ECON 184

# The Aid Debate

# Contents

# 1 Definitions and background

## 1.1 Type of aid (by source)

- Private
  - Non-governmental organizations (NGOs)
  - Churches
  - Individuals
  - Companies
  - Foundations
- Official (ODA)
  - Bilateral; country-to-country
  - Multilateral: UN, World Bank, IMF, etc. . .

## 1.2 Official Development Assistance (ODA)

- ODA includes all official aid.
- . . . minus military aid and loan repayments

## 1.3 Alternative classifications

- By type of flow
  - Goods
  - Cash grants
  - Concessional finance.
- By recipient
  - Governments
  - Individuals
  - Institutions
- By aim
  - Development and growth
  - Political evolution
  - Emergency relief or stabilization after economic shocks

# 2 Main actors and players

- Bilateral
  - USAID
  - DFID

**Table 8.1 Bilateral Donors, DAC Members**

| Country | Lead Aid Agencies |
|---|---|
| Australia | Australian Agency for International Development (AusAID) |
| Austria | Austrian Development Cooperation (ADC), Austrian Development Agency (ADA) |
| Belgium | Directorate-General for Development Cooperation (DGDC), Belgian Technical Cooperation (BTC) |
| Canada | Canadian International Development Agency (CIDA) |
| Denmark | Danish International Development Agency (DANIDA) |
| Finland | Department for International Development Cooperation |
| France | l'Agence Française de Développement (AfD) |
| Germany | Federal Ministry for Economic Cooperation and Development (BMZ) |
| Greece | International Development Cooperation Department (HELLENIC-AID) |
| Ireland | Development Cooperation Ireland (DCI) |
| Italy | Directorate General for Development Cooperation |
| Japan | Japan International Cooperation Agency (JICA), Japan Bank for International Cooperation (JBIC) |
| Luxembourg | Lux-Development |
| Netherlands | Directorate-General for International Cooperation (DGIS) |
| New Zealand | New Zealand Agency for International Development (NZAID) |
| Norway | Norwegian Agency for Development Cooperation (NORAD) |
| Portugal | Portuguese Institute for Development Support (IPAD) |
| Spain | Spanish Agency for International Cooperation (AECI) |
| Sweden | Swedish Agency for International Development Cooperation (SIDA) |
| Switzerland | Swiss Agency for Development and Cooperation (SDC) |
| United Kingdom | Department for International Development (DFID) |
| United States | US Agency for International Development (USAID) |

**Table 8.2 Bilateral ODA to Africa (in US$ millions, average for 2000–2003)**

| Rank | DAC Donor | Global ODA | ODA to Africa |
|---|---|---|---|
| 1 | United States | 13,059 | 2,423 |
| 2 | France | 6,186 | 2,083 |
| 3 | United Kingdom | 5,650 | 1,308 |
| 4 | Germany | 6,528 | 1,200 |
| 5 | Netherlands | 4,158 | 992 |
| 6 | Japan | 10,131 | 714 |
| 7 | Italy | 2,332 | 572 |
| 8 | Belgium | 1,340 | 504 |
| 9 | Denmark | 2,020 | 489 |
| 10 | Sweden | 2,311 | 480 |
| 11 | Norway | 1,830 | 428 |
| 12 | Canada | 2,016 | 322 |
| 13 | Switzerland | 1,180 | 207 |
| 14 | Ireland | 423 | 197 |
| 15 | Spain | 2,034 | 152 |
| 16 | Austria | 631 | 136 |
| 17 | Portugal | 362 | 134 |
| 18 | Finland | 520 | 90 |
| 19 | Luxembourg | 178 | 54 |
| 20 | Australia | 1,199 | 35 |
| 21 | New Zealand | 159 | 9 |
| 22 | Greece | 321 | 2 |
| | Non-DAC Bilaterals | 2,429 | 205 |

*Source:* Author calculations based on OECD data.

