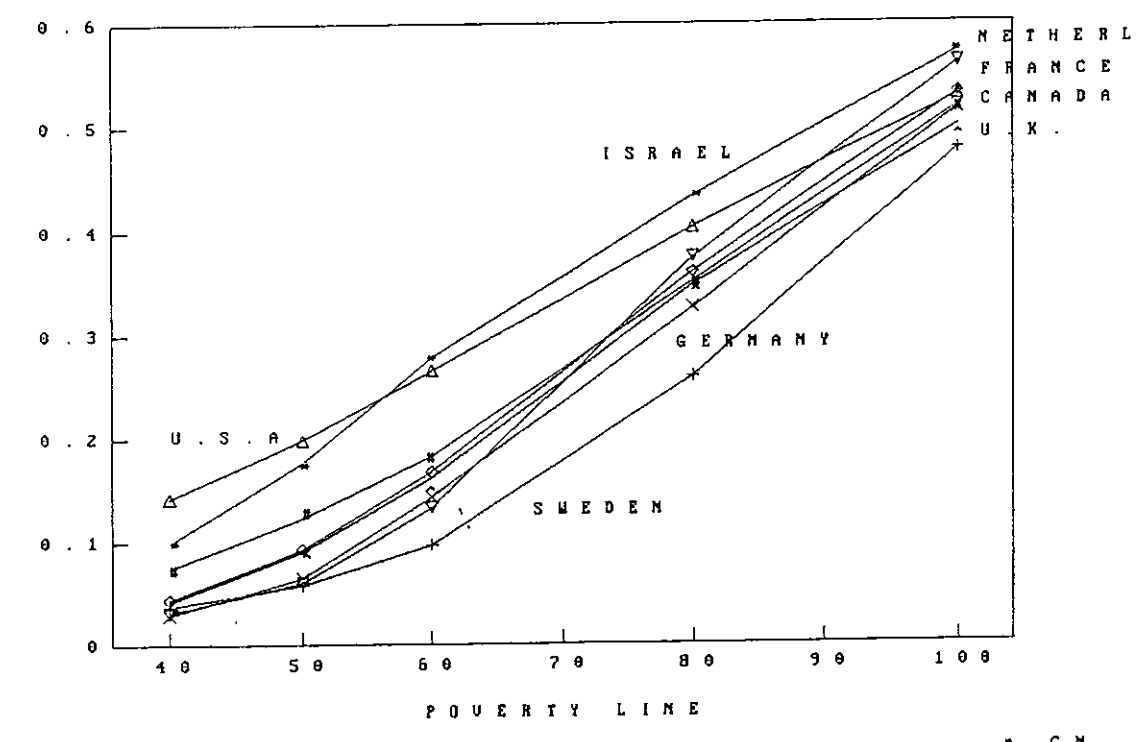


FIGURE 5 - INCOME GAP RATIO