

National Income and Product Accounts

The NIPA accounts are a conceptual framework for organizing data on the production of goods and services and on the incomes received by factors of production.

Gross Domestic Product (GDP):

Nominal GDP is the value (in current-year prices) of all final goods and services produced domestically over a period of time.

Real GDP is the value (in base-year prices) of all final goods and services produced domestically over a period of time.

- Counts Final NOT Intermediate goods
- Goods vs Services
- Geographical Concept
- GDP vs GNP
- Three Accounting Approaches

**Bureau of Economic Analysis
National Income and Product Accounts Table**

Table 1.7.5. Relation of Gross Domestic Product, Gross National Product, Net National Product, National Income, and Personal Income

[Billions of dollars] Seasonally adjusted at annual rates

Today is: 8/10/2009 Last Revised on July 31, 2009 Next Release Date August 27, 2009

Line	2008 I	2008 II	2008 III	2008 IV
1 Gross domestic product	14,373.9	14,497.8	14,546.7	14,347.3
2 Plus: Income receipts from the rest of the world	856.3	840.5	825.6	714.4
3 Less: Income payments to the rest of the world	685.3	711.6	664.8	607.4
4 Equals: Gross national product	14,544.9	14,626.6	14,707.5	14,454.3
5 Less: Consumption of fixed capital	1,813.6	1,835.6	1,858.2	1,881.0
6 Private	1,510.6	1,527.0	1,544.4	1,562.6
7 Domestic business	1,228.1	1,244.1	1,260.3	1,276.8
8 Capital consumption allowances	1,322.5	1,334.6	1,346.2	1,357.3
9 Less: Capital consumption adjustment	94.5	90.5	85.9	80.5
10 Households and institutions	282.6	282.9	284.0	285.8
11 Government	303.0	308.5	313.8	318.4
12 General government	252.9	257.6	262.0	265.6
13 Government enterprises	50.1	50.9	51.8	52.7
14 Equals: Net national product	12,731.2	12,791.1	12,849.3	12,573.3
15 Less: Statistical discrepancy	69.8	126.7	68.3	139.4
16 Equals: National income	12,661.5	12,664.4	12,781.0	12,433.9
17 Less: Corporate profits with inventory valuation and capital consumption adjustments	1,459.7	1,403.7	1,454.6	1,123.6
18 Taxes on production and imports	989.3	997.9	1,005.7	982.1
less subsidies ¹				
19 Contributions for government social insurance, domestic	985.3	988.9	994.9	993.3
20 Net interest and miscellaneous payments on assets	790.7	809.0	806.1	854.7
21 Business current transfer payments (net)	114.8	112.6	116.0	131.8
22 Current surplus of government enterprises ¹	-5.6	-6.3	-6.9	-8.9
23 Wage accruals less disbursements	0.0	0.0	0.0	-20.0
24 Plus: Personal income receipts on assets	2,020.8	1,997.3	2,001.4	1,958.1
25 Personal current transfer receipts	1,794.1	1,937.0	1,874.3	1,898.0
26 Equals: Personal income	12,142.2	12,292.9	12,286.6	12,233.5
Addenda:				
27 Gross domestic income	14,304.1	14,371.1	14,478.4	14,207.9
28 Gross national income	14,475.1	14,499.9	14,639.2	14,314.9
29 Gross national factor income ²	13,376.6	13,395.7	13,524.5	13,209.9
30 Net domestic product	12,560.2	12,662.2	12,688.5	12,466.4
31 Net domestic income	12,490.5	12,535.5	12,620.3	12,327.0
32 Net national factor income ³	11,563.0	11,560.1	11,666.4	11,329.0

