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INTERCOUNTRY INCOME INEQUALITY: WORLD LEVELS AND DECOMPOSITION BETWEEN AND WITHIN DEVELOPMENTAL CLUSTERS AND REGIONS

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ABSTRACT

By applying the Theil index of income inequality and its decomposition between and within groups to income data adjusted for purchasing power parity on 115 countries between 1960 and 1985, it is found that the world-wide level of intercountry income inequality declined steadily by 0.584 per cent per annum, indicating a considerable overall convergence process. The decomposition analysis indicates that the dominant constituent of intercountry income inequality was the aggregate inequality between regions, followed by the aggregate inequality within regions. The decomposition also reveals that the contribution of income inequality among the clusters of LDCs, OECD and CPEs was very small.

I. Introduction

In analogy to income inequality among people, income inequality among countries may serve as an indicator of the international level of relative deprivation. Large differences in income per capita between neighbouring countries might therefore generate legal and illegal migration from poor countries to richer ones that can aggravate problems of unemployment and ethnic imbalances and tension in er during periods of recession. In some extreme cases, large differences in per capita income might lead to acts of aggression that can inflict considerable human suffering, loss of natural resources and environmental damage and that can shake the world's political stability. The convergence hypothesis suggests, however, that spillovers from leader economies to followers, diffusion of innovations, imitation, modernisation of social and economic institutions, as well as Maslowvian processes of diverting productive energies into activities of self-expression and fulfilment in the advanced economies, tend to narrow the per capita income gap between the rich and the poor countries.

In their seminal study on worldwide income inequality, Summers, Kravis and Heston (1984) found by computing Gini coefficients that between 1950 and 1980 the world level of income inequality remained approximately stagnant at close to the 0.5 level, whereas income inequality among industrial countries declined sharply from 0.302 in 1950 to 0.129 in 1980. A smaller decline in the level of income inequality was also recorded in the cases of the centrally planned economies (0.381 to 0.301) and the middle-income countries (0.269 to 0.258). In contrast, income inequality between the low-income countries rose from 0.103 to 0.112. Through analysis of the Summers and

Heston's (1984) database on seventy-two countries between 1950 and 1980, Baumol (1986) suggested that there are several convergence-divergence clubs — income levels converged within the centrally planned economies and the middle-income market economies, but not within the group of low-income countries. Baumol (1986) also found that between the aforementioned groups income levels have generally diverged, with the exception of the centrally planned economies which caught up with the advanced market economies to a slight extent. By applying an augmented Solow growth model to Summers and Heston's (1988) improved database, Mankiw, Romer and Weil (1992) concluded that, holding population growth and capital accumulation constant, the standards of living across countries converge at about the rate predicted by the model. Other studies by Maddison (1982), Abramovitz (1986), and Dowrick and Nguyen (1989) have been confined to the case of the most industrialised countries and, in general, have confirmed the existence of a convergence process.

While it is interesting to study the income differences and existence of convergence or divergence processes within and between the aforementioned general groups of similar economic development stage and economic system, it should be recognised that the utmost adverse effects and expressions of intercountry income inequality are likely to occur among neighbouring countries and, hence, it is also important to analyse the intercountry income inequality levels and trends by regions. By applying Theil (1967) index of income inequality and its decomposition properties to Summers and Heston's (1988) improved set of international comparisons of real product and price levels, the present paper elaborates and extends within a comprehensive framework the investigation of intercountry income inequality and the convergence

hypothesis in revealing not only the levels and trends of income inequality among the different clusters of countries at a similar stage of economic development and with similar economic systems, but also between and within the regions of these clusters. The sum of the components of this decomposition yields the global level of intercountry income inequality.

The structure of the paper is as follows. Section II describes the data and the decomposition of the Theil index of income inequality into clusters of economic development stages and economic systems and their regional constituents. Section III presents the global level of income inequality between the 115 countries and its decomposition between and within the clusters of the Less Developed Countries, the OECD countries and the Centrally Planned Economies and their thirteen distinct regions. Sections IV and V present and analyse the income inequality levels and trends within the regions of LDC and OECD countries, respectively. Section VI concludes the paper with a brief summary of the major findings.

