Income Distribution at Different Levels of Development: A Survey of Evidence

Felix PAUKERT [1]

The changing view of income distribution

THROUGHOUT the history of mankind the idea of equality has kept appearing, in different contexts and with a different content. It has not been a purely, or even predominantly, economic concept. The notion of economic equality as it appears in history is often accompanied by notions of equality before the law, by the notion of political equality (e.g. the principle of " one man, one vote "), and by notions of social equality (resulting, for example, in the protest against slavery).

In spite of the long-standing interest in the idea of economic equality, there has not been any long tradition of systematic work on the concept of income equality or on size distribution of income. The theory of distribution, which has formed one of the main fields of economic theory since Adam Smith, and even before him, has been primarily concerned with distribution among factors of production—in the form of wages, profit, rent and interest.[2] Only occasionally was this analysis extended to include distribution of income by size.

The ideal of economic equality in the late eighteenth and early nineteenth centuries did not find its main expression in the works of economists (as represented by the Adam Smith, Ricardo, John Stuart Mill school of thought) but rather in the works on the borderline of economics and politics of people like Saint-Simon, Fourier and Robert

[1] International Labour Office.

[2] Economists before Adam Smith, particularly Quesnay and Turgot, were also interested in distribution. Their theories were formulated primarily in terms of classes rather than factors of production. See H. Dalton: *Some aspects of the inequality of incomes in modern communities* (London, George Routledge and Sons Ltd.; New York, E. P. Dutton and Co., 1920), pp. 37-39.

Owen. Influenced as they were by the events of the French Revolution they felt the need for a new organisation of human society, for new principles governing the distribution of the fruits of human effort. None of them, however, advocated full equality of income. Saint-Simon favoured equity, rather than equality, as a criterion of distribution: to each according to his work. Fourier, on the other hand, advocated a system of distribution " under which a comfortable minimum income would be secured to every person, including women, and children more than five years old, and the residue would then be divided between labour, capital and talent in the ratio of 5 : 4 : 3." [1] Incomplete as this system is in its treatment of need and merit, and arbitrary as it is in relation to the merit element, it foreshadows much of the later thinking on this subject in the stress it places on minimum living standards without forgetting the incentive effects of merit rewards.

The classical economists and the Utopian socialists, in their separate ways, are, then, responsible for the pattern which has persisted ever since, in spite of the elaboration of economic theory and increased social awareness—on the one hand the absence of a workable, or even theoretically feasible, definition of " equality of income ", on the other the notion of economic equality as being a desirable goal, but without insistence on absolute equality of income. No economist of note, or no sociologist, has advocated an absolutely equal distribution of income among human beings. For the attitude nearest to this ideal we probably have to go back to the French Revolution, to Robespierre, who said that no one ought to have much more or much less than 3,000 francs a year. This rough equality was to be the result of public opinion, of the natural ethics of the community, and not of organised control.[2]

During most of the nineteenth century a good deal of work was done on classifying the reasons for unequal distribution of income. John Stuart Mill carried further Adam Smith's treatment of the difference of wages, drawing attention to the absence of competition as an important factor contributing to inequality of remuneration. Even more important was his analysis of the consequences of the inheritance of wealth. But little headway was made in the analysis of economic and welfare effects of income inequality.

Progress in this area occurred only towards the end of the nineteenth century, with the arrival of the marginalist school. One theorem comprised in the marginalist theory, the so-called " law of decreasing marginal utility ", has clear egalitarian implications.[3] The idea of decreasing marginal utility was itself not new. It had already been expressed by

[1] Dalton, op. cit., p. 51.

[2] Crane Brinton: " Equality ", in *Encyclopaedia of Social Sciences* (New York, Macmillan Co., 1931), Vol. 5, p. 579.

[3] Joseph A. Schumpeter: *History of economic analysis* (London, George Allen and Unwin Ltd., 1954), p. 888.

Bentham at the end of the eighteenth century in the following words: " The greater the quantity of the matter of property a man is already in possession of, the less is the quantity of happiness he receives by the addition of another quantity of the matter of property, to a given amount." [1] But the economists of the marginalist school managed to make out of this idea one of the cornerstones of economic theory. Ever since, in spite of subsequent controversy about the possibility of making inter-personal comparisons [2], it has been generally accepted that, with a given volume of production, total economic welfare is increased with more equal distribution.

The qualification " with a given volume of production " is, however, an important one. It is sometimes argued that more egalitarian distribution may have some unfavourable effects on production because of its influence on savings. The argument that redistribution of income from the rich (who were assumed to save part of their income) to the poor (who were assumed to spend all their income) would unfavourably affect saving influenced thinking about equality in income distribution in the nineteenth century and continued to do so well into the twentieth century, when Keynes gave it an unexpected twist.[3] In the words of Schumpeter:

> . . . it must not be forgotten that he (Keynes) rendered a decisive service to equalitarianism in an all-important point. Economists with an equalitarian bent had long before learned to discount all other aspects or functions of inequality of income except one: like J. S. Mill they had retained scruples concerning the effects of equalitarian policies upon saving. Keynes freed them from these scruples.[4]

Keynes's argument had an important influence on economic thinking about income equality. He turned the most telling argument *against* income equality into the most important economic argument *for* income equality, transforming the cardinal sin into the principal virtue. He accepted the view that richer people save proportionately more than poor people (as he elegantly put it, " marginal propensity to save being positively correlated with income "), but he regarded reduced saving, accompanied by increased consumption, as the principal method of increasing production in an economy working below its capacity. Income redistribution towards equality in such conditions resulted in increased total income.

Developments after the Second World War turned attention to the situation in developing countries, where the Keynesian theory is hardly applicable because the problem is not so much lack of effective demand as lack of productive capacity. Concern with productive capacity and therefore with investment and savings in developing countries revived the

---

[1] Jeremy Bentham: *An introduction to the principles of morals and legislation* (1789).

[2] On this see, in particular, I. M. D. Little: *A critique of welfare economics* (Oxford, Clarendon Press, 1950) and also works by Scitovsky, Kaldor and Graaf.

[3] J. M. Keynes: *The general theory of employment, interest and money* (London, 1936).

[4] Schumpeter, op. cit., p. 1171.

old anti-egalitarian arguments based on the assumed lower propensity to save of some of the lower income groups, and a policy leading towards more equal distribution of income was held to be incompatible with a policy leading to economic growth.

A reaction against this view came about only in the 1960s, primarily owing to the dissatisfaction with using the criterion of growth of national income as the only indicator of economic development. The intellectual climate changed sufficiently in the past decade for most people concerned with development to admit the desirability of more equal income distribution even if this meant a reduction in the rate of economic growth. The growing emphasis on income distribution was accompanied by increased interest in employment creation as part of the development process, employment being regarded as the most effective means of changing income distribution in a developing society.

The complex inter-relationship between income distribution, employment and economic growth is the subject of a research programme undertaken within the framework of the ILO World Employment Programme which is intended to examine, on the one hand, the determination of income distribution by employment as well as by other factors and, on the other, the effect of changes in income distribution on employment. The research programme also aims at examining the role of government in the determination of primary income distribution and in the redistribution of income.

There are a number of different concepts of income distribution which may be examined in relation to employment and economic development: distribution of personal income by size, distribution of income between different factors of production, distribution between different regions of a country, distribution between rural and urban areas, etc., and most of these are to be covered in the research project. This preliminary study is limited to examination of the problem of how income distribution by size changes at different levels of economic development.

Distribution of income by size at different stages of development

Systematic work on the distribution of income by size at different stages of development is of very recent origin—it could even be argued that it started really only in 1955 with Kuznets's classical article on economic growth and income inequality.[1] Up until then thinking about changes in income distribution had been unhappily influenced by the work of Pareto [2], whose famous law stated (in Samuelson's simplifying

[1] Cf. S. Kuznets: " Economic growth and income inequality ", in *American Economic Review* (Menasha (Wisconsin)), Mar. 1955, pp. 1-28.

[2] Vilfredo Pareto: *Cours d'économie politique* (Lausanne, Rouge, 1897).

words) that " in all places and all times, the distribution of income remains the same. Neither institutional change nor egalitarian taxation can alter this fundamental constant of the social sciences." [1] Pareto's contribution was the expression in mathematical form of income distribution (or, rather, of the upper tail of income distribution) but his insistence on the constancy of the arithmetical value of one of the coefficients of the formula—" Pareto believed that he had discovered an economic constant comparable in significance to the gravitational constant in physics " [2]—was a long-term source of confusion until it was gradually agreed that the coefficient did not remain constant in different societies and different periods of history, and moreover, that it was a very poor indicator of income distribution by size. Modern work based mainly on indicators associated with the names of Lorenz and Gini [3] began to show more substantial differences in income distribution between countries.

