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International Comparison of Household Inequalities: Based on Micro Data with Decompositions

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INTERNATIONAL COMPARISON OF HOUSEHOLD INEQUALITIES: BASED ON MICRO DATA WITH DECOMPOSITIONS

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ABSTRACT

A family of Generalized Entropy (GE) measures are employed to investigate inequality within 13 countries for comparative analysis. Luxembourg Income Study data sets are choosen for their richness of micro data on variables and attributes such as income, age, education, family size, gender, and ethenicity. The GE measures are employed and decomposed by the households head's age, gender, education, and ethencity as well as the size of the family. This is done in order to learn about components which are due to demographic differences between households and within group components which are free of such group characteristics. This will allow us to examine the impact of different social-economic structures upon the distribution of income. Looking at the overall inequality for comparative analysis without the decompositions could provide us with a distorted picture of true differences and thus it is inadequate. Furthermore, internal analysis are enhanced since the decompositions will allow the policy analysis to locate the potential source of inequality for diagnostic purposes.

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I. INTRODUCTION

There is growing evidence suggesting that most households pay attention to their level of economic well being beyond their own national boundaries. Subsequently, the policy makers should be interested to know about the level of economic well being of their population relative to those of other comparative nations. This is not to say that internal comparison is not important. To the contrary we are suggesting learning from some of the policies and practices of those outside one's national boundaries. Comparative analysis of income inequality is a first step toward that goal. However one has to determine the appropriate approach for such analysis. Some studies have taken an econometric approach while others have looked at inequality based on aggregated data. Our approach is based on modern welfare economics, and uses micro data to compute measured income inequality within each country.

Luxembourg Income Study data sets are used to draw information with respect to disposable household income, age, gender, education, ethenicity of the household as well as family size. This information is used to measure overall inequality as well as group inequality provided by decompositions.

This paper provides a brief review of the measurement approach and the features of the data sets in section II. It is followed by analysis of inequality based on lifecycle (age), gender, family size, education and ethenicity in sections III - VII respectively. Concluding remarks are then drawn.

II. MEASUREMENT APPROACH AND THE DATA

A variety of specifications are found in the income inequality literature. Although there is no unique rule for selection process there appears to be agreement that a class of such measures are "appropriate" for the measurement purposes. We will employ a class known as the Generalized

Entropy and make use of a wide range of such measure to demonstrate the sensitivity of our results with respect to the choice of the inequality measures used. Furthermore this will aid as to detect robustness if patterns do not change as we move from one member of this class to another.

Let Y_i denote the income of household $i = 1 \ldots N$ and $Y_i^* = Y_i / \sum_{j=1}^{n} Y_j$ be the income shares such that:

$$I_\gamma(Y) = \sum_i \left[(NY_i^*)^{1+\gamma} - 1 \right] / N\gamma(\gamma + 1) \qquad \gamma \neq 0, 1 \qquad (1)$$

$$= \sum_i Y_i^* \text{ Log } (NY_i^*) \qquad \gamma = 0 \qquad (2)$$

$$= \sum_i N^{-1} \text{Log } (1/NY_i^*) \qquad \gamma = -1 \qquad (3)$$

The above family satisfies the fundamental welfare axioms. Note that I_o and I_{-1} are the well known Theil (1967) information measures. Furthermore γ is the degree of inequality aversion. For complete discussion of the above family and its properties see Cowell and Kuga (1981). Also this family includes monotonic transformation of measures proposed by Atkinson (1970). The above measures are decomposable, see Bourguignon (1979).

For computation purposes data sets from the Luxembourg Income Study (LIS) was employed. LIS has gathered and organized sets of micro-data for 13 countries with some common standards, definsions, concepts and structures for comparative analysis. The most important goal of LIS has been one of gathering detailed yet adequate information on income sources. Although other variables have been gathered in my view income seems to be the richest variable in the LIS data sets. The data sets vary in sample size and a discussion of the nature of the data can be found in Smeeding, Schmaus, Allegreza (1985). The countries currently in the set are Canada (1981), USA (1979), Norway (1979), Israel (1979), U.K. (1979), France (1979), Australia

(1981), Germany (1981), Sweden (1981), Switzerland (1982), Netherland (1983), Italy (1986), Polland (1986). The data sets are intended to be comprehensive with respect to the household population. However the German data set exclude families headed by foreign nationals. Thus some 8% of the population is excluded. Also Israel covers only 90% of households, and the rural population is excluded. With the exception of U.K. data set all data sets are weighted to adjust for the nonresponse within each sample. Although data for individuals, families, and households are provided, this study only focuses on the latter. However, we make adjustment for the household size by using Per Capital Household Income (PCHI).

III. OVERALL AND LIFE CYCLE OBSERVATIONS

There are many studies in the literature in which overall inequality has been evaluated between nations for comparative purposes. The strength of some of these studies should be evaluated based on their approach in measuring inequality. Although some have used appropriate measures, they have not utilized some of the basic features of the measures used. For example Theil measures are used, however the decompasability property of the measure is not utilized. Our approach provides decompositions for six age categories. These groups are: under 25, 25-34 years, 35-44 years, 45-54 years, 55-64 years, and 65 years and older. Looking at Table 1 inequality based on four different choices of γ is reported, γ = -2.0, -0.5, -1.0, and 0.0. The latter two are Theil's first and second measures of inequality, while the formers are based on CES type functions. Our choice covers a wide range of measures for sensitivity purposes. It is evident from the given data that the choice of inequality measure will determine our perception of inequality in each country and among them. For example United States reports the largest inequality based on γ = -2 and its ranking changes to the fifth place with γ = -0.5.