II. Conceptual Framework

Our analysis of intercountry income inequality applies the information index of income inequality and its decomposition formula to data on income adjusted for purchasing power parity on a hundred and fifteen countries extracted from Summers and Heston's (1988) PWT4. The national income data are computed by multiplying the population figure by the real gross domestic product per capita (RGDP1), expressed in 1980 international prices. The incomplete data for many developing countries during the 1950s restricts the analysis to the twenty-six year period between 1960 and 1985. The countries have been classified into three major clusters of

economic development stages and systems. The first cluster includes the eighty-three Less Developed Countries (LDCs) on which complete data are available. The second is the cluster of the twenty-four countries affiliated to the Organisation for Economic Cooperation and Development (OECD). The third is the cluster of the nine Centrally Planned Economies (CPEs). Since much of the adverse effects and expressions of intercountry income inequality might take place among neighbouring countries, these clusters, with the exception of the CPEs' cluster which forms a geographical continuum along East Europe and North Asia, are subdivided into twelve regional groups. The regional groups of the LDCs are East Asia and the Pacific (7 countries), East and Southern Africa (18 countries), Gulf and Arabia (7 countries), Latin America and the Caribbean (22 countries), South Asia (6 countries), Southern Mediterranean (6 countries) and West Africa (16 countries). The regional groups of the OECD countries are North America (2 countries), North Europe and the British Isles (9 countries), East Pacific (3 countries), Scandinavia (5 countries including Iceland), and Southern Europe (5 countries). The detailed classification of countries by clusters and regional groups is described in Appendix A.

The information measure of income inequality proposed by Theil in 1967 can be interpreted as the expected information of the indirect message that transforms the prior probabilities as represented by population shares of groups into the posterior probabilities as reflected by their income shares (Kakwani, 1980:88-89). This measure suggests that the aggregate level of intercountry income inequality in any given year is equal to the weighted sum of the logarithms of the countries' ratios of income share to population share, where the weights are the countries' income shares. Our choice of this index is based on its attractive decomposition feature. The Theil index can be

straightforwardly decomposed between and within groups, whereas the Gini coefficient is only decomposable if the constituent subgroups can be strictly ordered by income (Fishlow, 1972; and Cowell, 1980).

The computation of the world level of intercountry income inequality (WLIII) is conducted in accordance with a decomposition formula that preserves and measures the contribution of the constituents of the aforementioned classification -- the clusters of LDCs, OECD and CPEs and their thirteen regional groups:

$$WLIII_{ijk} = \sum_{i=1}^{3} y_i \log(y_i/x_i) + \sum_{i=1}^{3} y_i \left(\sum_{j} (y_{ij}/y_i) \log \frac{y_{ij}/y_i}{x_{ij}/x_i} \right)$$

$$+ \sum_{i=1}^{3} \sum_{j} (y_{ij}/y_i) \left(\sum_{k} (y_{ijk}/y_{ij}) \log \frac{y_{ijk}/y_{ij}}{x_{ijk}/x_{ij}} \right) \qquad (1)$$

where,

i = a cluster index, with 1 indicating the LDCs' cluster, 2 the OECD countries' cluster and 3 the CPEs' cluster;

j = a regional index, with j=1,...,7 for the LDCs' cluster, j=1,...,5 for the OECD cluster and j=1 for the CPEs' cluster;

k = a country index;

y_i = the income share of cluster i in the world's income;

y_{ij} = the income share of region j affiliated to the i-th cluster in the world's income;

y_{ijk} = the income share of country k affiliated to the j-th region of the i-th cluster in the world's income;

x_i = the population share of cluster i in the world's population;

x_{ij} = the population share of region j affiliated to the i-th cluster in the world's population; and

x_{ijk} = the population share of country k affiliated to the j-th region of the i-th cluster in the world's population.

While the first term on the right-hand side of equation 1 indicates the level of income inequality between the clusters of LDCs, OECD countries and CPEs as a whole, the second and the third terms display the weighted sum of income inequality levels between and within the regions of these clusters, respectively.

III. World-Wide Intercountry Income Inequality and its Constituents

By using the aforementioned formula and data, the levels of and trends in global income inequality and its decomposition within and between the three clusters and their regional groups are computed and summarised in Table 1 and illustrated by Figure 1. Table B.1 in Appendix B displays the estimation results of an exponential function and a quadratic trend equation capturing the intertemporal behaviour of the

world-wide intercountry income inequality and its constituents. The major findings indicated by Tables 1 and B.1 and Figure 1 are:

1. The world-wide level of intercountry income inequality declined steadily over the observed period 1960-1985 by 16.75 per cent and at a statistically significant rate of 0.584 per cent per annum.

2. The major constituent of intercountry income inequality was the aggregate income inequality between regions, followed by the aggregate income inequality within regions. The substantial increase in income inequality among the regions of the LDCs more than compensated for the decline in the income inequality among the regions of the OECD countries and hence the share of the overall interregional income inequality in the world-wide income inequality rose from 0.789 in 1960 to 0.839 in 1985. In contrast, the share of the overall intraregional income inequality declined from 0.198 to 0.153 during the same period as the level of intercountry income inequality among the CPEs was moderated.