- Multilaterals
  - World Bank Group
  - International Monetary Fund
  - African Development Bank

– UN Agencies

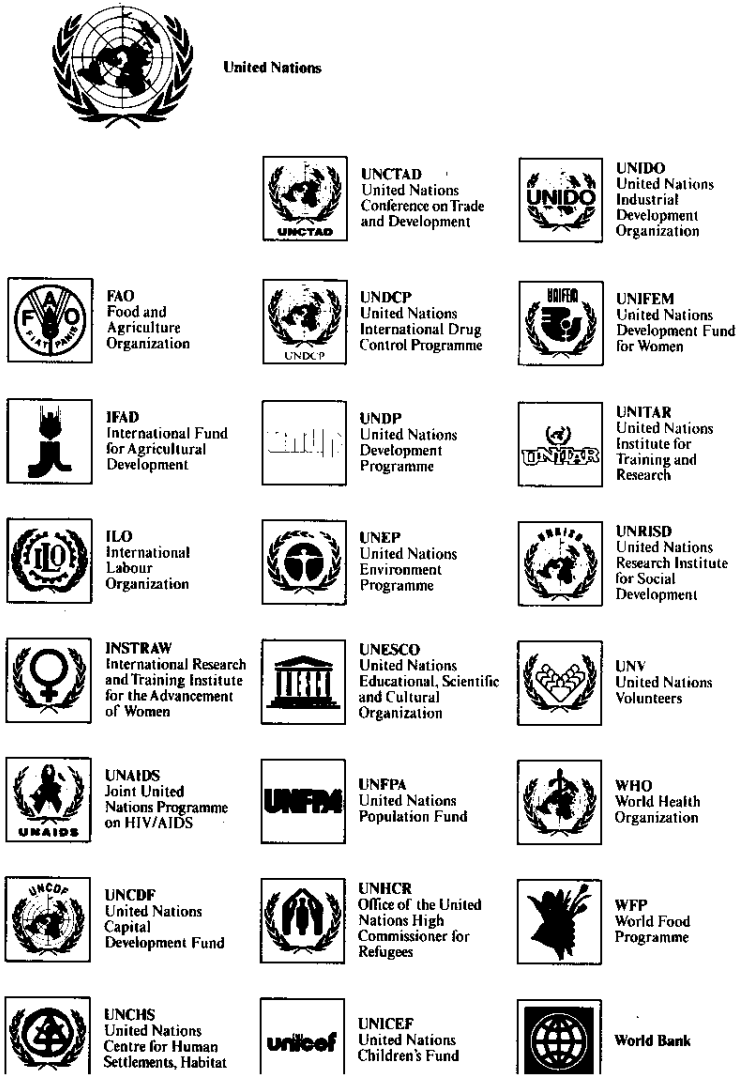

United Nations
UNCTAD
United Nations Conference on Trade and Development
UNIDO
United Nations Industrial Development Organization
FAO
Food and Agriculture Organization
UNDCP
United Nations International Drug Control Programme
UNIFEM
United Nations Development Fund for Women
IFAD
International Fund for Agricultural Development
UNDP
United Nations Development Programme
UNITAR
United Nations Institute for Training and Research
ILO
International Labour Organization
UNEP
United Nations Environment Programme
UNRISD
United Nations Research Institute for Social Development
INSTRAW
International Research and Training Institute for the Advancement of Women
UNESCO
United Nations Educational, Scientific and Cultural Organization
UNV
United Nations Volunteers
UNAIDS
Joint United Nations Programme on HIV/AIDS
UNFPA
United Nations Population Fund
WHO
World Health Organization
UNCDF
United Nations Capital Development Fund
UNHCR
Office of the United Nations High Commissioner for Refugees
WFP
World Food Programme
UNCHS
United Nations Centre for Human Settlements, Habitat
UNICEF
United Nations Children's Fund
World Bank