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Line	2009 I	2009 II
1 Gross domestic product	14,178.0	14,149.8
2 Plus: Income receipts from the rest of the world	579.6	---
3 Less: Income payments to the rest of the world	479.7	---
4 Equals: Gross national product	14,277.9	---
5 Less: Consumption of fixed capital	1,883.6	1,874.1
6 Private	1,561.3	1,550.2
7 Domestic business	1,277.0	1,264.5
8 Capital consumption allowances	1,267.6	1,270.1
9 Less: Capital consumption adjustment	-9.3	5.6
10 Households and institutions	284.4	285.7
11 Government	322.3	323.8
12 General government	269.0	270.7
13 Government enterprises	53.2	53.2
14 Equals: Net national product	12,394.3	---
15 Less: Statistical discrepancy	152.1	---
16 Equals: National income	12,242.2	---
17 Less: Corporate profits with inventory valuation and capital consumption adjustments	1,182.7	---
18 Taxes on production and imports	963.2	971.3
less subsidies ¹		
19 Contributions for government social insurance, domestic	973.9	963.0
20 Net interest and miscellaneous payments on assets	826.2	805.2
21 Business current transfer payments (net)	137.9	145.2
22 Current surplus of government enterprises ¹	-10.7	-8.9
23 Wage accruals less disbursements	20.0	0.0
24 Plus: Personal income receipts on assets	1,845.5	1,782.5
25 Personal current transfer receipts	1,987.3	2,135.2
26 Equals: Personal income	11,981.8	11,989.8
Addenda:		
27 Gross domestic income	14,025.8	---
28 Gross national income	14,125.8	---
29 Gross national factor income ²	13,035.4	---
30 Net domestic product	12,294.4	12,275.7
31 Net domestic income	12,142.2	---
32 Net national factor income ³	11,151.8	---

The Expenditure Approach:

- $Y_t = \sum_i p_{it}y_{it}$ and $Y_t = C_t + I_t + G_t + NX_t$
- p_{it} and y_{it} - price and quantity of final good i produced at time t
- we sum over ALL the different final goods which are indexed by i
- Conceptually this approach is very clean ... but for some goods it may not be clear how to divide the expenditure into price and quantity components.
- Many final goods are not included in GDP. GDP accountants impute a value for some goods even though no price, quantity or expenditure data are directly available (e.g. implicit rental value of owner-occupied housing).

**Bureau of Economic Analysis
National Income and Product Accounts Table**

Table 1.1.5. Gross Domestic Product

[Billions of dollars] Seasonally adjusted at annual rates

Today is: 8/10/2009 Last Revised on July 31, 2009 Next Release Date August 27, 2009

Line		2008 I	2008 II	2008 III	2008 IV
1	Gross domestic product	14,373.9	14,497.8	14,546.7	14,347.3
2	Personal consumption expenditures	10,095.1	10,194.7	10,220.1	10,009.8
3	Goods	3,447.2	3,474.9	3,463.0	3,227.5
4	Durable goods	1,145.8	1,126.5	1,088.5	1,019.9
5	Nondurable goods	2,301.4	2,348.4	2,374.5	2,207.6
6	Services	6,647.9	6,719.8	6,757.1	6,782.3
7	Gross private domestic investment	2,214.8	2,164.6	2,142.7	2,022.1
8	Fixed investment	2,223.0	2,214.0	2,179.7	2,066.6
9	Nonresidential	1,705.0	1,719.7	1,711.0	1,638.7
10	Structures	586.3	610.6	620.4	620.7
11	Equipment and software	1,118.7	1,109.2	1,090.6	1,018.0
12	Residential	518.1	494.2	468.6	427.8
13	Change in private inventories	-8.2	-49.3	-37.0	-44.5
14	Net exports of goods and services	-744.4	-738.7	-757.5	-590.5
15	Exports	1,803.6	1,901.5	1,913.1	1,706.2
16	Goods	1,247.3	1,326.2	1,338.5	1,155.7
17	Services	556.3	575.3	574.6	550.5
18	Imports	2,548.1	2,640.2	2,670.5	2,296.7
19	Goods	2,143.1	2,226.8	2,243.3	1,892.5
20	Services	404.9	413.4	427.2	404.2
21	Government consumption expenditures and gross investment	2,808.4	2,877.1	2,941.4	2,905.9
22	Federal	1,038.3	1,069.5	1,108.3	1,114.3
23	National defense	703.6	725.6	763.6	758.9
24	Nondefense	334.8	343.9	344.7	355.3
25	State and local	1,770.1	1,807.6	1,833.1	1,791.7