3. The share of income inequality between the clusters of LDCs, OECD and CPEs in the aggregate level of income inequality among the world's nations was only 0.01314 in 1960 and declined to 0.00864 in 1985. This and the above-mentioned result suggest that the aggregate interregional inequality overshadowed the intercluster inequality.

4. The decline in the world level of income inequality was accelerated by the decline of 1.617 per cent per annum in the aggregate level of income inequality within the regional groups, but it was moderated by the slower decline of 0.307 per cent per annum in the aggregate level of income inequality between regions.

5. The level of income inequality between the clusters of LDCs, OECD and CPEs rose by 31.25 per cent between 1960 to 1969 but later

declined by 56.29 per cent between 1970 and 1985. That is, the substantial divergence of the per capita income across the clusters during the 1960s was replaced by a strong convergence process during the following decades.

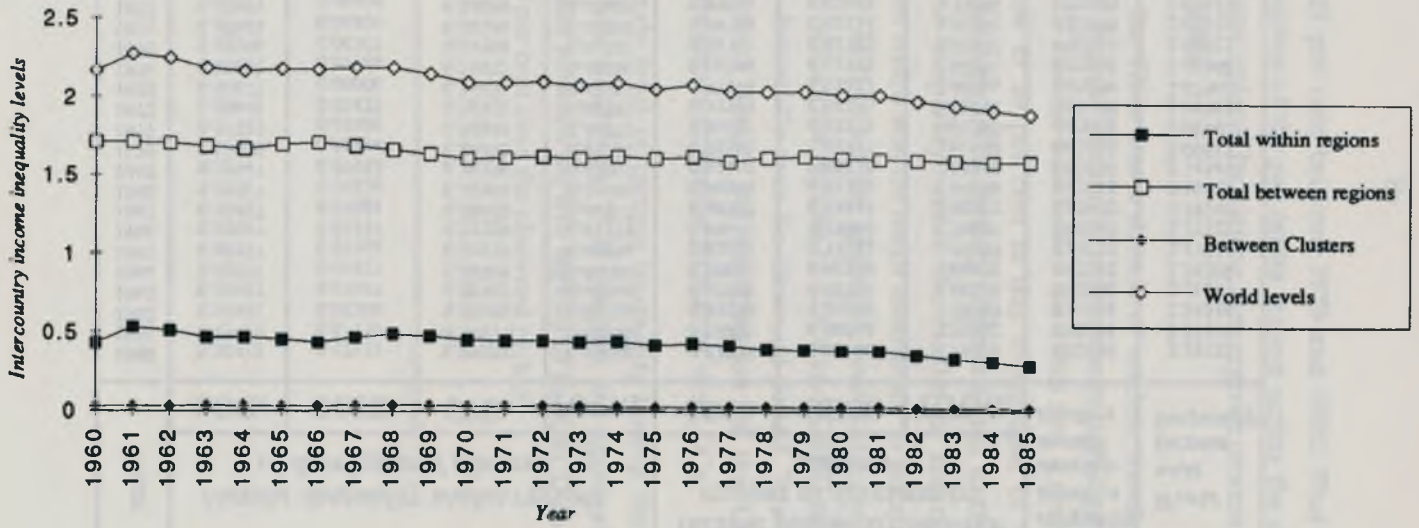
6. Similarly, while the 1960s was a decade of unclear trends in the aggregate level of income inequality within the regional groups of countries, the 1970s and the first half of the 1980s saw a steady and substantial decline of 39 per cent in this constituent of income inequality. This decline can be almost fully attributed to the rapid decline of income inequality within the cluster of the centrally planned economies which was the major contributor to intraregional income inequality. In contrast, the aggregate levels of intercountry income inequality within the regions of LDCs and OECD countries did not change substantially over the observed period. Toward the end of the observed period the contribution of the CPEs to intraregional inequality was similar to that of the LDCs.

7. While the aggregate level of income inequality among the seven regions of LDCs rose steadily by 17.05 per cent, the aggregate level of income inequality between the five regions of the OECD countries declined by 32.70 per cent over the observed period.