Kuznets's primary contribution was to clarify a number of conceptual issues involved in international and inter-temporal comparisons of income distribution and to raise—and tentatively answer—the question of changes in income distribution in the process of development. Discussion of the manyfold conceptual issues involved is outside the scope of this article, which is concerned with the primary distribution of income, i.e. distribution before taxes, taking as the basic income recipient the family rather than the individual.

An empirical investigation of the relationship between income distribution by size and economic development can be conducted in two ways. One can trace the changes in income distribution in a country over a long period of time; or one can compare income distribution in a number of countries at different levels of development and try to draw conclusions by cross-country analysis. Both approaches are hampered by lack of data.

Historical trends in inequality

The fullest compilation of historical data has been undertaken by Kuznets, whose 1963 study has indications of size distribution of income for the United Kingdom, Prussia, Saxony, Germany, the Netherlands,

---

[1] Paul A. Samuelson: " A fallacy in the introduction of Pareto's law of alleged constancy of income distribution ", in *Rivista Internazionale di Scienze Economiche e Commerciali*, No. 12, 1965, p. 246.

[2] Martin Bronfenbrenner: *Income distribution theory* (Chicago and New York, Aldine-Atherton, Inc., 1971), p. 44. Pareto presents this formula as

$$\log N = A - \alpha \log Y$$

where Y is a level of income and N the proportion of income receivers with incomes equal to or greater than Y. The value of A has no economic significance, but the value of α is independent of the choice of units and was considered by Pareto to be always within the range 1.5 to 1.7.

[3] See Appendix 1 for a description of these indicators.

Denmark, Norway, Sweden and the United States.[1] These data are reproduced in table 1. The data are, of course, very heterogeneous and in most cases give only a partial picture of personal income distribution, concentrating as they do on the share of the richest strata of the population. Nevertheless, they permit some generalisations.

For the period extending through the post-Second World War years, there has been a narrowing in inequality in the size distribution of income which is clearly perceptible if judged by the decline in the share of the upper ordinal groups but less marked if judged by the rise in the share of the lower ordinal groups. In most countries, the share of the top 5 per cent group in income before taxes was 20 per cent or less in the post-Second World War years, compared with about 30 per cent (in some countries above and in others a bit below) in the 1920s or the 1930s, while that of the top 20 per cent group was between 40 and 45 per cent in the post-Second World War years compared with well over 50 per cent in the 1920s and 1930s. The information relating to the share of the lowest 60 per cent group is much more scanty, but there is some indication that this was below 30 per cent in the 1920s and 1930s and rose to well above 30 per cent in the post-Second World War years. Thus, according to the evidence, the rise in the share of the lower brackets was less conspicuous than the decline in that of the upper brackets.[2]

The data in table 1 do not give a clear answer to the question *when* the trend towards equality in developed countries started. Only in Denmark is there a clear indication of this trend between 1870 and the beginning of this century, as reflected in the sharp reduction in the share of the top 5 and 10 per cent groups of that highest income State during that period. In other countries—to the extent to which one can judge from table 1—the reduction of inequality appears to have started only after the First World War or even during the Second World War.

Kuznets's 1963 study is the only one where the history of income distribution changes in a number of countries is analysed. There are, however, several studies where changes in income distribution in a single country are traced over a period of time.

Soltow's study on Great Britain is that covering the longest period.[3] Work on income distribution even on the basis of present-day statistics is a rather daring undertaking, and large-scale international comparisons are positively heroic, but Soltow's work on Britain surpasses other efforts. By piecing together various bits of information he manages to construct

[1] S. Kuznets: " Quantitative aspects of the economic growth of nations: VIII. Distribution of income by size ", in *Economic Development and Cultural Change* (Chicago (Illinois)), Jan. 1963, Part II, pp. 1-80. See also idem: *Modern economic growth* (New Haven (Connecticut), Yale University Press, 1966), particularly pp. 206-217.

[2] S. Kuznets: " Quantitative aspects . . .: VIII ", op. cit., p. 59.

[3] Lee Soltow: " Long-run changes in British income inequality ", in *Economic History Review*, Apr. 1968, pp. 17-29.

Lorenz curves for a very long time ago, and to calculate at least Pareto coefficients for upper income groups going even further back, his first (very tentative) estimate being for 1436. In summary he finds some reduction of inequality between 1436 and 1688, and then no change between 1688 and 1801. There is some evidence that in 1867 and 1880 the inequality was somewhat less than in 1801 but other evidence indicates no change during that period. The next period, up to 1911 and 1913, provides a similar picture with basically no change but with a possibility of a slight reduction in income inequality. After 1913 up to 1962-63 there is a sharp reduction in inequality, which is of course documented also in other studies.

The conclusions of Soltow's study on Great Britain, tentative as they are, are interesting in indicating a long period when there was a more or less similar degree of inequality, interrupted perhaps by one or two spells of moderate reduction but with no indication of an increase of inequality. This period comes to an end with the First World War, after which a strong trend develops towards equality, some short-term reversals notwithstanding. A number of authors have examined the changes in British income distribution since the Second World War. There is near unanimity that income after the war was distributed more equally than in 1938. There is, however, not such a clear view of developments since 1945. Thus Dudley Seers, writing in 1956, finds that " there has been, in recent years, a slight regression towards pre-war inequalities ".[1] R. J. Nicholson [2], on the other hand, finds a trend towards greater equality continuing until 1959, since when it has been reversed. This finding is more or less confirmed by the latest available study, that of Thomas Stark [3], who examined data for 1949, 1954, 1959 and 1963 with the use of his own specially devised indicators. Some of these show constantly decreasing inequality, but the majority show a reduction of inequality between 1949 and 1959 with some increase in 1963.

The picture of long-term experience in Great Britain is not at variance with that of the country for which indicators of income distribution over the second longest period exist—Norway. Here the data are of quite a different character: the unique historical records of Norway make it possible to calculate Gini coefficients for eight Norwegian cities for ten-year intervals between 1840 and 1960.[4] These data, which are

---

[1] Dudley Seers: " Has the distribution of income become more unequal? ", in *Bulletin of the Oxford University Institute of Statistics*, Feb. 1956, pp. 73-86.

[2] R. J. Nicholson: " The distribution of personal income ", in *Lloyds Bank Review* (London), Jan. 1967.

[3] Thomas Stark: *The distribution of personal income in the United Kingdom, 1949-1963* (Cambridge, University Press, 1972), pp. 56-57.

[4] See Lee Soltow: *Toward income equality in Norway* (Madison, Milwaukee, University of Wisconsin Press, 1965), p. 17. This book should be consulted for discussion of the many unique features of the data, for a description of the computations and of assumptions on under-reporting, etc.

TABLE 1. SHARES IN NATIONAL INCOME OF DIFFERENT INCOME GROUPS, FOR SELECTED COUNTRIES OVER LONG PERIODS

	Successive entries and dates							
United Kingdom:	Bowley		Clark	Seers		Lydall		
	1880	1913	1929	1938	1947	1938	1949	1957
Income before tax								
Top 5%	48	43	33	31	24	29	23.5	18
Top 20%	58	59	51	52	46	50	47.5	41.5
Prussia:		Procopovitch			Reich Statistical Office			
	1854	1875	1896	1913	1913	1928		
Top 5%	21	26	27	30	31	26		
Top 20%		48	45	50	50	49		
Lowest 60%		34		33	32	31		
				Mueller				
	1873-80	1881-90	1891-1900	1901-10	1911-13			
Top 5%	28	30	32	32	31			
Saxony:		Procopovitch		Reich Statistical Office				
	1880	1896	1912	1913	1928			
Top 5%	34	36	33	33	28			
Top 20%	56	57	55	54	50			
Lowest 60%	27	26.5	27	28	31			
Germany:	Reich Statistical Office			Mueller		United Nations [1]		Wochenbericht [1]	
	1913	1928	1928 (adj.)	1928	1936	1936	1950	1955	1959
Top 5%	31	27	21	20	23	28	24	18	18
Top 20%	50	49	45			53	48	43	43
Lowest 60%	32	31	34			26.5	29	34	34
Netherlands:	1938	1949	1954						
Top 5%	19	17	13						
Top 20%	49	45.5	38.5						
Lowest 60%	31	34	40						

Denmark:

	Zeuthen I			Zeuthen II			Bjerke	
	1870	1903	1925	1908	1925	1939	1949	1955
Top 5%	36.5	28	26	30	26	24.5	19	17.5
Top 10%	50	38	36	39	37	35	29.5	27.4
Top 20%				55	53	51	45	44
Lowest 60%				31	25	27	32	32

Norway:

	1907	1938	1948
Top 5%, country districts	27	20	14
Top 5%, cities	28-32	22	19

Sweden:

	Bentzel		
Earned income	1930	1935	1945
Top 5%	30	28	24
Top 20%	59	58	52
Lowest 60%	19	19	23

	United Nations				
	1935	1945	1948	1948	1954
Top 5%	28	23.5	20	20	17
Top 20%	56	51	47	45	43
Lowest 60%	23	26	29	32	34

United States:

	Kuznets				
	1913-19	1919-28	1929-38	1939-43	1944-48
Top 1%	14	14	13	11	9
Top 5%	24 [2] (1917-19)	25	25	21	17

	Department of Commerce					
	1929	1935-36	1941	1944-47	1950-54	1955-59
Top 5%	30	26.5	24	21	21	20
Top 20%	54	52	49	46	45	45
Lowest 60%	26	27	29	32	33	32

Note: Data relating to after-tax incomes have been omitted. [1] Federal Republic of Germany. [2] 1917-19.