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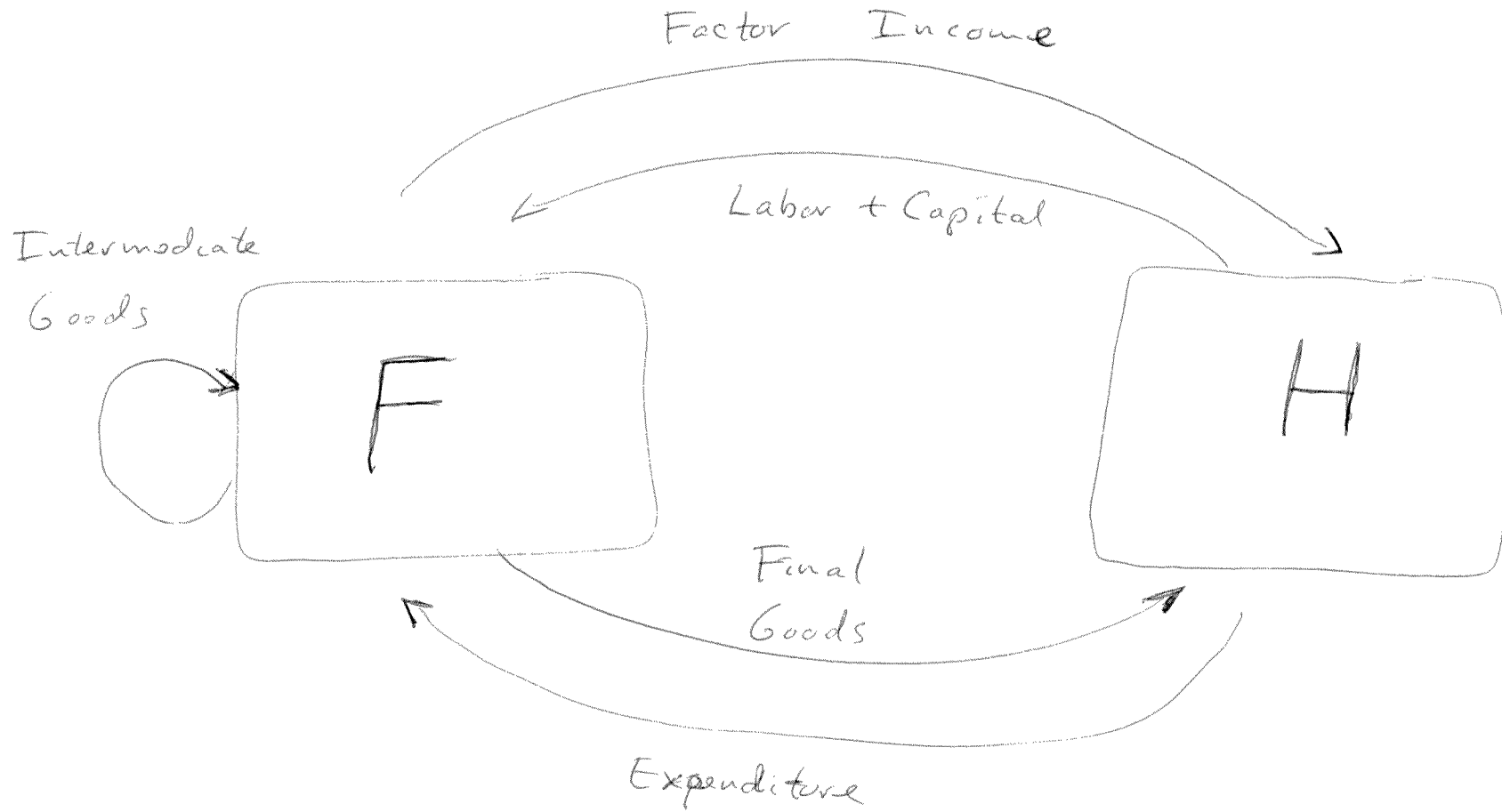
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Line		2009 I	2009 II
1	Gross domestic product	14,178.0	14,149.8
2	Personal consumption expenditures	9,987.7	9,989.0
3	Goods	3,197.7	3,185.8
4	Durable goods	1,025.2	1,007.4
5	Nondurable goods	2,172.4	2,178.3
6	Services	6,790.0	6,803.2
7	Gross private domestic investment	1,689.9	1,585.5
8	Fixed investment	1,817.2	1,741.6
9	Nonresidential	1,442.6	1,395.9
10	Structures	533.1	508.6
11	Equipment and software	909.5	887.4
12	Residential	374.6	345.6
13	Change in private inventories	-127.4	-156.0
14	Net exports of goods and services	-378.5	-347.8
15	Exports	1,509.3	1,483.7
16	Goods	989.5	971.4
17	Services	519.8	512.4
18	Imports	1,887.9	1,831.5
19	Goods	1,508.2	1,463.6
20	Services	379.6	367.9
21	Government consumption expenditures and gross investment	2,879.0	2,923.0
22	Federal	1,106.7	1,137.4
23	National defense	750.7	775.4
24	Nondefense	356.0	362.0
25	State and local	1,772.3	1,785.6