Table 1 World-wide levels of intercountry income inequality and its constituents

Year	*Income inequality within regions of development clusters*				*Income inequaltiy between regions of development clusters*			*Income inequality between develop-mental clusters*	*World wide income inequality*
	LDCs	OECD	CPEs	TOTAL	LDCs	OECD	TOTAL		
1960	0.10413	0.07133	0.25322	0.42868	0.87528	0.83480	1.71008	0.02848	2.16723
1961	0.10491	0.07719	0.34657	0.52866	0.89998	0.90964	1.70962	0.03288	2.27116
1962	0.10461	0.08260	0.32100	0.50821	0.90070	0.80309	1.70380	0.03318	2.24518
1963	0.10482	0.07697	0.28365	0.46544	0.89568	0.78700	1.68268	0.03362	2.18117
1964	0.10550	0.07527	0.28209	0.46286	0.89858	0.76799	1.66658	0.03265	2.16209
1965	0.10557	0.07598	0.26839	0.44994	0.92063	0.77242	1.69305	0.03222	2.17521
1966	0.10697	0.07317	0.25259	0.43273	0.94641	0.75966	1.70607	0.03243	2.17122
1967	0.10497	0.07588	0.28432	0.46517	0.94357	0.73915	1.68272	0.03452	2.18240
1968	0.10587	0.07670	0.30394	0.48651	0.94804	0.71322	1.66126	0.03745	2.18522
1969	0.10547	0.07955	0.28759	0.47261	0.94710	0.68838	1.63548	0.03738	2.14547
1970	0.10660	0.07984	0.26430	0.45074	0.95341	0.65777	1.61119	0.03120	2.09313
1971	0.10722	0.07480	0.26369	0.44572	0.96107	0.65273	1.61380	0.03028	2.08980
1972	0.10848	0.07423	0.26321	0.44592	0.97515	0.64276	1.61791	0.03400	2.09783
1973	0.10827	0.08006	0.24851	0.43683	0.97574	0.63412	1.60986	0.03299	2.07968
1974	0.10651	0.07786	0.25672	0.44108	0.98796	0.63595	1.62391	0.02868	2.09368
1975	0.10396	0.06707	0.24598	0.41701	0.98787	0.62285	1.61072	0.02552	2.05325
1976	0.10343	0.06400	0.26146	0.42889	0.99784	0.62114	1.61898	0.02890	2.07676
1977	0.10307	0.06409	0.24689	0.41405	0.97018	0.62083	1.59102	0.02950	2.03457
1978	0.10247	0.07041	0.22004	0.39292	0.99685	0.61680	1.61365	0.02788	2.03445
1979	0.10413	0.07996	0.20481	0.38891	1.01566	0.60668	1.62235	0.02711	2.03836
1980	0.10426	0.08924	0.19039	0.38389	1.02337	0.58462	1.60799	0.02496	2.01684
1981	0.10477	0.08930	0.18828	0.38234	1.02702	0.58012	1.60714	0.02681	2.01628
1982	0.10215	0.08601	0.17002	0.35819	1.03910	0.55829	1.59739	0.02170	1.97728
1983	0.09911	0.08163	0.15104	0.33178	1.03256	0.56111	1.59367	0.01976	1.94520
1984	0.09729	0.08752	0.12878	0.31359	1.02352	0.56012	1.58364	0.01898	1.91622
1985	0.09582	0.08824	0.10443	0.28848	1.02448	0.56149	1.58597	0.01634	1.89079

Figure 1. World-wide intercountry income inequality and its constituents



IV. Income Inequality Levels and Trends Within Regions of LDCs

The levels of intercountry income inequality within the seven regions of LDCs during the observed period 1960 to 1985 are summarised in Table 2 and Figure 2. In addition, Table B.2 in Appendix B displays the estimation results of the exponential and quadratic trend equations. The major findings indicated by Tables 2 and B.2 and Figure 2 are:

1. The highest level of intercountry income inequality was recorded for Latin America and the Caribbean. This level did not change substantially during the observed period.

2. The second highest, but substantially lower, level of intercountry income inequality was recorded for The Gulf and Arabia. Despite the dramatic changes in oil prices during the observed period and the substantial differences among the countries of this region in oil reserves, production and export, a significant decline in income inequality of 2.892 per cent per annum was found. This trend may indicate the existence of spillover effects within the region's countries.