**Table 8.3 Multilateral Donors to Sub-Saharan Africa (in US$ millions, 2000–2003 average)**

| Donor | ODA to All Countries | ODA to SSA |
|---|---|---|
| International Development Association (World Bank's IDA) | 5,712 | 2,793 |
| European Union (EU) | 6,454 | 2,094 |
| African Development Bank (AfDB) | 504 | 479 |
| UN High Commission for Refugees (UNHCR) | 614 | 262 |
| UN World Food Program (WFP) | 392 | 230 |
| UN Children's Fund (UNICEF) | 659 | 197 |
| UN Development Program (UNDP) | 346 | 155 |
| UN Technical Assistance Program (UNTA) | 509 | 111 |
| UN Population Fund (UNFPA) | 286 | 84 |
| UN International Fund for Agricultural Development (IFAD) | 171 | 77 |
| Other UN Agencies | 626 | 87 |
| Arab Agencies | 104 | 61 |
| Nordic Development Fund | 43 | 22 |
| Global Environment Facility | 112 | 20 |
| International Monetary Fund (IMF) | 152 | 15 |

Source: Author calculations based on OECD data.

# Aid target

**Table 8.5 Donors and the International Target (average for 2000–2003)**

| Rank | Donor | ODA/GNI (%) | Percentage of total to SSA |
|---|---|---|---|
| 1 | Denmark | 0.97 | 24 |
| 2 | Norway | 0.84 | 23 |
| 3 | Netherlands | 0.82 | 24 |
| 4 | Sweden | 0.80 | 21 |
| 5 | Luxembourg | 0.76 | 30 |
| 6 | Belgium | 0.44 | 38 |
| 7 | Ireland | 0.35 | 47 |
| 8 | Switzerland | 0.35 | 18 |
| 9 | France | 0.35 | 34 |
| 10 | Finland | 0.33 | 17 |
| 11 | United Kingdom | 0.32 | 23 |
| 12 | Germany | 0.27 | 18 |
| 13 | Australia | 0.26 | 3 |
| 14 | Austria | 0.26 | 22 |
| 15 | Spain | 0.25 | 7 |
| 16 | Portugal | 0.25 | 37 |
| 17 | Canada | 0.25 | 16 |
| 18 | New Zealand | 0.24 | 5 |
| 19 | Japan | 0.24 | 7 |
| 20 | Greece | 0.20 | 1 |
| 21 | Italy | 0.16 | 25 |
| 22 | United States | 0.12 | 19 |

*Source:* Author calculations based on OECD DAC Database.

Source: Moss (2007)

# Millennium Development Goals

**Table 8.6 The Millennium Development Goals**

| Goal | Targets for 2015 (from 1990 level) |
|---|---|
| 1. Eradicate extreme poverty and hunger | Halve the ratio of those with income < $1/day |
| | Halve the ratio of people who suffer from hunger |
| 2. Achieve universal primary education | Universal primary schooling completion |
| 3. Promote gender equality and empower women | Eliminate gender disparity in schooling (preferably by 2005) |
| 4. Reduce child mortality | Reduce the under-five mortality rate by two-thirds |
| 5. Improve maternal health | Reduce the maternal mortality rate by three-quarters |
| 6. Combat disease | Halt and begin to reverse spread of HIV/AIDS |
| | Halt and begin to reverse incidence of malaria and other major diseases |
| 7. Ensure environmental sustainability | Halve the ratio of people without access to safe drinking water and basic sanitation |
| | Improve lives of 100m slum dwellers by 2020 |
| | Reverse loss of environmental resources |
| 8. Develop global partnership | 7 targets related to: trade, debt, youth, technology, drug affordability, and special needs of poor countries, land-locked countries, and small islands |

Source: Moss (2007)