Value Added Approach

- $Y = \sum_i VA_i$
- VA_i - value added of firm i
- $VA_i = Sales_i - Value\ Intermediate\ Goods\ Purchased_i$
- It turns out that the value added approach is simply a tricky way to add up the expenditure on all final goods. Why is that?

Circular Flow [Plumbing Diagram]



Income Approach

- $Y = \text{National Income} + \text{Indirect Tax} + \text{Depreciation} - \text{Net Foreign Factor Income}$
- $\text{National Income} = \text{Wages} + \text{Profit} + \text{Rent} + \text{Prop Income} + \text{Interest}$
- The income approach starts from a simple idea (the plumbing diagram) but is "ugly" to execute.
- Ugly Feature 1: Indirect Tax
- Ugly Feature 2: Depreciation
- Ugly Feature 3: Net Foreign Factor Income

Munkan! Penn World Tables

TABLE 1.3

The Effect of Using PPP on Comparisons of GDP

Country	GDP per Capita in 2000 Using Market Exchange Rates (dollars)	GDP per Capita in 2000 Using PPP Exchange Rates (dollars)
United States	35,587	35,587
Japan	37,560	26,375
Germany	22,700	24,430
Argentina	7,675	11,765
Mexico	5,922	9,366
India	450	2,650

Price Indices

- $CPI_t = \frac{\sum_i p_{it}x_i}{\sum_i p_i^*x_i}$ - fixed weight index
- $Deflator_t = \frac{\sum_i p_{it}y_{it}}{\sum_i p_i^*y_{it}}$ - variable weight index
- x_i - quantity of good i in the basket
- y_{it} - quantity of final good i produced in year t
- p_{it} and p_i^* - price good i at time t and in the base year

Bias in the CPI

A Cost-of-Living Index measures the minimum cost of obtaining a fixed level of utility or welfare over time as market prices change. The CPI measures the cost of a fixed basket over time. Thus, there may be a bias in the CPI when it is taken as a "Cost-of-Living Index".

- Substitution Bias
- Quality Adjustment Bias
- New Goods Bias
- Moulton (1996) discusses CPI construction and bias