Source: S. Kuznets: "Quantitative aspects of the economic growth of nations: VIII. Distribution of income by size", in *Economic Development and Cultural Change* (Chicago (Illinois)), Jan. 1963, table 16, pp. 60 ff.

TABLE 2. GINI COEFFICIENTS FOR MALES IN EIGHT NORWEGIAN CITIES, 1840-1960

Year	Sarpsborg	Fredrikstad	Halden	Moss	Kristiansand	Mandal	Flekkefjord	Farsund
1840	.	.	.	.	0.567	.	.	.
1845	.	.	.	.	.	.	0,732	.
1855	0.592	.	0.664	.	.	.	0.728	.
1865	0.470	.	.	.	0.560	0.472	.	.
1875	0.488	.	0.480	0.484	0.513 [1]	0.510	0.464	.
1885	0.475	0.518	.	.	0.531	.	.	.
1890	.	0.474	0.502	.	.	0.460 [2]	0.485	.
1895	0.357	.	.	.	.	.	.	.
1900	0.282	0.427	0.392	0.358	0.471	0.412 [3]	0.458	0.405 [4]
1910	0.288	0.419	0.387	0.374	0.492	0.385	0.439	0.394
1920	0.267	0.346	0.312	0.264	0.324	0.431	0.374	0.435
1930	0.365	0.421	0.434	0.420	0.406	0.432	0.398	0.389
1938	0.414	0.456	0.456	0.410	0.365	0.462	0.416	0.476
1950	0.295	0.314	0.307	0.287	0.292	0.324	0.333	0.415
1960	0.288	0.289	0.280	0.293	.	.	.	.

[1] Coefficient for income year 1876. [2] Coefficient for income year 1892. [3] Coefficient for income year 1904. [4] Coefficient for income year 1901.

Source: Lee Soltow: *Toward income equality in Norway* (Madison, Milwaukee, University of Wisconsin Press, 1965), p. 17.

much more precise than those for Great Britain (but which indicate income distribution only in limited areas rather than in a whole country), show a very clear trend towards equality during the period, with a particularly pronounced reduction of inequality around the turn of the century, though with a temporary but rather sharp reversal during the depression years of 1930 and 1938 (see table 2). After the Second World War, the degree of equality was greater than ever before in five of the eight cities and in two others was approaching the level of greatest pre-war equality.

Data for the other countries do not cover anything like as long a period. Thus for the United States, Irving B. Kravis [1] gives data for distribution of family personal income before tax covering the period 1929-58, as set out in table 3. All four indicators in the table show a considerable reduction of inequality between 1929 (or 1935-36) and 1944, followed, however, by a stable situation from then until 1958.

Later data confirm the post-war stability of income distribution in the United States. The US Bureau of the Census data on distribution of pre-tax family incomes even indicate some further levelling, with the five-yearly figures for the period 1950-70 showing the share of the top 5 per

[1] Irving B. Kravis: *The structure of income: some quantitative essays* (University of Pennsylvania, 1962). For the period before 1929 Kravis concludes that there was a phase of narrowing inequality extending roughly from 1890 to 1920, followed by a decade of somewhat increasing inequality (p. 214).

TABLE 3. MEASURES OF FAMILY PERSONAL INCOME INEQUALITY, UNITED STATES, 1929-58

Year	Lowest quintile	Highest quintile	Top 5 %	Gini ratio
1929	.	54.4	30.0	.
1935-36	4.1	51.7	26.5	0.47
1941	4.1	48.8	24.0	0.45
1944	4.9	45.8	20.7	0.41
1946	5.0	46.1	21.3	0.41
1950	4.8	46.1	21.4	0.41
1952	4.9	44.7	20.5	0.39
1956	4.8	45.3	20.2	0.40
1958	4.7	45.5	20.2	0.40

Note: The data shown here are derived by Kravis from studies by S. Goldsmith.

Source: Irving B. Kravis: *The structure of income: some quantitative essays* (University of Pennsylvania, 1962), pp. 204-205.

cent of income units as declining from 17.0 through 16.8 (twice) and 15.8 to 14.4 per cent and the Gini ratio as moving slightly down from 0.375 through 0.366, 0.369 and 0.360 to 0.353.[1]

Among the developing countries, India is one in which there have been consistent attempts to measure changes in income distribution, on the basis of the data regularly collected through the National Sample Surveys. However, the nature of these data is such as to require a number of corrections and results in somewhat contradictory figures. Table 4 gives some of the latest estimates of the Gini concentration ratio for India for different years, most of which are taken from papers presented to a Seminar on Income Distribution organised by the Indian Statistical Institute at New Delhi in February 1971.

The changes in the distribution of income (and of consumer expenditure) reflected in the table are not indicative of any deterioration in the distribution situation: in the few cases where there is an increase in the Gini ratio, it is very small indeed. On the other hand, a case could be made for the reduction of inequality, particularly on the basis of Ahmed's data covering the period from 1956-57 to 1964-65. Moreover, as the Summary Report of the Seminar on Income Distribution pointed out,

[1] Census data quoted by Peter Henle: " Exploring the distribution of earned income ", in *Monthly Labor Review* (Washington), Dec. 1972, p. 22. Such a view is, however, contested by Edward C. Budd, who argues that the reduction of the share of the top 5 per cent was accompanied by a reduction of the share of the bottom 40 or 50 per cent group and by a gain in the share of the middle and upper groups (see his " Postwar changes in the size distribution of income in the US ", in *American Economic Review*, May 1970, pp. 247-260). Henle himself presents calculations (as well as references to some other studies) indicating a slow but persistent trend towards inequality of *earned income* (i.e. the sum of wages and salaries and earnings from self-employment) in the 1958-70 period. This is of course outside the scope of the present study, which is concerned only with the size distribution of total personal income.

TABLE 4. SOME ESTIMATES OF GINI RATIOS FOR INDIA

Year	Ojha and Bhatt		Ahmed	Ranadive			Swamy
	1964	1971	1971	1971	1971	1971	1964
	Personal income households	Personal income individuals	Personal income individuals	Personal income individuals	Personal income households	Consumption expenditure individuals	Consumption expenditure households
1951-52	.	.	.	.	.	.	0.366
1952-53	.	.	.	.	.	.	0.361
1953-54	0.349	0.376	.	0.359-0.374	0.437-0.511	0.336	0.369
1954-55			.	0.399-0.420	.	.	0.390
1955-56	0.341	.	.	0.393-0.419	.	.	0.370
1956-57			0.4527	0.377-0.410	.	0.333	0.407
1957-58	.	.	.	0.371-0.391	0.432-0.540	.	0.398
1958-59	.	.	.	.	.	.	0.383
1959-60	.	.	.	0.355-0.378	.	.	0.385
1960-61	.	.	0.4136	.	.	.	.
1961-62	.	0.385	.	0.356-0.379	.	0.320	.
1962-63	.		.	.	.	.	.
1963-64	.		.	.	.	.	.
1964-65	.	.	0.3873	.	.	0.303	.
1965-66	.	.	.	.	.	.	.
1966-67	.	.	.	.	.	.	.
1967-68	.	.	.	.	.	.	.
1968-69	.	.	.	.	.	0.308	.

Sources: P. D. Ojha and V. V. Bhatt: " Pattern of income distribution in an underdeveloped economy: a case study of India ", in *American Economic Review* (Menasha (Wisconsin)), Sep. 1964, p. 714; and idem: " Pattern of income distribution in India: 1953-55 to 1961-64 " (Paper presented at the Seminar on Income Distribution organised by the Indian Statistical Institute, New Delhi, February 25-26, 1971), p. 5. Mahfooz Ahmed: " Size distribution of personal income in India 1956-57, 1960-61 and 1964-65 " (Paper presented at the Seminar . . . , 1971), table 6. K. R. Ranadive: " Pattern of income distribution in India, 1953-54 to 1959-60 ", in *Bulletin of the Oxford University Institute of Economics and Statistics*, Aug. 1968, p. 251 (distribution of income of individuals in 1953-54, 1954-55, 1955-56, 1957-58 and 1959-60; ranges are due to estimates based on different assumptions about savings and tax evasion); and idem: " Distribution of income: Trends since planning " (Paper presented at the Seminar . . . , 1971), pp. 16, 17 and 33. Subramanian Swamy: " Structural changes and the distribution of income by size: The case of India ", in *Review of Income and Wealth* (New Haven (Connecticut)), June 1967, p. 173.