# 3 Trends

# Trends in total aid

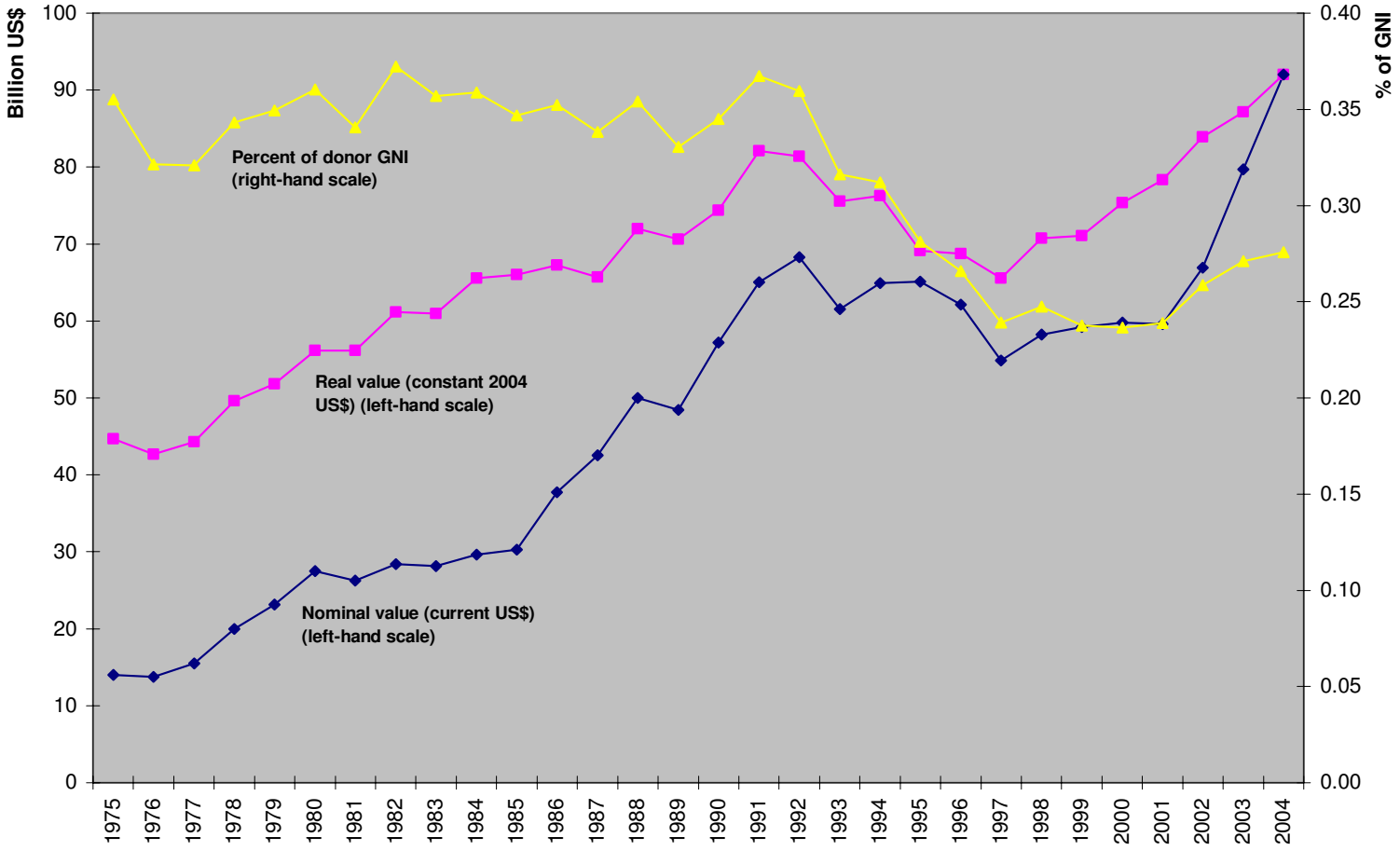