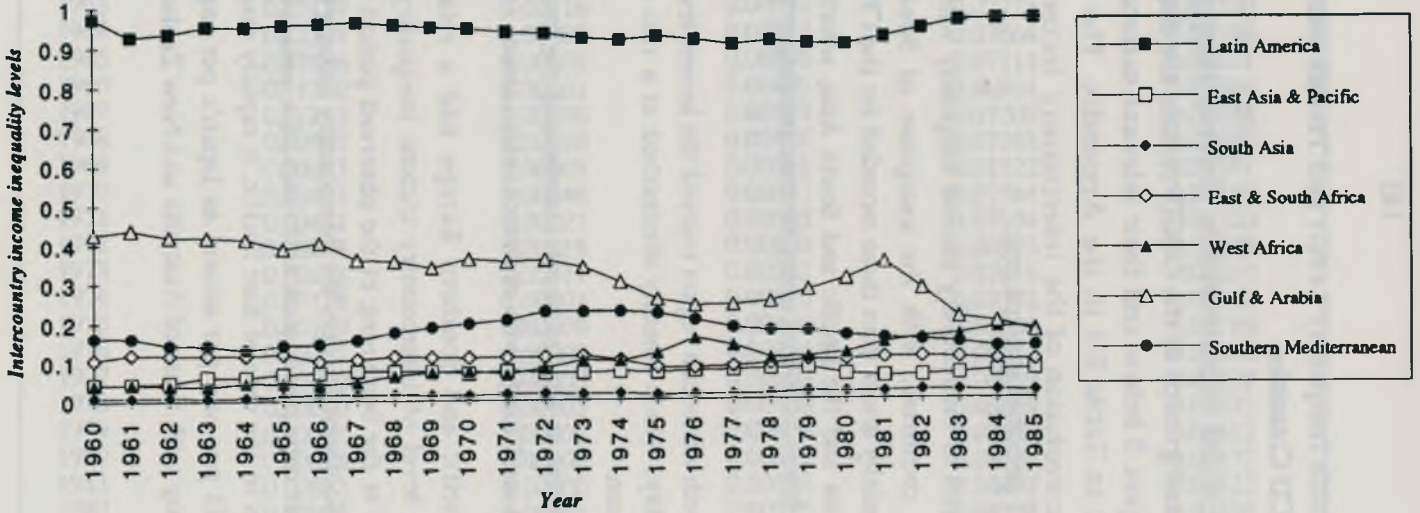
3. The lowest level of intercountry income inequality was recorded for South Asia, but with a steady rise of 3.228 per cent per annum. It was followed by the levels of intercountry income inequality within the region of East Asia and The Pacific and the region of East and South Africa, which registered slower rates of change of 1.059 per cent and -0.756 per cent per annum, respectively.

4. Low levels of intercountry income inequality were measured for the region of West Africa. However, the 1970s and 1980s saw a substantial hike in this level of intercountry inequality, which raised the level of income inequality within this region above that of Southern Mediterranean and set it equal to that of the Gulf and Arabia toward the end of the observed period.

Table 2 Income inequality levels within regional groups of LDCs

Year	*Latin American*	*East Asia & The Pacific*	*South Asia*	*East & South Africa*	*West Africa*	*Gulf & Arabia*	*Southern Mediterranean*
1960	0.97491	0.04367	0.01037	0.10623	0.04294	0.42747	0.16277
1961	0.92748	0.04356	0.00903	0.11897	0.04388	0.43795	0.16159
1962	0.93516	0.04681	0.01011	0.11637	0.03951	0.41982	0.14307
1963	0.95262	0.06033	0.00747	0.11711	0.03751	0.41882	0.14192
1964	0.95066	0.05896	0.00816	0.00471	0.04588	0.41351	0.13157
1965	0.95677	0.06745	0.01274	0.11887	0.04536	0.38856	0.14138
1966	0.95898	0.07130	0.01636	0.10104	0.04276	0.40266	0.14405
1967	0.96279	0.07561	0.01548	0.10463	0.04639	0.35960	0.15442
1968	0.95666	0.07531	0.01653	0.11266	0.06291	0.35611	0.17435
1969	0.94942	0.07328	0.01412	0.11003	0.07163	0.33925	0.18704
1970	0.94560	0.06884	0.01356	0.10843	0.07454	0.36097	0.19568
1971	0.93758	0.07496	0.01587	0.11019	0.06539	0.35519	0.20565
1972	0.93433	0.07028	0.01722	0.11042	0.08172	0.35837	0.22537
1973	0.92159	0.06897	0.01474	0.11291	0.10209	0.33877	0.22515
1974	0.91631	0.07094	0.01598	0.10097	0.09917	0.29906	0.22471
1975	0.92510	0.06783	0.01244	0.08183	0.11761	0.25554	0.21983
1976	0.91652	0.07190	0.01404	0.08007	0.15597	0.23908	0.20225
1977	0.90427	0.07390	0.01383	0.08392	0.13795	0.23971	0.18277
1978	0.91275	0.07757	0.01461	0.09065	0.10624	0.24972	0.17493
1979	0.90693	0.07928	0.02045	0.09950	0.10908	0.27913	0.17366
1980	0.90353	0.06377	0.01962	0.10096	0.11779	0.30618	0.16209
1981	0.92187	0.05854	0.01947	0.10620	0.14479	0.35030	0.15465
1982	0.94380	0.05894	0.02305	0.10768	0.15680	0.28188	0.15111
1983	0.96228	0.06401	0.02200	0.10495	0.16506	0.20742	0.14413
1984	0.96537	0.07165	0.02107	0.09928	0.18202	0.19550	0.13222
1985	0.96571	0.07423	0.01957	0.09757	0.18089	0.17128	0.13420