Substitution Bias

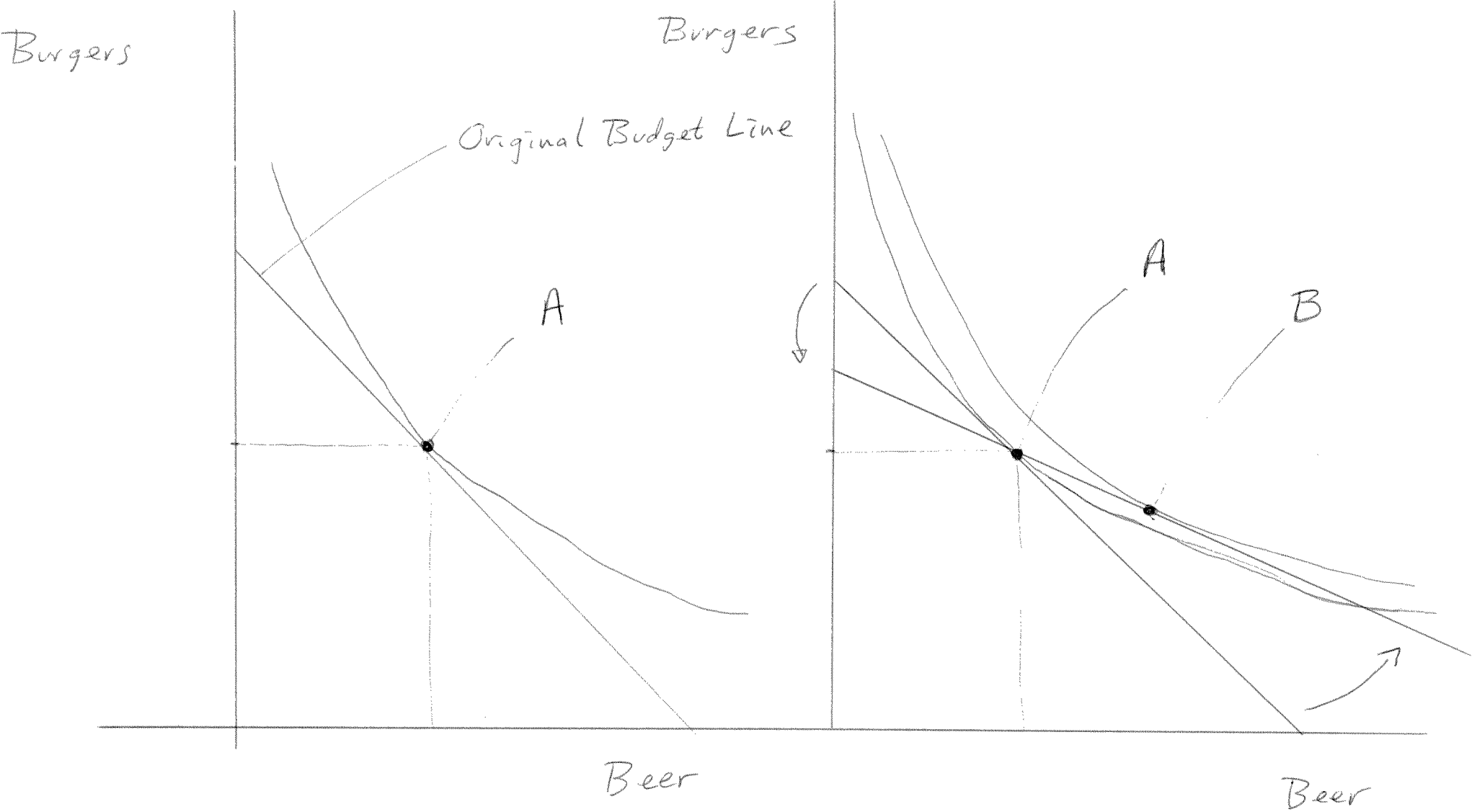
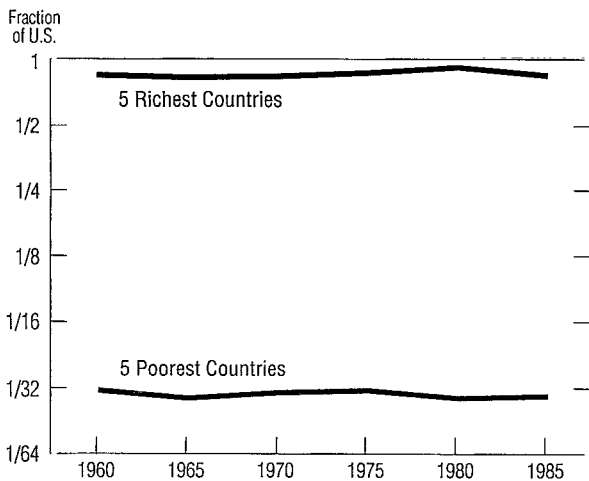


Chart 1

Wide and Steady Wealth Disparity

Average Per-Capita GDP Relative to U.S. Level
for the 5 Richest and Poorest Countries in the 102-Country Data Set
During 1960–85



Source of basic data: Summers and Heston 1991

Chart 2-4

The Standard Deviation Measure of Wealth Disparity

Based on the Distribution of Relative Per-Capita GDP

Chart 2 In All 102 Countries: Increasing?