Consequently it is a very difficult task to generalize ranking of inequality measures. Furthermore, it does not provide detail information about the breakdown of inequality among the population in a given country. Consequently, one needs to employ those measures which are decomposable in order to learn about the observed differences based on characteristics of the population on one hand, and differences which are free of such features.

To overcome the observed problem, decompositions based on age are considered in this section. This is to detect differences due to life cycle patterns within each country. Looking at the between and within group components of inequality in each of the 13 countries, given in table 2 it is evident that the between group component is not a major contributor to the overall inequality except in Norway and United Kingdom. It appears that within each age classification there are other factors that are important as well. This observation is robust regardless of the type of inequality measure employed.

The usual life cycle pattern is observed for countries such as Italy, Netherland, Switzerland, Poland, Sweden, Germany, Canada, France and U.K. That is, the observed inequality has an over all falling trend with age. For some, this pattern starts off with an initial rise in inequality and then as heads of households are older inequality tends to drop. This is consistent with the anticipated life cycle patterns. Consequently, our observed income inequality among those who are in the oldest age category (65+) is shown to be rather small regard less of the type of inequality measures used. Thus some similarities among most countries regarding old age benefit is detected. However our information is inadequate regarding other old age benefits.

The exceptions to this observed pattern are United States, Australia, and Israel. The formers, report higher inequality among those in the (55-64) age group as opposed to (45-54) age group. A contributor to such a difference in

the U.S. could be the emergence of pensions and the option of early retirement. As for the latter case, Israel reports higher income inequality with higher age. This observation is robust with $-\gamma > 0$. The factor that comes to mind as a possible contributor to this pattern is the unique nature of imigration into Israel.

IV. GENDER AND COMPARATIVE INEQUALITY

In recent decades there has been structural changes in the labor market for women. This trend is true in most western nations. Most nations have subscribed to particular policies in order to assure equal opportunity. The success of such policies should be evaluated in terms of economic well being of, households whose head is a women. This is particularly important due to the rise in the number of such families, in particular those who are single headed families. For example in the United States households whose head is a women have dependent children and there is large concentration of minorities among them. Consequently this has created a situation in which two classes of women are created. One in which has benefited from these programs and policies, and those who have been left behind. It should be of interest to most policy makers and analysist the implication of these structural changes. This is essential for further policy analysis as well as recommendations. The comparison of the observed changes in inequality across these countries will enable one to see if there are some uniformity among these nations.

The data based on PCHI is decomposed based on gender of the household head for each country. The measured inequality based on four choices of γ are provided in table 3. The between group component of the overall inequality is shown to be rather small in most countries and the within group component is dominating. This could be given two different meanings. First of all in these countries women heads of households have made some economic gains thus

inequality should be falling. Secondly, some women have made economic progress while others have been left behind. Thus inequality among women becomes the dominant factor. In the case of the United States, Australia and Canada, the second contentions seems to be reasonable and the reported inequality among households headed by women in greater than those of men, for all values of γ. Measured inequality in countries such as Germany, Sweden, United Kingdom, and France, is sensitive to the choice of γ. Thus the choice of the inequality measure influences our perception of inequality among households headed by men and women. In all other countries inequality among women is smaller than those of men heads of households. The dominance of the within group component for these countries indicates that there are other factors, such as education, family size, etc. that need to be investigated as well.

V. HOUSEHOLD SIZE AND INCOME INEQUALITY

In the recent literature there has been talk with respect to the use of equivalence scales for the purpose of inequality measurement. Our approach to use PCHI as opposed to household income is one scale out of many normative scales. However it is not sufficient to base our judgement on the overall measures, although an scale is employed. We recommend the use of the decomposability property by the household size in order to learn about the component of inequality that could be attributed to the household size (scale) and the component which is free of such group characteristic. Furthermore analysis of households of similar size is inorder. There are five household sizes of which the last group is for households with five or more individuals in it.

As shown in table 4, the between-group component of the overall inequality seems to be sizeable for most of the 13 countries. Netherland,

Israel, Germany, Sweden, and Canada, report the highest between group component. For example for Netherland between group component is 36% of the overall inequality with $\gamma = 0$ and it is 22% with $\gamma = -2$. While Canada reports 17% and 8% respectively. This suggests that for these countries the household size is an important factor that needs to be considered for analysis of inequality.

It appears that inequality falls as household size increases and reaches a minimum with household size of four. This pattern is true for most countries specially for $\gamma < -2$ (the exceptions are Poland, Italy and France). One possible explanation could be the nature of the tax system and incentive mechanism for tax deducations. This questions currently is being investigated by the author. The second possible explanation is the life cycle phenomenon. The first two categories largely consists of very young and very old households. Consequently the young does not have accumulated wealth. The return on wealth for the older households should increase inequality among those smaller households. The third possible explanation could be attributed to human capital accumulation. Those households with high degree of human capital accumulation tend to have smaller families. While those with low levels of human capital accumulation tend to have larger families and are in similar labor markets where wages and salaries are much closer together. If the above contention is true the decomparisons based on education should be rather significant.