Figure 2. Intercountry income inequality within regions of LDCs



V. Income Inequality Levels and Trends within Regions of OECD Countries

The time series of intercountry income inequality within the five regional groups of the OECD cluster are displayed by Table 3 and Figure 3 below and their relevant summary statistics are indicated in Table B.3 in the Appendix. The major findings about the evolution of the intercountry income inequality in the OECD regional groups are:

1. The levels of intercountry income inequality within the regions of OECD countries, with the exception of South Europe, were substantially lower than those recorded for the CPEs cluster and for East Asia and the Pacific and South Asia, which experienced the lowest levels of intercountry income inequality among the LDCs' regions.

2. The North American region enjoyed the lowest level of intercountry inequality, which steadily diminished at a rate of 2.895 per cent per annum.

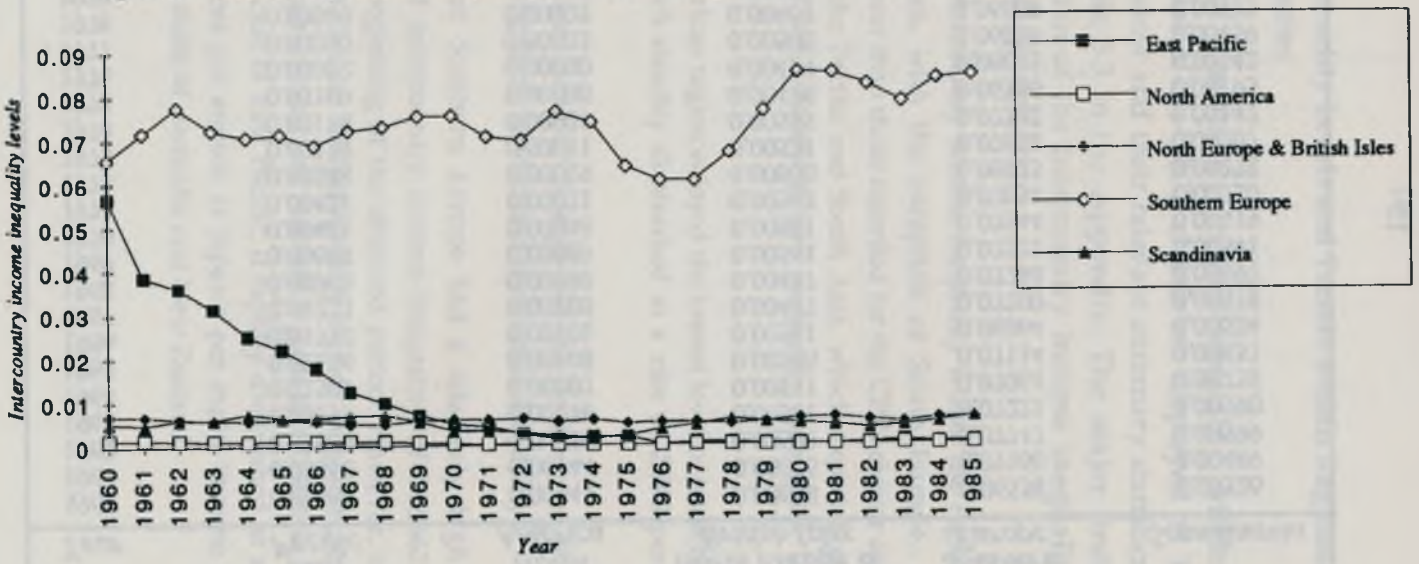
3. Scandinavia as well as North Europe and the British Isles enjoyed low but oscillating levels of intercountry income inequality.

4. East Pacific and Southern Europe had a relatively high and similar level of intercountry income inequality of 0.05662 and 0.06558 at the beginning of the observed period. However, in the case of Southern Europe, the intercountry income inequality rose by 0.511 per cent per annum and reached a peak of 0.08420 in 1985, whereas in the case of East Pacific, it rapidly diminished at a rate of 24.181 per cent per annum as Japan's per capita income level caught up with those of Australia and New Zealand.