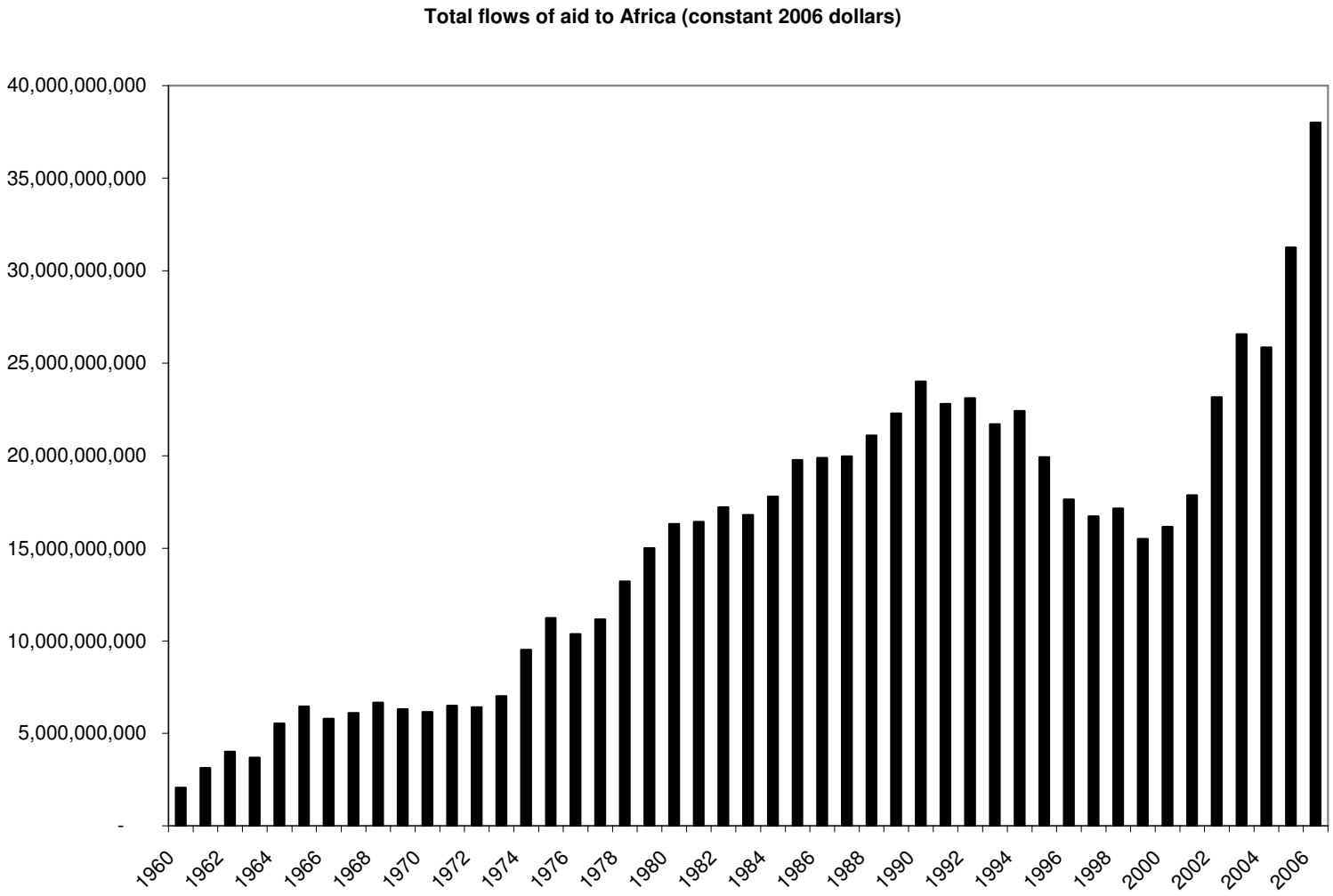