VI. HUMAN CAPITAL CONSIDERATIONS

In this section I will investigate the impact of investment on human capital (schooling) upon the level of earnings inequality. Individuals invest on human capital and anticipate a higher future earnings. It should be of interest to most policy makers the possible contribution of education to

income inequality. Thus the decompositions by the level of education attained by the head of household could guide us as to the magnitude of this contribution. Furthermore, the direction of inequality as a result of human capital investment is of concern as well.

There are eight countries with common variable for education in the LIS data sets. Looking at Table 5, the decomposition based on three levels of education for U.S.A., Canada, Poland, Israel, Australia, Netherland, Italy, and Germany are provided. The three levels are less than 10 years of education, between 10 and 12 years of education, and 13 years and more. The last category includes those with college degrees as well as more specialized degrees. Our decomposition's reveal that although the within group component in the dominant factor, the between group component is rather noticeable for U.S.A., Israel, Canada, Netherland, Italy, and Germany. Only in Poland and Australia education's impact are negligible. Highest level of contribution to the between group component is reported by Israel and it is followed by Italy, U.S.A. and Germany respectively.

Looking at the measured inequality for each of the three groups it is clear that there is not a unique pattern. However it is interesting to note that the observed inequality is higher among those households with higher education levels in Netherland and Germany. The opposite is detected in the United States and Poland where lower measured inequality is reported as we move to higher levels of education. It could be that in the Netherland and Germany education as well as experience are of importance, and the impact of experience is far greater in those countries. Or possibly there is some life cycle effect with respect to higher job security which brings with it higher earnings for the older generations. Generally for most countries with higher levels of education we are observing higher inequality, this could be attributed to our lumping those with more then a high school degree into a

single category. This is a limitation by the data sets and not negligence on my part.

VII. ETHENICITY AND EARNING OPPORTUNITY

In all nations it is desirable to provide equal opportunity to all households in the labor market. However, labor market has imperfections and need to be corrected with public policies. One of the basic areas in which public policy has had to play a role is to provide better labor market access to national minorities as well as non-natives. There are many ways that this problem can be addressed. However each country is unique in the nature of its problem. In the U.S. this is the problem of white and non-white, while in Israel, Switzerland, Australia and Canada is the immigration policies that effects the opportunity. Thus in the latter countries the decomposition is based on Immigrant (Group B) and non-immigrant (Group A).

The results in table 6 provide the decompositions. It is evident that the average within-group component constitutes a larger proportion of the overall inequality. However in Switzerland and U.S. the between-group component is significant. Looking at the within group inequality it is interesting to note that in Switzerland and Canada, inequality among non-immigrants is greater than the immigrants, while in Israel and Australia the contrary holds true. The nature of public policies, immigration policies, as well as the composition of immigrants are areas in which one has to look into in order to have an understanding of the results. For example Canada's immigration policy is set up such that skilled and educated individuals have a better chance of being admitted into Canada. Consequently, the inequality among the immigrants is smaller. In the same fashion Switzerland's immigration policy is targeting those in the semiskilled category for jobs that in most cases a swiss will not conduct. Inequality among this category

of immigrants is small as well. However in the latter country we detect inequality differentials among the native and non natives, while in Canada, such differential is not detected. This provides a partial explanation of the design of most immigrants to go to Canada. The above observations do not hold for Israel and Australia. In these two countries inequality among immigrants is higher. In Israel there is homogeneity based on religion, without labor market considerations. Thus the variance in earnings capacity is substantial. While in Australia the same patterns holds for different reasons. It appears that Australia is competing with Canada and the U.S. for immigrants and because of its location it can not be as restrictive. Consequently different skill levels are allowed into the country which will result in higher earnings differential among the immigrants.

IV. CONCLUSIONS

Using the Luxembourg Income Study data sets for 13 countries, income inequality among households were measured and analyzed. A class of Generalized Entropy measures were employed to demonstrate the robust nature of our results. It has been shown that we have to look beyond the overall inequality within each country to detect the nature and source of inequality for comparative purposes. Consequently, the decomparability property of these measured were used to further our analysis. The decompositions by, age, gender, family size, education and ethencity were conducted. It was shown that family size and education were rather influential components of the overall inequality. Furthermore interesting patterns were detected by decomposition within each group. Without the richness of the LIS data sets our observations would have been impossible.