Table 3 Income inequality levels within regions of OECD countries

Year	*East Pacific*	*North America*	*North Europe & British Isles*	*Southern Europe*	*Scandinavia*
1960	0.05662	0.00141	0.00648	0.06558	0.00526
1961	0.03860	0.00144	0.00675	0.07160	0.00489
1962	0.03607	0.00130	0.00621	0.07747	0.00599
1963	0.03139	0.00116	0.00581	0.07221	0.00590
1964	0.02505	0.00107	0.00571	0.07064	0.00738
1965	0.02186	0.00108	0.00596	0.07114	0.00631
1966	0.01770	0.00101	0.00561	0.06864	0.00624
1967	0.01223	0.00100	0.00487	0.07200	0.00678
1968	0.00962	0.00090	0.00487	0.07288	0.00697
1969	0.00683	0.00069	0.00561	0.07522	0.00541
1970	0.00481	0.00046	0.00581	0.07544	0.00319
1971	0.00421	0.00021	0.00565	0.07054	0.00320
1972	0.00248	0.00019	0.00600	0.06973	0.00278
1973	0.00138	0.00011	0.00521	0.07618	0.00207
1974	0.00176	0.00001	0.00555	0.07372	0.00147
1975	0.00169	0.00000	0.00476	0.06356	0.00195
1976	0.00012	0.00000	0.00494	0.06035	0.00342
1977	0.00050	0.00003	0.00500	0.06039	0.00439
1978	0.00040	0.00005	0.00469	0.06669	0.00575
1979	0.00021	0.00002	0.00509	0.07622	0.00512
1980	0.00015	0.00000	0.00579	0.08504	0.00472
1981	0.00013	0.00000	0.00606	0.08492	0.00432
1982	0.00036	0.00001	0.00533	0.08222	0.00350
1983	0.00066	0.00003	0.00472	0.07825	0.00402
1984	0.00031	0.00001	0.00570	0.08344	0.00484
1985	0.00047	0.00003	0.00564	0.08420	0.00601

Figure 3. Intercountry income inequality levels within regions of OECD countries



VI. Conclusion

The computed values of Theil index of income inequality for the period 1960 to 1985 revealed that the global level of intercountry income inequality declined slowly but steadily, leading to an overall convergence of per capita income of 16.75 per cent. The results of the decomposition of the index into between and within groups indicated that most of this convergence was accommodated by the decline in the major constituents of intercountry income inequality, namely, the aggregate measures of intercountry income inequality between and within regions. They also revealed that about eighty per cent of the world-wide level of income inequality stemmed from intercountry income inequality among regions and that the contribution of the interregional inequality within the LDCs' cluster became the dominant source. Furthermore, a smaller but substantial portion of the world-wide income inequality was due to intraregional income inequality. The contribution of this constituent decreased from about 20 per cent to 16 per cent due to a steady decline in income inequality levels among the centrally planned economies which, toward the end of the observed period, converged to the aggregate inequality level within the LDCs' regions. About one per cent only of world-wide income inequality was attributed to income inequality among the clusters of LDCs, OECD and CPEs. While the regions of the OECD enjoyed relatively low levels of intercountry income inequality, high levels of intercountry income inequality were recorded for the less developed region of Latin America and the Caribbean, followed, but with a substantial distance and declining trends, by the oil-exporting region of the Gulf and Arabia and by the cluster of the centrally planned economies.

Since 1985 the world has experienced a series of dramatic

events and processes such as the oil glut, the external-debt crisis, the Glasnost and Perestroika, the collapse of the communist regimes and the Comecon in East Europe and the transition of the former centrally planned economies to market economies, the wars in the Gulf, the unification of Germany, the violent fragmentation of the former Soviet Union and Yugoslavia, and the formation of free-trade zones. These events have probably affected the global level of intercountry income inequality considerably in recent years, and their full effects are likely to be extended into the next century.

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APPENDIX A:

COUNTRIES AFFILIATION BY REGIONAL GROUPS AND CLUSTER

LDCs' Regions

1. **Latin America and the Caribbean**: Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela.

2. **East Asia and the Pacific**: Indonesia, Fiji, Malaysia, Papua New Guinea, Philippines, Republic of Korea, Thailand.

3. **South Asia**: Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka.

4. **East and Southern Africa**: Angola, Burundi, Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Rwanda, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zaire, Zambia, Zimbabwe.

5. **West Africa**: Benin, Cameroon, Chad, Congo (Republic of), Gabon, Gambia, Ghana, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo.

6. **Gulf and Arabia**: Afghanistan, Iran, Iraq, Jordan, Kuwait, Saudi Arabia, Syria (Arab Republic).