TABLE 5. SIZE DISTRIBUTION OF FAMILY PERSONAL INCOME

Country	Year	Lowest quintile	Second quintile	Third quintile	Fourth quintile	Highest quintile	Top 5%	Gini ratio
Argentina	1953	7.5	10.6	13.9	18.1	50.0	27.2	0.412
	1959	6.9	9.5	12.2	16.8	54.7	31.8	0.463
	1961	7.0	10.4	13.2	17.9	51.6	29.4	0.434
Mexico	1950	6.1	8.2	10.3	15.6	59.8	40.0	0.526
	1957	4.4	6.9	9.9	17.4	61.4	37.0	0.551
	1963	3.5	6.6	11.1	19.3	59.6	28.8	0.543
Puerto Rico	1953	5.6	9.9	15.0	19.8	49.8	23.4	0.415
	1963	4.5	9.2	14.2	21.5	50.6	22.0	0.449

Source: Calculated from Richard Weisskoff: " Income distribution and economic growth in Puerto Rico, Argentina and Mexico ", in *Review of Income and Wealth* (New Haven (Connecticut)), Dec. 1970, p. 312. The Gini ratios were calculated by Weisskoff from original income intervals.

there was general agreement among the participants that there was some reduction of inequality during the 1960s when measured by consumption expenditure at current prices. But it is probably not possible to go farther than this in generalising about income distribution changes in India.

For most other developing countries, income distribution estimates are not often available for more than one year, and even when they are, they still usually cover a relatively short period, so that little can be deduced about trends. A good recent study by Richard Weisskoff [1] provides information on short-term movements in income distribution for Argentina, Mexico and Puerto Rico which is summarised in table 5.

The figures for the three do not offer a clear-cut picture. Judging by the Gini ratios, income distribution in Argentina and Mexico became more unequal towards the end of the 1950s and then reversed towards equality in the 1960s but remained more unequal than at the beginning of the 1950s. In Puerto Rico there was some increase in inequality. The picture of increasing inequality is further confirmed by the sharply declining share of the lowest 40 per cent (the first two quintiles), particularly in the case of Mexico and Puerto Rico. Even if the lowest 60 per cent of families are taken together, their share of income declined in all three countries. At the same time the share of the top 5 per cent of families declined in Puerto Rico and Mexico [2] and the gainers were thus the upper middle income group—the third of families between the 60th and 95th percentiles.

[1] Richard Weisskoff: " Income distribution and economic growth in Puerto Rico, Argentina and Mexico ", in *Review of Income and Wealth* (New Haven (Connecticut)), Dec. 1970, pp. 303-332.

[2] The extent of this decline in Mexico is, however, probably overstated. See Weisskoff, op. cit., p. 315.

International comparisons of distribution of income by size

Changes in income distribution by size in the course of economic development can be traced not only on the basis of the historical statistics of those few countries for which they exist but also by comparing income distribution in countries at different levels of development. This latter approach has, of course, some drawbacks, as the differences in income distribution to be perceived are due not only to differences in levels of development (as measured by per capita GDP) but also to numerous other differentiating factors among countries. However, it is a generally accepted procedure and one which is to some extent forced on us by the scarcity and quality of historical data. Most of the present-day discussion of income differences is in fact concerned with international rather than with inter-temporal comparisons.

The classical Kuznets study of 1955 [1] compared incomplete data for India, Ceylon (Sri Lanka) and Puerto Rico with data for the United Kingdom and the United States and concluded that income was distributed more unequally in developing countries than in developed countries. Kuznets also concluded (but in this case much more on the basis of speculation than of empirical data) that this inequality was due primarily to a high concentration of income in the top group, with the lowest group in developing countries getting a somewhat higher share and the middle group getting a much smaller share than in developed countries.

A study by Kravis [2], based on a greater amount of empirical evidence, confirmed Kuznets's hypothesis of greater inequality in developing countries. He was able to calculate the share of quintiles of population and Gini ratios [3] for ten developed and developing countries in the early 1950s and, taking the United States as the basis for comparison, found the income distribution in Denmark, the Netherlands and Israel to be less unequal than in that country, that in Great Britain, Japan and Canada to be about the same, and that in Ceylon (Sri Lanka), Italy, Puerto Rico and El Salvador to be more unequal. He was therefore able to conclude that the degree of equality tends to be positively correlated with the level of per capita income but that the correlation was not a simple one. Kravis was also able to confirm Kuznets's statement that the share of the lowest income groups tends to be higher in the poor countries than in the developed countries. The explanation of the greater inequality in developing countries was therefore to be sought in the greater dispersion in the upper part of the distribution scale.

[1] S. Kuznets: " Economic growth and income inequality ", op. cit.

[2] Irving B. Kravis: " International differences in the distribution of income ", in *Review of Economics and Statistics* (Cambridge (Massachusetts)), Nov. 1960, pp. 408-416.

[3] As well as some other measures of inequality, such as the coefficient of variations and the standard deviation of logs of income.

The next to join the discussion was Harry Oshima [1], who was hesitant about placing too much reliance on Kravis's conclusion that there was greater inequality in underdeveloped countries than in developed ones. He suggested that if we assume that countries pass through four stages—undeveloped, underdeveloped, semi-developed and fully developed—we can say that inequality is generally low at the undeveloped stage and that the dispersion of incomes increases as countries advance to the next stage. He further suggested that inequality increases during the third (semi-developed) stage, but reaches its peak there and declines during the fourth (fully developed) stage.

In 1963 Simon Kuznets [2] re-entered the discussion with an analysis of data for 18 different countries. He concluded first of all that the share of the upper income groups was distinctly larger in the underdeveloped than in the developed countries. This finding was very clear in the case of the top 5 per cent of families, which typically accounted for 30 per cent of total income or more in developing countries and for only 20 or 25 per cent in developed countries, and it still held good even if the top 10 per cent or indeed the top 20 per cent of families were taken into account.

Kuznets's second finding was that while the share of the lowest income groups was smaller in some underdeveloped countries than in the developed countries, the difference at this end of the scale was much slighter than in the case of the share of the upper income groups and might not be significant. There was in fact probably very little difference between developed and developing countries as regards the share of the lowest 40 or 60 per cent of families.

From these two findings followed a third one, namely that with greater concentration of income in the top group in the developing than in the developed countries and with the share of the lowest group being about the same in both, the share of the middle group was lower in the developing than in the developed countries and that, generally, in the developing countries income distribution was more equal below the level of the top 5 or 20 per cent of families.

Kuznets's 1963 study was followed by a number of studies using various measures to compare income distribution in countries at different levels of economic development. These studies were usually based on Kuznets's data, or were similarly limited (Kuznets had 20 observations for 18 countries but only in the case of 12 of these countries were the data sufficient to calculate the share of all the quintiles). In most cases their findings corresponded to those of Kuznets but some of them had reservations about whether there was greater inequality in developing than in developed countries.

---

[1] Harry Oshima: " The international comparison of size distribution of family incomes, with special reference to Asia ", in *Review of Economics and Statistics*, Nov. 1962, pp. 439-445.

[2] S. Kuznets: " Quantitative aspects . . .: VIII ", op. cit.

More recently, however, the basis for comparative studies of this type has been substantially changed by the data on size distribution of income compiled by Irma Adelman and Cynthia Taft Morris.[1] These two examined the role of 31 economic, socio-cultural and political factors in income distribution by size, as measured by six different indicators—the Gini ratio, the share of income accruing to the top 5 and the top 20 per cent of the population, to the bottom 60 and the bottom 20 per cent, and to the middle income group (the third quintile)—in 44 developing countries. Using a rather unusual technique based on an analysis of variance, they found the following six factors to be most significant in explaining variations in income distribution: (1) the rate of improvement of human resources (as measured by the Harbison-Myers composite index [2]); (2) the abundance of natural resources (as measured by fuel and non-fuel mineral resources and agricultural land per head); (3) the extent of direct government economic activity (measured by the share of government investment in total net investment); (4) the extent of dualism (measured by the relative importance of the exchange sector); (5) the extent of potential for economic development (as measured by past rates of increase of GNP and by improvements in seven areas of economic institutions and activities); and (6) the extent of political participation.

The level of economic development, as measured by the level of per capita GNP or GDP, was one of the 31 factors tested by Adelman and Taft Morris. It did not emerge as one of the six main determinants but quite a way down the scale among other factors. This would suggest that it is not an important determinant of the shape of income distribution and that the degree of equality or inequality existing in a country depends more on quite a number of other factors than on the level of national income per head. Such a finding would be to some extent at variance with the accepted theory of income distribution changing significantly in the course of economic development, but it would seem to receive considerable support from the fact that it is based on a much wider coverage (44 countries) than any previous investigation in this field.