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Table 1

Ranking of Nations by Inequality

Country	$\gamma = -2.0$	$\gamma = -1.0$	$\gamma = -0.5$	$\gamma = 0.0$
USA	1.0040 (1)	.2483 (2)	.2191 (5)	.2121 (5)
Norway	.6331 (2)	.5016 (1)	.5891 (1)	.8962 (1)
Aust.	.5215 (3)	.2025 (7)	.1837 (8)	.1800 (8)
Canada	.3899 (4)	.2106 (6)	.1954 (6)	.1941 (7)
Switzerland	.3857 (5)	.2216 (5)	.2294 (3)	.2669 (2)
France	.3509 (6)	.2335 (3)	.2322 (2)	.2563 (3)
Netherland	.3184 (7)	.1871 (9)	.1725 (9)	.1699 (9)
Israel	.2683 (8)	.2238 (4)	.2265 (4)	.2493 (4)
Sweden	.2458 (9)	.1575 (10)	.1449 (10)	.1403 (12)
Italy	.2304 (10)	.1894 (8)	.1900 (7)	.2051 (6)
Germany	.1832 (11)	.1408 (12)	.1376 (12)	.1407 (11)
UK	.1828 (12)	.1416 (11)	.1403 (11)	.1443 (10)
Poland	.1516 (13)	.1261 (13)	.1228 (13)	.1242 (13)

Table 2

International Comparison of Inequalities
Generalized Entropy Measures Based on Per Capita Household Income
By Age of Head of Household

Country	Choice of γ	Overall	Between	Within	U25	25-34	35-44	45-54	55-64	65+
USA.	- 2.0	1.0040	0.0054	0.9990	1.4407	0.5663	2.5813	0.3876	0.5683	0.4379
1979	- 1.0	0.2483	0.0055	0.2429	0.2749	0.2516	0.2651	0.2157	0.2442	0.2155
	- 0.5	0.2191	0.0055	0.2136	0.2242	0.2249	0.2330	0.1924	0.2115	0.1971
	0.0	0.2121	0.0056	0.2067	0.2064	0.2177	0.2305	0.1848	0.2008	0.1962
Sample Size		4468			453	1082	769	667	634	863
Norway	- 2.0	0.6331	0.0489	0.5845	0.3629	0.3018	0.4798	0.8067	0.5470	0.7760
1979	- 1.0	0.5016	0.0445	0.4573	0.2580	0.2325	0.3155	0.6847	0.4654	0.5902
	- 0.5	0.5891	0.0428	0.5467	0.2581	0.2421	0.3452	0.8031	0.5380	0.6987
	0.0	0.8962	0.0415	0.8546	0.2840	0.2883	0.4318	1.2194	0.7779	1.0936
Sample Size		5114			266	933	720	738	1040	1417
Aust.	- 2.0	0.5215	0.0060	0.5156	1.8126	0.6647	0.3625	0.2534	0.4744	0.1437
1981	- 1.0	0.2025	0.0059	0.1967	0.2427	0.2590	0.2211	0.1684	0.1709	0.1096
	- 0.5	0.1837	0.0058	0.1780	0.1869	0.2256	0.2084	0.1557	0.1560	0.1117
	0.0	0.1800	0.0057	0.1743	0.1644	0.2139	0.2108	0.1525	0.1545	0.1186
Sample Size		4730			464	1067	952	710	703	834
Canada	- 2.0	0.3899	0.0027	0.3873	1.3134	0.3286	0.3384	0.3180	0.2587	0.1757
1981	- 1.0	0.2106	0.0027	0.2080	0.2838	0.2162	0.2295	0.2080	0.1839	0.1567
	- 0.5	0.1954	0.0027	0.1928	0.2267	0.2002	0.2183	0.1941	0.1695	0.1608
	0.0	0.1941	0.0027	0.1916	0.2054	0.1962	0.2221	0.1948	0.1640	0.1733
Sample Size		4478			434	1083	803	655	667	836
Swiss.	- 2.0	0.3857	0.0077	0.3781	1.0145	0.5667	0.2501	0.4162	0.2530	0.1967
1982	- 1.0	0.2216	0.0079	0.2138	0.2092	0.2029	0.2028	0.2376	0.2253	0.2069
	- 0.5	0.2294	0.0080	0.2214	0.1563	0.1886	0.2060	0.2533	0.2435	0.2392
	0.0	0.2669	0.0081	0.2590	0.1331	0.1945	0.2219	0.3055	0.2926	0.3150
Sample Size		6877			416	1228	1497	1254	1053	1429
France	- 2.0	0.3509	0.0055	0.3454	0.2138	0.2478	0.3132	0.4100	0.5677	0.2462
1979	- 1.0	0.2335	0.0053	0.2283	0.1276	0.1657	0.2561	0.2582	0.2825	0.1966
	- 0.5	0.2322	0.0053	0.2270	0.1141	0.1597	0.2833	0.2466	0.2595	0.2011
	0.0	0.2563	0.0052	0.2512	0.1080	0.1643	0.3790	0.2557	0.2598	0.2186
Sample Size		5454			156	1027	967	1236	948	1120
Neth.	- 2.0	0.3184	0.0073	0.3111	0.1617	0.2159	0.2553	0.5801	0.4324	0.1805
1983	- 1.0	0.1871	0.0071	0.1801	0.1146	0.1714	0.1940	0.2495	0.1844	0.1310
	- 0.5	0.1725	0.0070	0.1655	0.1031	0.1618	0.1930	0.2146	0.1592	0.1273
	0.0 0	.1699	0.0070	0.1629	0.0956	0.1574	0.2032	0.2052	0.1512	0.1306
Sample Size		4747			209	1146	1045	741	684	922
Israel	- 2.0	0.2683	0.0076	0.2607	0.1757	0.2076	0.2265	0.2861	0.2950	0.3311
1979	- 1.0	0.2238	0.0074	0.2165	0.1422	0.1754	0.1992	0.2186	0.2199	0.2980
	- 0.5	0.2265	0.0073	0.2192	0.1338	0.1754	0.2081	0.2078	0.2107	0.3176
	0.0	0.2493	0.0073	0.2420	0.1293	0.1876	0.2420	0.2080	0.2132	0.3763
Sample Size		2271			57	619	462	371	324	438