7. **Mediterranean**: Algeria, Egypt, Israel, Malta, Morocco, Tunisia. (Although Israel is not a less developed country, it was included in this regional group as there was no better alternative.)

OECD's Regions

1. **East Pacific**: Australia, Japan, New Zealand.
2. **North America**: Canada, United States of America.
3. **North Europe and the British Isles**: Austria, Belgium, France, Germany, Ireland, Luxembourg, Netherlands, Switzerland, United Kingdom.
4. **Southern Europe**: Greece, Italy, Portugal, Spain, Turkey (partially in Asia Minor).
5. **Scandinavia**: Denmark, Finland, Iceland (included in this regional group as there was no better alternative), Norway, Sweden.

Centrally Planned Economies

Bulgaria, China, Czechoslovakia, Germany (Democratic Republic), Hungary, Poland, Romania, USSR, Yugoslavia.

APPENDIX B:

ESTIMATES OF THE INTERTEMPORAL BEHAVIOUR OF INTERCOUNTRY INCOME INEQUALITY

Table B.1 Intertemporal behaviour of global income inequality*

	Estimated exponential rate of change in income inequality	Estimated quadratic time-trend equation			
	r	Const.	t	t^2	R^2
Within all Regions	-0.01617 (8.389)	-1411.60 (4.389)	1.43830 (4.411)	-0.00037 (4.431)	0.8733
Between all Regions	-0.00307 (10.560)	759.210 (3.148)	-0.76309 (3.121)	0.00019 (3.100)	0.8731
Between Developmental Clusters	-0.02144 (6.214)	-203.140 (6.363)	0.20657 (6.381)	-0.00005 (6.399)	0.8639
World Aggregate Level	-0.00584 (15.710)	-855.530 (2.071)	0.88173 (2.105)	-0.00023 (2.134)	0.9280

* The t-ratios are indicated in the parentheses.

Table B.2 Intertemporal behaviour of income inequality within regional groups of LDCs*

REGIONAL GROUPS	Estimated exponential rate of change in income inequality	Estimated coefficients of a quadratic time-trend equation			
	r	Const.	t	t^2	R^2
Latin America	-0.00087 (1.481)	790.01 (2.811)	-0.79928 (2.805)	0.00020 (2.802)	0.3159
East Asia & The Pacific	0.09059 (2.724)	-469.890 (4.726)	0.47591 (4.720)	-0.00012 (4.714)	0.6013
South Asia	0.03228 (6.955)	2.35100 (0.063)	-0.00283 (0.075)	0.000001 (0.088)	0.6976
East & South Africa	-0.00756 (3.038)	200.44 (1.461)	-0.20234 (1.455)	0.00005 (1.449)	0.3651
West Africa	0.06745 (17.015)	471.07 (2.106)	-0.48350 (2.132)	0.00012 (2.158)	0.9139
Gulf & Arabia Arabia	-0.02982 (8.837)	45.262 (0.084)	-0.03646 (0.067)	0.00001 (0.050)	0.8092
Southern Mediterranian	0.00080 (0.169)	-1791.30 (5.646)	1.81630 (5.656)	-0.00046 (5.655)	0.5824

* The t-ratios are indicated in the parentheses.

Table B.3 Intertemporal behaviour of income inequality within regional groups of OECD countries*

REGIONAL GROUPS	Estimated exponential rate of change in income inequality	Estimated coefficients of a quadratic time-trend equation			
	r	Const.	t	t^2	R^2
East Pacific	-0.24181 (16.140)	595.3700 (12.360)	-0.60200 (12.330)	0.000152 (12.290)	0.9602
North America	-0.28952 (5.813)	13.5340 (6.917)	-0.01366 (6.884)	0.000003 (6.852)	0.9475
North Europe & British Isles	-0.00650 (2.660)	22.2360 (3.378)	-0.02250 (3.372)	0.0000057 (3.366)	0.4920
Southern Europe	0.00511 (2.171)	212.770 (2.381)	-0.21606 (2.384)	0.00005 (2.389)	0.3535
Scandanavia	-0.01557 (1.458)	50.6790 (2.355)	-0.05131 (2.351)	0.00001 (2.348)	0.2958

* The t-ratios are indicated in the parentheses.

Table B.4 Intertemporal behaviour of income inequality within the centrally planned economies*

Estimated exponential rate of change	Estimated coefficients of a quadratic time-trend equation			
r	Const.	t	t^2	R^2
-0.03114 (7.703)	-1497.70 (4.767)	1.52540 (4.789)	-0.00039 (4.810)	0.8829

* The t-ratios are indicated in the parentheses.

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