I would argue, however, against interpreting the work of Adelman and Taft Morris in this way. In the first place, unlike most previous studies, the Adelman-Taft Morris study did not aim at examining changes in equality as a function of development but rather at assessing the relative importance of a number of disparate factors influencing inter-country differences in income distribution. Its particular method of analysis of variance, based on an asymmetrical binary branching process,

---

[1] Irma Adelman and Cynthia Taft Morris: *An anatomy of patterns of income distribution in developing nations*, Part III of the *Final Report* (Grant AID/csd-2236, Northwestern University), Feb. 1971.

[2] See Frederick Harbison and Charles A. Myers: *Education, manpower, and economic growth* (New York, McGraw-Hill Inc., 1964).

makes it possible for an important factor to be overshadowed by others if its impact is not linear, in other words if no straightforward relationship can be established, like " inequality diminishes as per capita national income increases ". And such a relationship as this is indeed not suggested by previous studies.

A second reason why the Adelman-Taft Morris study should not be interpreted as being at variance with the theory of income distribution changing according to the level of economic development lies in the nature of the data used by the authors. Having done a heroic job in assembling and calculating basic information on income distribution for 44 countries, they unfortunately allowed a great number of mistakes to creep into their calculations. These mistakes not only invalidate the data for a few countries but, what is worse, introduce a bias by making the income distribution of some of the least developed countries appear to be less unequal than it is.[1]

The wealth of data assembled by Irma Adelman and Cynthia Taft Morris has, however, provided the opportunity of presenting in this article income distribution data [2] for a larger number of countries than has been done before. This has involved dropping data for four countries where the basic information was entirely inadequate, replacing the data for three countries by superior data from other sources, recalculating data (on the basis of primary or intermediate information provided by the authors) for nine countries, and adding information for sixteen other developed and developing countries.[3]

The resulting information on income distribution by size for 56 countries is presented in table 6. For each country the table shows the share of personal pre-tax income accruing to the bottom (lowest) 20 per cent of families or households (the first quintile), then to the second, third and fourth quintiles, then to the next 15 per cent (81st to 95th percentiles) and finally to the top 5 per cent. The table also shows two measures of concentration calculated from these figures: the Gini ratio and the maximum equalisation percentage, which indicates what percentage of total income would have to be shifted between quintiles in order to achieve equal distribution of income. The countries are grouped accord-

[1] For a number of countries, primarily those with a very low national income per capita, the income distribution data available to Adelman and Taft Morris were aggregated at the lower end of the income scale. By incorrect disaggregation (straightforward division of the share between the lowest two or three deciles), an artificially high share of income was allocated to the lower deciles and an artificially low share to the higher deciles, creating an impression of less inequality than the primary data indicate.

[2] Maybe at this point we should quote the words of warning—well known to workers in this field—of Simon Kuznets: " It may not be an exaggeration to say that we deal here not with *data* on the distribution of income by size but with estimates or judgements by courageous and ingenious scholars relating to size distribution of income in the country of their concern " (" Quantitative aspects . . .: VIII ", op. cit., p. 12).

[3] See Appendix 2 for details of these changes, methods of calculation, sources, etc.

TABLE 6. SIZE DISTRIBUTION OF PERSONAL INCOME BEFORE TAX IN 56 COUNTRIES: INCOME SHARES RECEIVED BY QUINTILES OF RECIPIENTS IN THE NEIGHBOURHOOD OF 1965

Country and level of GDP per head	Percentiles of recipients						Gini ratio	Maximum equilisation percentage	GDP per head in 1965 (US $)
	Below 20 %	21-40 %	41-60 %	61-80 %	81-95 %	96-100 %			
Under $100									
Chad (1958)	8.0	11.6	15.4	22.0	20.0	23.0	0.35	25.0	68
Dahomey (1959)	8.0	10.0	12.0	20.0	18.0	32.0	0.42	30.0	73
Niger (1960)	7.8	11.6	15.6	23.0	19.0	23.0	0.34	25.0	81
Nigeria (1959)	7.0	7.0	9.0	16.1	22.5	38.4	0.51	40.9	74
Sudan (1969)	5.6	9.4	14.3	22.6	31.0	17.1	0.40	30.7	97
Tanzania (1964)	4.8	7.8	11.0	15.4	18.1	42.9	0.54	41.0	61
Burma (1958)	10.0	13.0	13.0	15.5	20.3	28.2	0.35	28.5	64
India (1956-57)	8.0	12.0	16.0	22.0	22.0	20.0	0.33	24.0	95
Madagascar (1960)	3.9	7.8	11.3	18.0	22.0	37.0	0.53	39.0	92
Group average	*7.0*	*10.0*	*13.1*	*19.4*	*21.4*	*29.1*	*0.419*	*31.6*	*78.3*
$101-200									
Morocco (1965)	7.1	7.4	7.7	12.4	44.5	20.6	0.50	45.4	180
Senegal (1960)	3.0	7.0	10.0	16.0	28.0	36.0	0.56	44.0	192
Sierra Leone (1968)	3.8	6.3	9.1	16.7	30.3	33.8	0.56	44.1	142
Tunisia (1971)	5.0	5.7	10.0	14.4	42.6	22.4	0.53	44.9	187
Bolivia (1968)	3.5	8.0	12.0	15.5	25.3	35.7	0.53	41.0	132
Ceylon (Sri Lanka) (1963)	4.5	9.2	13.8	20.2	33.9	18.4	0.44	32.5	140
Pakistan (1963-64)	6.5	11.0	15.5	22.0	25.0	20.0	0.37	27.0	101
South Korea (1966)	9.0	14.0	18.0	23.0	23.5	12.5	0.26	19.0	107
Group average	*5.3*	*8.6*	*12.0*	*17.5*	*31.6*	*24.9*	*0.468*	*37.2*	*147.6*
$201-300									
Malaya (1957-58)	6.5	11.2	15.7	22.6	26.2	17.8	0.36	26.6	278
Fiji (1968)	4.0	8.0	13.3	22.4	30.9	21.4	0.46	34.7	295
Ivory Coast (1959)	8.0	10.0	12.0	15.0	26.0	29.0	0.43	35.0	213
Zambia (1959)	6.3	9.6	11.1	15.9	19.6	37.5	0.48	37.1	207
Brazil (1960)	3.5	9.0	10.2	15.8	23.1	38.4	0.54	41.5	207
Ecuador (1968)	6.3	10.1	16.1	23.2	19.6	24.6	0.38	27.5	202
El Salvador (1965)	5.5	6.5	8.8	17.8	28.4	33.0	0.53	41.4	249
Peru (1961)	4.0	4.3	8.3	15.2	19.3	48.3	0.61	48.2	237
Iraq (1956)	2.0	6.0	8.0	16.0	34.0	34.0	0.60	48.0	285
Philippines (1961)	4.3	8.4	12.0	19.5	28.3	27.5	0.48	35.8	240
Colombia (1964)	2.2	4.7	9.0	16.1	27.7	40.4	0.62	48.0	275
Group average	*4.8*	*8.0*	*11.3*	*18.1*	*25.7*	*32.0*	*0.499*	*38.5*	*244.4*

$301-500									
Gabon (1960)	2.0	6.0	7.0	14.0	24.0	47.0	0.64	51.0	368
Costa Rica (1969)	5.5	8.1	11.2	15.2	25.0	35.0	0.50	40.0	360
Jamaica (1958)	2.2	6.0	10.8	19.5	31.3	30.2	0.56	41.5	465
Surinam (1962)	10.7	11.6	14.7	20.6	27.0	15.4	0.30	23.0	424
Lebanon (1955-60)	3.0	4.2	15.8	16.0	27.0	34.0	0.55	41.0	440
Barbados (1951-52)	3.6	9.3	14.2	21.3	29.3	22.3	0.45	32.9	368
Chile (1968)	5.4	9.6	12.0	20.7	29.7	22.6	0.44	33.0	486
Mexico (1963)	3.5	6.6	11.1	19.3	30.7	28.8	0.53	39.5	441
Panama (1969)	4.9	9.4	13.8	15.2	22.2	34.5	0.48	36.7	490
Group average	*4.5*	*7.9*	*12.3*	*18.0*	*27.4*	*30.0*	*0.494*	*37.6*	*426.9*
$501-1 000									
Republic of South Africa (1965)	1.9	4.2	10.2	26.4	18.0	39.4	0.58	43.7	521
Argentina (1961)	7.0	10.4	13.2	17.9	22.2	29.3	0.42	31.5	782
Trinidad and Tobago (1957-58)	3.4	9.1	14.6	24.3	26.1	22.5	0.44	32.9	704
Venezuela (1962)	4.4	9.0	16.0	22.9	23.9	23.2	0.42	30.6	904
Greece (1957)	9.0	10.3	13.3	17.9	26.5	23.0	0.38	29.5	591
Japan (1962)	4.7	10.6	15.8	22.9	31.2	14.8	0.39	28.9	838
Group average	*5.1*	*8.9*	*13.9*	*22.1*	*24.7*	*25.4*	*0.438*	*32.9*	*723.3*
$1 001-2 000									
Israel (1957)	6.8	13.4	18.6	21.8	28.2	11.2	0.30	21.2	1 243
United Kingdom (1964)	5.1	10.2	16.6	23.9	25.0	19.0	0.38	28.1	1 590
Netherlands (1962)	4.0	10.0	16.0	21.6	24.8	23.6	0.42	30.0	1 400
Federal Republic of Germany (1964)	5.3	10.1	13.7	18.0	19.2	33.7	0.45	32.9	1 667
France (1962)	1.9	7.6	14.0	22.8	28.7	25.0	0.50	36.5	1 732
Finland (1962)	2.4	8.7	15.4	24.2	28.3	21.0	0.46	33.5	1 568
Italy (1948)	6.1	10.5	14.6	20.4	24.3	24.1	0.40	28.8	1 011
Puerto Rico (1963)	4.5	9.2	14.2	21.5	28.6	22.0	0.44	32.1	1 101
Norway (1963)	4.5	12.1	18.5	24.4	25.1	15.4	0.35	24.9	1 717
Australia (1966-67)	6.6	13.4	17.8	23.4	24.4	14.4	2.30	22.2	1 823
Group average	*4.7*	*10.5*	*15.9*	*22.2*	*25.7*	*20.9*	*0.401*	*29.0*	*1 485.2*
$2 001 and above									
Denmark (1963)	5.0	10.8	18.8	24.2	26.3	16.9	0.37	25.4	2 078
Sweden (1963)	4.4	9.6	17.4	24.6	26.4	17.6	0.39	28.6	2 406
United States (1969)	5.6	12.3	17.6	23.4	26.3	14.8	0.34	24.5	3 233
Group average	*5.0*	*10.9*	*17.9*	*24.1*	*26.3*	*16.4*	*0.365*	*26.2*	*2 572.3*