Sweden	- 2.0	0.2458	0.0023	0.2436	0.2769	0.2187	0.2883	0.2760	0.2609	0.0499
1981	- 1.0	0.1575	0.0023	0.1553	0.1526	0.1456	0.1835	0.1791	0.1605	0.0471
	- 0.5	0.1449	0.0023	0.1426	0.1311	0.1341	0.1713	0.1636	0.1458	0.0472
	0.0	0.1403	0.0023	0.1380	0.1194	0.1296	0.1694	0.1572	0.1389	0.0481
Sample Size		4754			214	879	1261	939	961	500
Italy	- 2.0	0.2304	0.0011	0.2293	0.2128	0.2236	0.2694	0.2624	0.2301	0.1582
1986	- 1.0	0.1894	0.0011	0.1884	0.1748	0.1798	0.2220	0.2074	0.1842	0.1433
	- 0.5	0.1900	0.0010	0.1890	0.1692	0.1744	0.2252	0.2077	0.1817	0.1468
	0.0	0.2051	0.0010	0.2041	0.1703	0.1774	0.2494	0.2263	0.1916	0.1594
Sample Size		3970			37	484	863	936	791	859
Germany	- 2.0	0.1832	0.0014	0.1819	0.2241	0.1756	0.1779	0.2065	0.1740	0.1642
1981	- 1.0	0.1408	0.0014	0.1395	0.1647	0.1498	0.1419	0.1437	0.1286	0.1276
	- 0.5	0.1376	0.0014	0.1363	0.1516	0.1467	0.1415	0.1421	0.1233	0.1237
	0.0	0.1407	0.0014	0.1393	0.1457	0.1487	0.1473	0.1488	0.1244	0.1250
Sample Size		2787			102	499	619	565	397	605
UK	- 2.0	0.1828	0.0147	0.1682	0.4953	0.2012	0.1933	0.1683	0.1277	0.0904
1979	- 1.0	0.1416	0.0140	0.1276	0.1598	0.1723	0.1439	0.1256	0.1108	0.0870
	- 0.5	0.1403	0.0137	0.1266	0.1454	0.1691	0.1425	0.1209	0.1083	0.0913
	0.0	0.1443	0.0135	0.1309	0.1415	0.1721	0.1471	0.1213	0.1093	0.0988
Sample Size		6878			384	1401	1156	1035	1108	1794
Poland	- 2.0	0.1516	0.0079	0.1438	0.1829	0.1723	0.1670	0.1469	0.1203	0.0739
1986	- 1.0	0.1261	0.0080	0.1182	0.1328	0.1414	0.1355	0.1205	0.1067	0.0691
	- 0.5	0.1228	0.0081	0.1148	0.1252	0.1366	0.1307	0.1161	0.1049	0.0709
	0.0	0.1242	0.0082	0.1161	0.1237	0.1373	0.1315	0.1155	0.1059	0.0758
Sample Size		5284			189	1132	1240	993	853	877

Table 3

International Comparison of Inequalities
Generalized Entropy Measures Based on Per Capital Household Income
By Gender of Household Head

Country	Choice of γ	Overall	Between	Within	Male	Female
USA	- 2.0	1.0041	0.0038	1.0005	0.8565	1.2647
1979	- 1.0	0.2483	0.0037	0.2447	0.2149	0.3165
	- 0.5	0.2191	0.0036	0.2155	0.1955	0.2691
	0.0	0.2121	0.0036	0.2086	0.1925	0.2556
Sample Size		4468			3157	1311
Norway	- 2.0	0.6331	0.0019	0.6313	0.6412	0.5973
1979	- 1.0	0.5017	0.0018	0.4999	0.5115	0.4652
	- 0.5	0.5893	0.0018	0.5876	0.5986	0.5533
	0.0	0.8962	0.0018	0.8944	0.9018	0.8690
Sample Size		5114			3835	1279
Australia	- 2.0	0.5216	0.0008	0.5208	0.4212	0.8296
1981	- 1.0	0.2025	0.0008	0.2018	0.1903	0.2413
	- 0.5	0.1837	0.0008	0.183[illegible]	0.1756	0.2098
	0.0	0.1800	0.0007	0.1793	0.1737	0.2005
Sample Size		4730			3665	1065
Canada	- 2.0	0.3899	0.0005	0.3894	0.2681	0.8065
1981	- 1.0	0.2106	0.0005	0.2101	0.1908	0.2821
	- 0.5	0.1954	0.0005	0.1949	0.1820	0.2455
	0.0	0.1942	0.0005	0.1937	0.1835	0.2349
Sample Size		4478			3534	944
Switzerland	- 2.0	0.3858	0.0002	0.3856	0.4000	0.3220
1982	- 1.0	0.2216	0.0002	0.2215	0.2256	0.2044
	- 0.5	0.2294	0.0002	0.2292	0.2368	0.1985
	0.0	0.2669	0.0002	0.2668	0.2809	0.2103
Sample Size		6877			5549	1328
France	- 2.0	0.3509	0.0008	0.3501	0.3488	0.3535
1979	- 1.0	0.2335	0.0008	0.2327	0.2308	0.2420
	- 0.5	0.2322	0.0008	0.2314	0.2251	0.2605
	0.0	0.2563	0.0008	0.2555	0.2360	0.3406
Sample Size		5454			4520	934
Netherland	- 2.0	0.3184	0.0047	0.3137	0.3218	0.2578
1983	- 1.0	0.1871	0.0048	0.1823	0.1878	0.1615
	- 0.5	0.1725	0.0049	0.1676	0.1743	0.1459
	0.0	0.1699	0.0051	0.1648	0.1732	0.1396
Sample Size		4747			3762	985
Israel	- 2.0	0.2683	0.0001	0.2681	0.2709	0.2475
1979	- 1.0	0.2238	0.0001	0.2237	0.2249	0.2153
	- 0.5	0.2265	0.0001	0.2264	0.2282	0.2145
	0.0	0.2492	0.0001	0.2491	0.2529	0.2239
Sample Size		2271			1988	283

