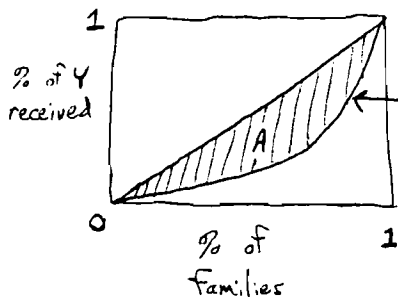


Computer Problem 1

Data: for 56 countries, GDP per capita & Gini Ratios



Lorenz Curve: displays Y distribution; shows what % of Y is received by poorest \times % of all families.

e.g.

Poorest %	% of Y
10%	1%
20%	3%
30%	6%
⋮	⋮

Note ①: If Y distributed equally, Lorenz Curve \equiv diagonal.

Note ②: If all Y received by one family, Lorenz \equiv right angle.

$$\text{Gini Ratio} = \frac{\text{Area A}}{\text{Area } \Delta}$$

If Gini = 0, Note ①

If Gini = 1, Note ②

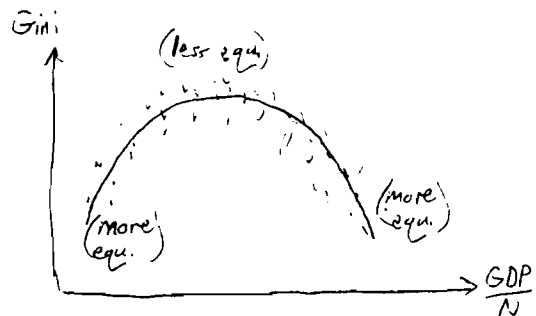
Bigger Gini \rightarrow less equitable.

Gini varies between 0 & 1.

Kuznets Hypothesis:

As nations develop, $(\frac{GNP}{N}) \uparrow$ es; inequality of Y distribution: first worsens, and then gets better.

\rightarrow As $(\frac{GNP}{N}) \uparrow$ es, Gini first \uparrow es, and then \downarrow es.



Data: 56 countries, cross-section, Gini's varying with richness of country.

$$G = \alpha + \beta \left(\frac{GDP}{N}\right) + \gamma \left(\frac{GDP}{N}\right)^2$$

$\hat{\beta} \stackrel{?}{=} 0$ linear component

$\hat{\gamma} \stackrel{?}{=} 0$ is there significant curvature? \rightarrow evidence for Kuznets?

computer
problem
1

International Labour Review (108) Aug-Sep 1973. Fisher Gansel,
Income Distribution at Different Level of Development.

TABLE 1. SIZE DISTRIBUTION OF PERSONAL INCOME BEFORE TAX IN 56 COUNTRIES. INCOME SHARES RECEIVED BY PERCENTH OF RECIPIENTS IN THE NEIGHBOURHOOD OF 1965

Country and level of GDP per head	Percentile of recipients						Gini ratio	Maximum equalisation percentage	GDP per hr 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	0.463	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	702
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	0.45	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	1 161
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	0.29	22.2	1 823
Group average	4.7	10.5	15.9	22.2	25.7	20.9	0.401	29.0	1 455.2
\$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	10.0	17.0	24.1	26.1	16.4	0.365	26.2	2 572.2