Source: See appendix 2.

ing to their level of economic development as measured by gross domestic product per head in 1965, expressed in US $.

This basis for grouping was selected so as to be able to investigate the relationship between income equality and the level of economic development in terms not only of the standard question of whether income is more equally distributed in developed than in developing countries but also of whether a certain tendency (towards greater equality or inequality) is not at some point reversed. The large number of observations available in table 6 makes it possible to have several groups corresponding to different levels of development and at the same time to have in each group more than two or three observations. Averages for the various groups are shown in table 7 and relate not only to the basic data for each country given in table 6 but also to some further calculations based on those data. Some of the indicators contained in table 7 are shown in diagram 1 on page 119.

The first observation to be made on the basis of the data in table 7 concerns the *over-all indicators of income inequality*, the Gini ratio and the maximum equalisation percentage. Both indicators provide a similar picture. There is a sharp increase in inequality as one moves from countries in the lowest income group to those in the $101-200 group, and a further but less pronounced increase as one moves on to the $201-300 group. This group and the next ($301-500) represent the peak of inequality. There is then a substantial reduction in inequality in the $501-1,000 group, whose general level of inequality corresponds to that of the lowest income group (under $100). As one moves further along the developed path, to the $1,001-2,000 and to the above $2,000 groups, there is a clear reduction in the extent of inequality.

How far is this picture derived from the general indicators of income inequality confirmed by comparison with the picture emerging from examination of the shares of particular income groups? Starting with *the share of total income accruing to the top 5 per cent of recipients*, we find that it is highest in countries in the $201-300 and $301-500 groups, indicating that these are the countries with the greatest inequality. However, in the countries in the below $100 group this share is only slightly smaller, whereas (surprisingly) it is distinctly smaller in the countries in the $101-200 group [1], giving a less clear picture for these countries at a lower level of development. In countries in the above $500 groups the share of the top 5 per cent diminishes sharply and in relation to increasing national income per head.

[1] The relatively low share of the top 5 per cent of income recipients in the countries in the $101-200 group is to some extent due to the inclusion in this group of Morocco and Tunisia, where the data clearly understate the share of the top 5 per cent and overstate the share of the next 15 per cent. But exclusion of these two countries would not change significantly the shares of the various quintiles, as the average shares (of the remaining six countries) are as follows: Q_1: 5 per cent; Q_2: 9.2 per cent; Q_3: 13.1 per cent; Q_4: 18.9 per cent; $P_{80\text{-}95}$: 27.7 per cent; and $P_{96\text{-}100}$: 26.1 per cent. The average Gini ratio for the six countries is 0.45 and the maximum equalisation percentage is 34.2.

Taking next *the share of total income accruing to the top 20 per cent of recipients*, we find that the picture is the same as that derived from the two general indicators of inequality. There is an increase in inequality as one moves to the $201-300 and $301-500 groups and then there is a decline, with the share of the $501-1,000 group being approximately the same as that of the below $100 group. There is a further drop in the share of the rich at higher levels of economic development.

Turning now to the share of the poorest classes in each country, we find—what is at first sight surprising—that *the share of total income accruing to the bottom 20 per cent of recipients* (the first quintile) is actually highest in the poorest countries, where the average is 7 per cent in the countries in the below $100 group and 5.3 per cent in those in the $101-200 group. The lowest average share of the bottom 20 per cent of income recipients is in the countries in the $301-500 group. This finding corresponds to the conclusions of Kuznets and Kravis in so far as it indicates that the share of the poorest classes in the least developed countries is higher than elsewhere, but it cannot be generalised into implying that the share of the poorest classes is higher in developing than in developed countries. Once we go above the $200 level, there is no clear pattern.

Widening the range to cover *the share of the poorest 40 per cent of population* (the first two quintiles), we find this as still being highest in the least developed group of countries, with the following general pattern: as inequality increases up to the $201-500 level and then starts to diminish, the share of the first two quintiles declines and then starts to rise.

Still further widening the range to cover *the share of the poorest 60 per cent of population* (the first three quintiles), we find that the same general pattern predominates, with the share of the first three quintiles remaining higher, however, in the countries in the below $100 group than in the countries in the succeeding groups up to the $1,000 level.

To permit examination of the distribution of income between different classes of the poorer parts of the population, the ratio of the share of the third quintile to that of the first quintile has been calculated, in other words the ratio of the share of the average income classes to that of the lowest income classes. This ratio shows a remarkably straightforward and sharp increase as one moves from the less developed to the more developed countries, thus indicating a much smaller dispersion in the lower incomes in the developing countries.

Finally two more indicators, expressing the ratio of the share of the top 20 per cent to that of the bottom 60 per cent ($Q_5 / Q_1 + Q_2 + Q_3$) and to that of the bottom 20 per cent (Q_5 / Q_1), produce once again the same general pattern of changes in income distribution in relation to economic development as has already been established: increasing inequality up to the $201-500 level and then a rapid reduction of inequality.

TABLE 7. INDICATORS OF SIZE DISTRIBUTION OF INCOME IN THE NEIGHBOURHOOD OF 1965

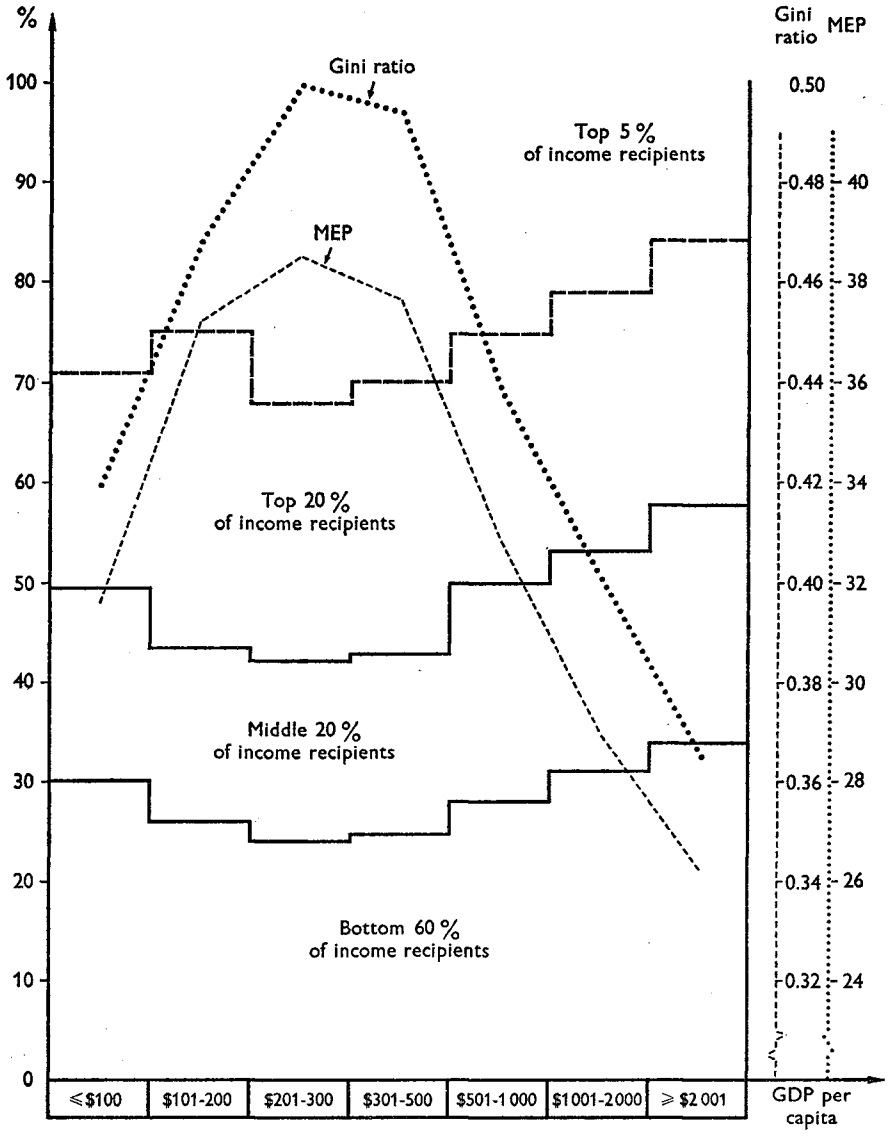
(Average for groups of countries)