Sweden	- 2.0	0.2459	0.0002	0.2457	0.2422	0.2662
1981	- 1.0	0.1575	0.0002	0.1573	0.1600	0.1417
	- 0.5	0.1449	0.0002	0.1447	0.1481	0.1255
	0.0	0.1403	0.0002	0.1401	0.1440	0.1188
Sample Size		4754			4052	702
Italy	- 2.0	0.2304	0.0006	0.2298	0.2345	0.2007
1986	- 1.0	0.1894	0.0006	0.1888	0.1939	0.1624
	- 0.5	0.1900	0.0007	0.1893	0.1958	0.1576
	0.0	0.2051	0.0007	0.2044	0.2138	0.1601
Sample Size		3970			3330	640
Germany	- 2.0	0.1832	0.0022	0.1811	0.1792	0.1849
1981	- 1.0	0.1408	0.0022	0.1386	0.1384	0.1394
	- 0.5	0.1376	0.0022	0.1354	0.1360	0.1336
	0.0	0.1407	0.0023	0.1384	0.1399	0.1341
Sample Size		2787			2153	634
UK	- 2.0	0.1828	0.0013	0.1815	0.1744	0.2001
1979	- 1.0	0.1415	0.0013	0.1403	0.1424	0.1333
	- 0.5	0.1403	0.0013	0.1391	0.1406	0.1340
	0.0	0.1443	0.0013	0.1431	0.1438	0.1403
Sample Size		6878			5275	1603
Poland	- 2.0	0.1516	0.0002	0.1514	0.1578	0.1326
1986	- 1.0	0.1262	0.0002	0.1259	0.1304	0.1124
	- 0.5	0.1228	0.0002	0.1226	0.1267	0.1100
	0.0	.1241	0.0002	0.1239	0.1278	0.1115
Sample Size		5284			3972	1312

Table 4

International Comparison of Inequalities
Generalized Entropy Measures Based on Per Capita Household Income
By Size of the Household