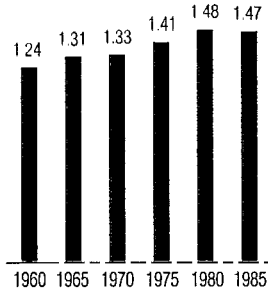


Chart 3 In Western Europe: Decreasing?

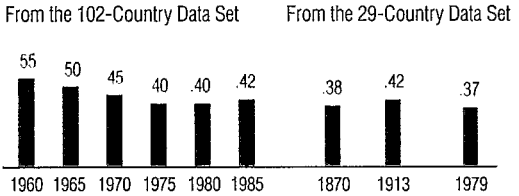
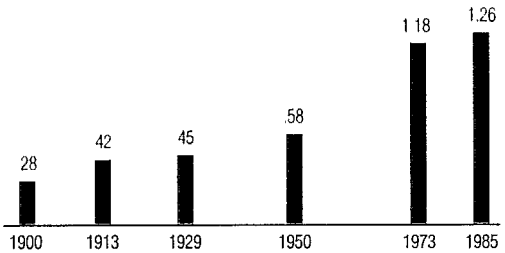


Chart 4 In Southeastern Asia: Definitely Increasing

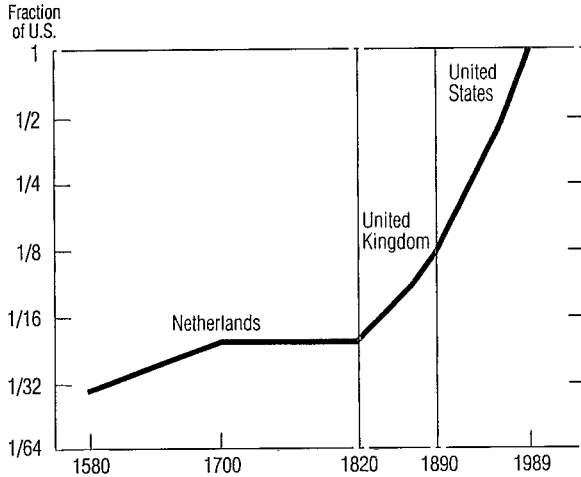


Source of basic data: Summers and Heston 1991, Maddison 1991, De Long 1988, Van der Eng 1992

Chart 7

The Richest Got Richer

GDP Per Worker Hour Relative to 1989 U.S. Level
for Industrial Leaders During 1580–1989

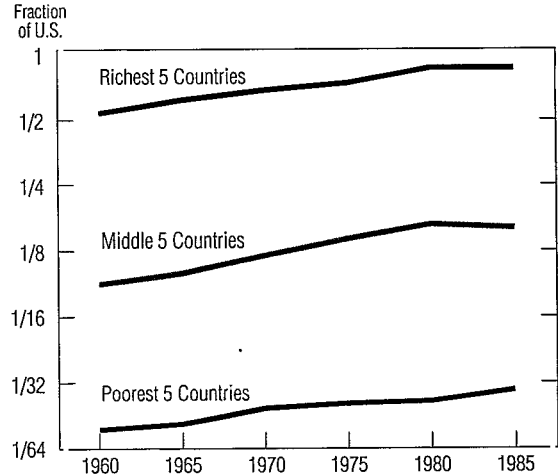


Source: Maddison 1991

Chart 8

A Widespread Upward Shift

Average Real GDP Relative to 1985 U.S. Level for Selected Wealth Groups
in the 102-Country Data Set During 1960–85



Source of basic data: Summers and Heston 1991

Development Miracles and Disasters

Countries in the 102-Country Data Set With Largest Changes
in Relative Wealth During 1960–85 (Expressed as Factor Changes)

Increases		Decreases	
Country	Factor Change	Country	Factor Change
Saudi Arabia	3.32	Zambia	2.63
Lesotho	3.19	Mozambique	2.63
Taiwan	2.60	Madagascar	2.50
Hong Kong	2.59	Angola	2.38
South Korea	2.40	Chad	2.13
Egypt	2.38	Liberia	2.04
Congo	2.18	Ghana	2.00
Japan	2.10	Zaire	1.96
Singapore	2.09	Nicaragua	1.85
Syria	1.89	Afghanistan	1.75

Source of basic data: Summers and Heston 1991