GDP per head (US $)	Number of countries	Q_1	Q_2	Q_3	Q_4	P_{80-95}	P_{96-100}	Q_5	Q_1+Q_2	$\frac{Q_1+Q_2+Q_3}{Q_3}$	Q_3/Q_1	Q_5/Q_1	$\frac{Q_5}{Q_1+Q_2+Q_3}$	Gini ratio	Maximum equalisation percentage
		percentages													
Below 100	9	7.0	10.0	13.1	19.4	21.4	29.1	50.5	17.0	30.1	1.87	7.21	1.68	0.42	31.6
101-200	8	5.3	8.6	12.0	17.5	31.6	24.9	56.5	13.9	25.9	2.26	10.66	2.18	0.47	37.2
201-300	11	4.8	8.0	11.3	18.1	25.7	32.0	57.7	12.8	24.1	2.35	12.02	2.39	0.50	38.5
301-500	9	4.5	7.9	12.3	18.0	27.4	30.0	57.4	12.4	24.7	2.73	12.76	2.32	0.49	37.6
501-1 000	6	5.1	8.9	13.9	22.1	24.7	25.4	50.1	14.0	27.9	2.73	9.82	1.80	0.44	32.9
1 001-2 000	10	4.7	10.5	15.9	22.2	25.7	20.9	46.6	15.2	31.1	3.38	9.91	1.50	0.40	29.0
2 001 and above	3	5.0	10.9	17.9	24.1	26.3	16.4	42.7	15.9	33.8	3.58	8.54	1.26	0.36	26.2

Note: Q_1 represents the percentage of total personal income received by the poorest 20 per cent (the first quintile) of income recipients, Q_2 the share of the next 20 per cent, etc; P_{96-100} is the share of the richest 5 per cent of income recipients, P_{80-95} the share of the next 15 per cent.

Source: Calculated from data in table 6.

DIAGRAM 1. DISTRIBUTION OF INCOME AT DIFFERENT LEVELS OF PER CAPITA GDP



Summary of findings

Examination of the effect of the level of economic development on size distribution of income by comparing historical data for particular countries leads to the rather surprising finding that there is a clear long-term trend towards equality. This emerges primarily from studies of Great Britain and Norway, where this trend has sometimes been interrupted by a rather lengthy period of stability or even by a short-term reversal [1] but where there has been no indication of income distribution worsening over any substantial period of time. Data for the United States and India also suggest a gradual, if not very clearly discernible, trend towards equality. While the data for Puerto Rico, Argentina and Mexico are indicative of some increase in inequality, they cover too short a period to be considered to contradict the findings elsewhere.

The scarcity of historical statistics makes it preferable, however, at least at present, to study changes in income distribution in the course of economic development on the basis of international comparisons, even allowing for the poor quality of some of the data available for this purpose. The work of compiling data for 56 countries and undertaking a first analysis of differences in some of the indicators has made it possible to offer comments on several of the points that have been under discussion in the past decade or two.

First of all as regards the question whether there is greater income equality in developed or developing countries, the data provide a clear answer. Taking the 43 countries with GDP per capita below $1,000 in 1965 as developing and the remaining 13 as developed, we find that the average Gini ratio is 0.467 for developing and 0.392 for developed countries. Similarly, the maximum equalisation percentage is 35.8 for developing and only 28.4 for developed countries.

The greater inequality in developing countries is due primarily to the high share of income received by the richest 5 per cent of population—28.7 per cent compared with 19.9 per cent in developed countries, this being the respect in which the contrast between the two groups of countries is most startling. There is a similar although relatively less pronounced difference between the shares of the richest 20 per cent of

[1] The survey of historical experience makes one rather cautious about accepting the generally propounded view that the reduction in income inequality in developed countries started only with the First World War. Kuznets has already observed that this process had started in Denmark before the First World War and Soltow's data quoted in the present article are also indicative of a long trend of inequality reduction dating from well before the First World War in Norway. Kravis indicates a pattern of narrowing inequality in the United States between 1890 and 1920. The pre-First World War situation in Great Britain was basically stable but there are also some indications of a reduction in inequality at that stage. On the other hand it has to be admitted that the reduction in inequality has been sharper and more general since the First World War than at any time before.

income recipients—54.8 per cent of total personal income in developing countries compared with 45.7 per cent in developed countries.

On the other hand, the contrast between the two groups of countries as regards the share of the lowest income recipients is less remarkable. The share of the poorest 20 per cent of population (5.3 per cent) is actually slightly higher in the developing than in the developed countries (4.8 per cent). Even comparing the shares of the poorest 60 per cent of population, the difference is not great, this share amounting to 26.3 per cent in developing and to 31.7 per cent in developed countries.

This being said, the differences in income distribution between the developed and developing countries are not as important as the pattern of income distribution which is typical for particular levels of development. The data presented in this article support the hypothesis expressed but not fully tested by Kuznets and Oshima that with economic development income inequality tends to increase, then become stable and then decrease. These data show clearly that there is an increase in inequality as countries progress from the below $100 level to the $101-200 level and beyond. They establish that the peak of inequality is reached in the groups with a per capita income of between $200 and $500. These per capita income figures imply that the peak of inequality is reached on attainment of the level of development and the structural pattern characterised by the countries (shown in table 6) which in the neighbourhood of 1965 had a GDP per capita in the $201-$500 range. Up-to-date figures, both for income distribution and for per capita GDP, would show this peak as being reached later, perhaps between $250 and $600.

Most of the countries with the most pronounced inequality of income can be found within this range, although two or three of the high inequality countries are in the $101-200 group and one (the Republic of South Africa) in the $501-1,000 group. To generalise, one might say that the greatest inequality of income is to be found among the somewhat richer African countries (Gabon and the Republic of South Africa, but also Senegal and Sierra Leone) and the poorer Latin American countries (Colombia, Peru, Brazil and Bolivia), as well as in two middle eastern countries (Iraq and the Lebanon). There are no Asian countries among those with the greatest inequality of income.

Countries in the $501-1,000 group (other than the Republic of South Africa) have a markedly lower level of inequality, and an even further reduction in this level is to be found in the above $1,000 group. Here France is somewhat exceptional, but the level of inequality of pre-tax income in the Federal Republic of Germany and Finland is also well above the general level for this group.

The data presented in this article also confirm Kuznets's hypothesis about the share of the lower income groups in total income. The share of the lowest 20 per cent can be expected to be higher in the countries with the lowest per capita income, given a subsistence minimum which of

course forms a higher percentage of average income there than elsewhere. But even the share of the lowest 60 per cent of population is higher in the countries in the below $100 group than in other developing countries. Only in the developed countries do the lowest 60 per cent of population receive a higher share of total income than in the poorest countries.

The establishment of a pattern of changes in the size distribution of pre-tax income in the course of economic development still leaves us facing a number of unanswered questions. Why is it that at each level of development there are some countries whose income distribution pattern is in sharp contrast with the prevailing pattern? Imperfections in statistics, numerous as they are, cannot account for more than a minor part of these deviations. What, then, are the factors causing some countries to deviate from the pattern? More generally, what are the factors causing the differences in inequality and the changes in the pattern in the course of economic development? And what role do changes in the level and structure of employment play in the process?