Country	Choice of γ	Overall	Between	Within	One	Two	Three	Four	Five+
USA	- 2.0	1.0040	0.0371	0.9673	1.1186	1.1278	0.3951	1.4922	0.3181
1979	- 1.0	0.2484	0.0330	0.2154	0.2764	0.2157	0.1822	0.1609	0.1760
	- 0.5	0.2191	0.0314	0.1877	0.2365	0.1863	0.1565	0.1360	0.1563
	0.0	0.2121	0.0301	0.1821	0.2253	0.1760	0.1447	0.1265	0.1479
Sample Size		4468			1332	1197	727	652	560
Norway	- 2.0	0.6332	0.0507	0.5826	0.8915	0.6022	0.2927	0.2319	0.5418
1979	- 1.0	0.5017	0.0457	0.4561	0.5366	0.5095	0.2820	0.2521	0.5775
	- 0.5	0.5893	0.0438	0.5457	0.6264	0.5936	0.3151	0.2974	0.7563
	0.0	0.8961	0.0421	0.8541	0.9663	0.8919	0.3886	0.3934	1.3210
Sample Size		5114			1635	1493	716	741	529
Australia	-2.0	0.5216	0.0332	0.4884	1.0887	0.3860	0.2466	0.2723	0.2360
1981	- 1.0	0.2026	0.0307	0.1719	0.2265	0.1717	0.1467	0.1293	0.1372
	- 0.5	0.1838	0.0297	0.1540	0.1918	0.1573	0.1328	0.1143	0.1243
	0.0	0.1800	0.0290	0.1511	0.1802	0.1530	0.1275	0.1092	0.1197
Sample Size		4730			1360	1223	720	804	623
Canada	- 2.0	0.3899	0.0385	0.3514	0.6373	0.4747	0.2091	0.1794	0.1684
1981	- 1.0	0.2106	0.0352	0.1754	0.2568	0.1811	0.1433	0.1228	0.1257
	- 0.5	0.1955	0.0340	0.1615	0.2259	0.1625	0.1310	0.1134	0.1178
	0.0	0.1941	0.0330	0.1613	0.2176	0.1560	0.1257	0.1095	0.1150
Sample Size		4478			1116	1182	743	785	652
Swiss.	- 2.0	0.3857	0.0340	0.3518	0.7228	0.2719	0.1633	0.1297	0.1590
1982	- 1.0	0.2217	0.0299	0.1918	0.2151	0.2236	0.1379	0.1337	0.1484
	- 0.5	0.2294	0.0283	0.2011	0.1964	0.2484	0.1472	0.1471	0.1636
	0.0	0.2669	0.0269	0.2401	0.2015	0.3141	0.1694	0.1724	0.1960
Sample Size		6877			2157	2372	844	1023	481
France	- 2.0	0.3509	0.0224	0.3285	0.3922	0.4188	0.2914	0.2434	0.2431
1979	- 1.0	0.2335	0.0212	0.2123	0.1915	0.2537	0.2037	0.1860	0.2068
	- 0.5	0.2322	0.0208	0.2114	0.1833	0.2569	0.1979	0.1868	0.2113
	0.0	0.2563	0.0204	0.2360	0.1907	0.3016	0.2060	0.2007	0.2319
Sample Size		5454			1033	1518	1064	1053	786
Neth.	- 2.0	0.3184	0.0703	0.2482	0.1816	0.1393	0.3006	0.1698	0.3413
1983	- 1.0	0.1873	0.0645	0.1227	0.1172	0.1058	0.1538	0.1032	0.1760
	- 0.5	0.1726	0.0626	0.1100	0.1101	0.1012	0.1359	0.0968	0.1519
	0.0	0.1698	0.0612	0.1087	0.1096	0.1001	0.1300	0.0967	0.1412
Sample Size		4747			976	1444	766	1059	502
Israel	- 2.0	0.2683	0.0627	0.2055	0.3101	0.3003	0.1350	0.1238	0.1653
1979	- 1.0	0.2239	0.0574	0.1665	0.2666	0.2401	0.1135	0.1076	0.1415
	- 0.5	0.2266	0.0556	0.1710	0.2684	0.2444	0.1085	0.1058	0.1381
	0.0	0.2492	0.0542	0.1951	0.2875	0.2765	0.1065	0.1078	0.1395
Sample Size		2271			246	535	344	505	641

Sweden	- 2.0	0.2459	0.0347	0.2112	0.3343	0.2081	0.1806	0.1446	0.1356
1981	- 1.0	0.1576	0.0315	0.1261	0.1631	0.1261	0.1158	0.1044	0.1017
	- 0.5	0.1450	0.0303	0.1147	0.1400	0.1148	0.1067	0.0971	0.0949
	0.0	0.1402	0.0293	0.1111	0.1285	0.1100	0.1035	0.0937	0.0916
Sample Size		4754			955	1761	868	820	350
Italy	- 2.0	0.2304	0.0201	0.2103	0.2021	0.1681	0.1774	0.2053	0.2601
1986	- 1.0	0.1895	0.0196	0.1699	0.1695	0.1531	0.1445	0.1856	0.2127
	- 0.5	0.1900	0.0195	0.1705	0.1661	0.1576	0.1398	0.1989	0.2176
	0.0	0.2050	0.0194	0.1857	0.1694	0.1721	0.1411	0.2382	0.2473
Sample Size		3970			493	945	971	967	594
Germany	- 2.0	0.1833	0.0339	0.1494	0.1940	0.1978	0.1136	0.0722	0.1328
1981	- 1.0	0.1409	0.0316	0.1093	0.1422	0.1305	0.0889	0.0661	0.0880
	- 0.5	0.1376	0.0307	0.1070	0.1352	0.1224	0.0876	0.0660	0.0831
	0.0	0.1406	0.0299	0.1107	0.1349	0.1206	0.0906	0.0674	0.0825
Sample Size		2787			693	766	564	507	257
UK	- 2.0	0.1828	0.0147	0.1682	0.2553	0.1676	0.1326	0.1237	0.1132
1979	- 1.0	0.1416	0.0136	0.1281	0.1647	0.1446	0.1040	0.0876	0.1019
	- 0.5	0.1404	0.0131	0.1272	0.1648	0.1403	0.1011	0.0858	0.1010
	0.0	0.1443	0.0127	0.1317	0.1720	0.1401	0.1018	0.0874	0.1029
Sample Size		6878			1660	2136	1094	1247	741
Poland	- 2.0	0.1516	0.0131	0.1386	0.0960	0.1325	0.1468	0.1235	0.1575
1986	- 1.0	0.1262	0.0123	0.1139	0.0968	0.1163	0.1153	0.1055	0.1297
	- 0.5	0.1229	0.0120	0.1108	0.1012	0.1150	0.1082	0.1033	0.1260
	0.0	0.1241	0.0117	0.1125	0.1087	0.1173	0.1050	0.1050	0.1276
Sample Size		5284			699	1348	1018	1150	1069