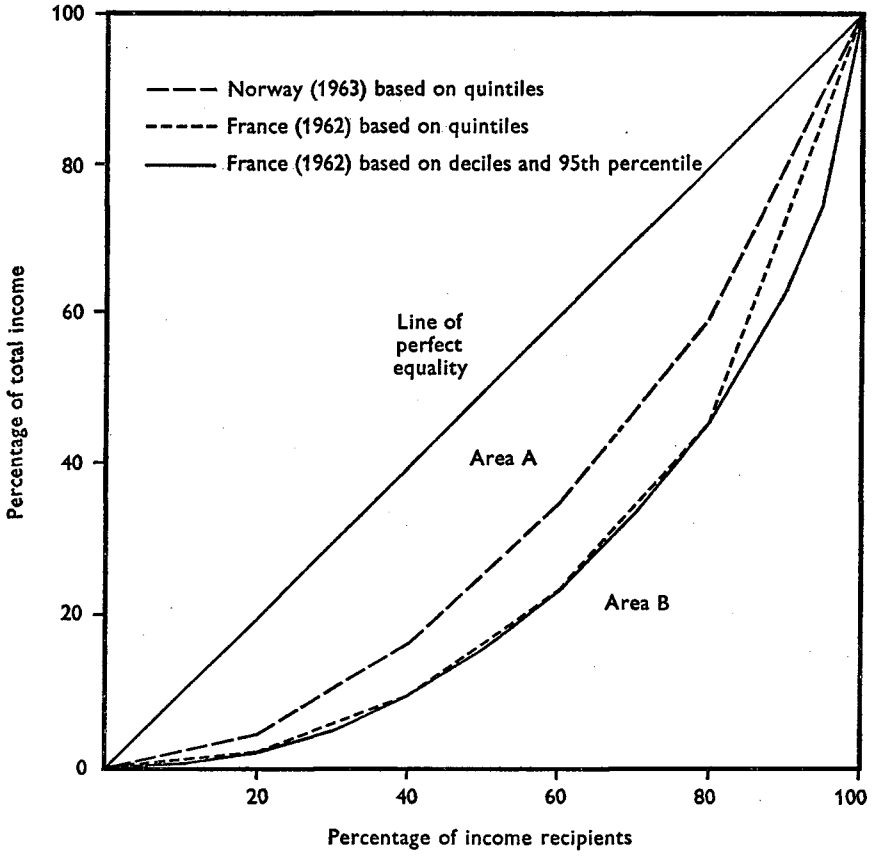
These are some of the questions to which answers are being sought through the research now being undertaken within the framework of the World Employment Programme. With a knowledge of the factors affecting income distribution, with a knowledge of the inter-relationship between different types of income distribution and, above all, with a knowledge of the two-way relationship between income distribution and employment, it is hoped to proceed further towards the examination of particular policy measures influencing, in the desired manner, both income distribution and employment, and, more ambitiously, towards the formulation of development policy directed at greater equality and fuller employment.

APPENDIX 1

Measures of Inequality of Income Distribution by Size

The size distribution of income is in effect a frequency distribution of income showing recipient units (in this article mostly households or families) ranked according to the size of their personal income. The data can be presented (and usually this is done in primary statistical sources) in the form of size brackets of income, with an indication of the number of recipient units falling into a particular size bracket, and of the total income accruing to these units. For comparative purposes it is useful to dispense with size brackets and the recipient units are put together into groups of equal size, with an indication of the share of total income accruing to each group. The most usual groupings are percentiles, deciles and quintiles.

DIAGRAM 2. LORENZ CURVE AND GINI RATIO



Size distribution of income described in percentiles can be graphically expressed by a method devised at the beginning of this century by Lorenz [1], by plotting cumulative percentages of households or other income recipient units along the household axis and cumulative percentages of income (or wealth) along the vertical axis, as shown in diagram 2. With perfect equality of incomes, the Lorenz curve would coincide with the diagonal; with perfect inequality of incomes (one recipient unit receiving all income), the curve would coincide with the horizontal line and the right-hand vertical line of the diagram.

The nearer the curve is to the 45° line, the greater is the equality of the income distribution represented by the curve. Diagram 2 shows a more equal distribution for Norway (1963) and a less equal distribution for France (1962). Both curves are obtained by plotting cumulative values of quintiles. In addition a Lorenz curve is shown for France using the same data but with a finer breakdown, by deciles, and with

[1] M. O. Lorenz: " Methods of measuring the concentration of wealth ", in *Quarterly Publications of the American Statistical Association* (Boston (Massachusetts)), New Series, No. 70, June 1905, pp. 209-219.

the subdivision of the 10th decile by the 95th percentile. The curve based on more detailed data is smoother and the area between it and the 45° line is greater.

The most usual single indicator of size inequality of incomes is the Gini concentration ratio, which is the ratio of the area bounded by the Lorenz curve (area A in the diagram) and the diagonal to the area of the triangle (area B). As with perfect equality the Lorenz curve coincides with the diagonal, the value of the Gini ratio would be zero. With perfect inequality the value of the ratio would be unity. The calculations of the Gini ratio for 56 countries shown in table 6 were based on the method of approximate triangles given in J. Morgan [1], and were based on quintiles and the 95th percentile. The Gini ratios shown are therefore slightly smaller than would be the case if they were calculated from deciles or an even finer breakdown.

The other over-all measure of inequality used in tables 6 and 7 is the maximum equalisation percentage, a measure developed in a study of the United Nations Economic Commission for Europe on income in post-war Europe.[2] This measure shows what percentage of total income would have to be shifted between quintiles in order to achieve an equal distribution of income. As it is calculated as a sum of the excess of the share of income over the share of income recipients, it is equal to the sum of the percentages by which the share of income falls short of the share of income recipients, and the measure is thus one-half of the value of the Kuznets ratio, which is the sum of absolute differences between shares of income and percentage shares of income recipients.

APPENDIX 2

Statistical Data on Distribution of Income by Size

The data presented in this article on income distribution by size are based primarily on the largest compilation so far available, that of Irma Adelman and Cynthia Taft Morris. This compilation covers 44 countries and has been set forth in several papers by these authors, including one entitled " Who benefits from economic development? ", which was presented at an International Meeting of Directors of Development Research and Training Institutes, held in Belgrade in August 1972. The fullest statement of primary and secondary sources, and of new data and intermediate calculations, is, however, given by them in *An anatomy of patterns of income distribution in developing nations.*[3]

In the course of working with the Adelman-Taft Morris data it became obvious that they contained a number of mistakes and inconsistencies. The most frequent shortcoming was the disaggregation of data between quintiles by straightforward pro rata allocation. This was remedied by recalculation of original or intermediate data from the *Anatomy* paper or from original sources with the help of logarithmic probability graph paper. This method (based on the usual assumption that lower and middle incomes are log-normally distributed) is not entirely precise but is greatly superior to pro rata disaggregation and should be sufficient for the degree of precision

[1] James Morgan: " The anatomy of income distribution ", in *Review of Economics and Statistics*, Aug. 1962, pp. 281-282.

[2] United Nations Economic Commission for Europe: *Incomes in post-war Europe: study of policies, growth and distribution* (Geneva, 1967; Sales No. 66.II.E.14).

[3] Adelman and Taft Morris, op. cit.

shown here. When disaggregation at the top end was necessary, the double logarithmic graph paper method (Pareto) was used.

Investigation showed that the original data for three countries were so bad that they were unsuitable for any further calculations, and information about Kenya (1961/62), Libya (1962) and Rhodesia (1966) has therefore been omitted in the present article. The data for one Asian country have also been left out. The data for Argentina, Mexico and Trinidad and Tobago, although not bad, have been replaced by superior data from other sources. Original Adelman-Taft Morris data which were recalculated cover Bolivia, Chad, Costa Rica, El Salvador, Greece, Jamaica, Madagascar, Niger and Tunisia. It should be stressed, however, that even after elimination of some countries and after recalculations, the data for certain countries (in particular Burma, Chad, Morocco, Niger, Nigeria, the Sudan and Tunisia) are of rather doubtful value.

To the Adelman-Taft Morris data has been added information about a number of other developed and developing countries. Although in a few places a disaggregation was necessary, the information was mostly taken directly (or by a straightforward aggregation) from the following sources:

Australia from N. Podder: " Distribution of household income in Australia ", in *Economic Record*, June 1972, pp. 181-200.

United States from US Bureau of the Census: *Consumer income 1969* (Washington, 1970), p. 56.

Denmark, Finland, France, Federal Republic of Germany, Netherlands, Norway, Sweden, United Kingdom from United Nations: *Incomes in post-war Europe . . .*, op. cit., Ch. 6, p. 15.

Malaya (1957/58) and *South Korea* from Oshima, op. cit., p. 13.

Fiji from Michael Ward: *The role of investment in the development of Fiji* (Cambridge, 1971), p. 109.

Trinidad and Tobago from A. Ahiram: " Distribution of income in Trinidad and Tobago and comparison with distribution of income in Jamaica ", in *Social and Economic Studies* (Kingston, Jamaica), June 1966, p. 105.

Italy and *Barbados* from S. Kuznets: " Quantitative Aspects . . .: VIII ", op. cit., p. 13.

Puerto Rico, Argentina and *Mexico* from Weisskoff, op. cit., p. 312.