Table 5

International Comparison of Inequalities
Generalized Entropy Measures Based on Per Capita Household Income
By Education of Household Head

Country	Choice of γ	Overall	Between	Within	LT 10	10-12	13+
USA	- 2.0	1.0039	0.0223	0.9820	0.6789	1.0690	1.0040
1979	- 1.0	0.2483	0.0216	0.2268	0.2485	0.2226	0.2189
	- 0.5	0.2189	0.0214	0.1977	0.2165	0.1960	0.1936
	0.0	0.2122	0.0213	0.1909	0.2083	0.1880	0.1877
Sample Size		4468			950	1883	1635
Australia	- 2.0	0.5215	0.0055	0.5161	0.3572	1.4605	0.4412
1981	- 1.0	0.2025	0.0054	0.1972	0.1852	0.2415	0.1969
	- 0.5	0.1837	0.0054	0.1783	0.1723	0.2022	0.1778
	0.0	0.1800	0.0054	0.1747	0.1718	0.1887	0.1732
Sample Size		4730			2048	560	2122
Netherland	- 2.0	0.3172	0.0149	0.3024	0.2694	0.3131	0.5897
1983	- 1.0	0.1861	0.0153	0.1709	0.1599	0.1808	0.2272
	- 0.5	0.1715	0.0156	0.1560	0.1470	0.1640	0.1939
	0.0	0.1688	0.0159	0.1529	0.1436	0.1584	0.1833
Sample Size		4579			2713	1617	249
Israel	- 2.0	0.2682	0.0426	0.2256	0.2073	0.1919	0.2346
1979	- 1.0	0.2238	0.0411	0.1828	0.1808	0.1635	0.2074
	- 0.5	0.2264	0.0406	0.1859	0.1802	0.1641	0.2180
	0.0	0.2493	0.0404	0.2089	0.1874	0.1747	0.2512
Sample Size		2271			861	752	658
Italy	- 2.0	0.2716	0.0223	0.2494	0.2482	0.1994	0.2047
1986	- 1.0	0.1933	0.0236	0.1697	0.1662	0.1801	0.1742
	- 0.5	0.1904	0.0244	0.1662	0.1594	0.1865	0.1733
	0.0	0.2015	0.0253	0.1761	0.1615	0.2070	0.1812
Sample Size		3946			2847	856	243
Germany	- 2.0	0.1832	0.0099	0.1734	0.1655	0.1694	0.2222
1981	- 1.0	0.1408	0.0103	0.1306	0.1234	0.1351	0.1738
	- 0.5	0.1376	0.0105	0.1271	0.1197	0.1314	0.1664
	0.0	0.1407	0.0107	0.1299	0.1212	0.1335	0.1664
Sample Size		2787			1902	634	251
Poland	- 2.0	0.1516	0.0023	0.1494	0.1482	0.1501	0.1411
1986	- 1.0	0.1261	0.0024	0.1238	0.1257	0.1240	0.1131
	- 0.5	0.1228	0.0024	0.1204	0.1240	0.1200	0.1078
	0.0	0.1242	0.0025	0.1217	0.1276	0.1205	0.1060
Sample Size		5284			2097	2775	412

Table 6

International Comparison of Inequalities
Generalized Entropy Measures Based on Per Capital Household Income
By Ethenicity of Household Head

Country	Choice of γ	Overall	Between	Within	Group A	Group B
USA	- 2.0	1.0040	0.0089	0.9953	1.0597	0.7308
1979	- 1.0	0.2483	0.0082	0.2401	0.2254	0.3024
	- 0.5	0.2191	0.0079	0.2112	0.2008	0.2655
	0.0	0.2121	0.0076	0.2045	0.1958	0.2564
Sample Size		4468			3615	853
Australia	-2.0	0.5216	0.0001	0.5216	0.4900	0.6077
1981	- 1.0	0.2025	0.0001	0.2025	0.1991	0.2122
	- 0.5	0.1837	0.0001	0.1837	0.1817	0.1892
	0.0	0.1800	0.0001	0.1800	0.1785	0.1841
Sample Size		4730			3490	1240
Canada	- 2.0	0.3899	0.0001	0.3898	0.3989	0.3347
1981	- 1.0	0.2106	0.0001	0.2105	0.2134	0.1939
	- 0.5	0.1954	0.0001	0.1953	0.1978	0.1814
	0.0	0.1942	0.0001	0.1941	0.1963	0.1817
Sample Size		4478			3813	665
Switzerland	- 2.0	0.3858	0.0032	0.3825	0.3573	0.4921
1982	- 1.0	0.2216	0.0030	0.2186	0.2243	0.1835
	- 0.5	0.2294	0.0030	0.2264	0.2339	0.1755
	0.0	0.2669	0.0029	0.2641	0.2743	0.1842
Sample Size		6877			5921	956
Israel	- 2.0	0.2638	0.0011	0.2627	0.1718	0.2872
1979	- 1.0	0.2186	0.0011	0.2175	0.1436	0.2404
	- 0.5	0.2195	0.0011	0.2184	0.1406	0.2439
	0.0	0.2380	0.0011	0.2369	0.1441	0.2690
Sample Size		2240			529	1711