**Figure 1. Global ODA 1975-2004**

Source: OECD/DAC database

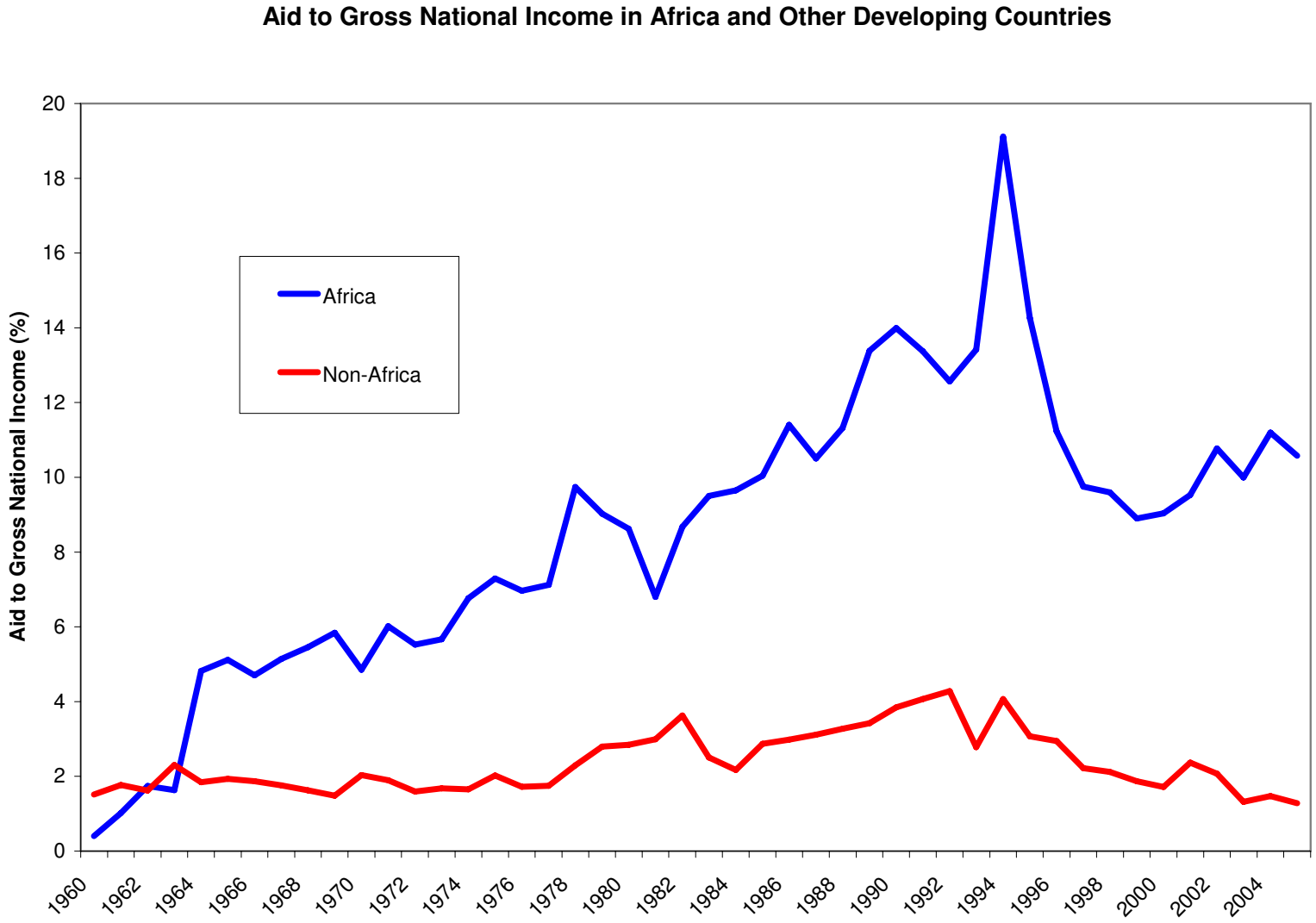
Source: Radelet (2006)

# Aid in Africa



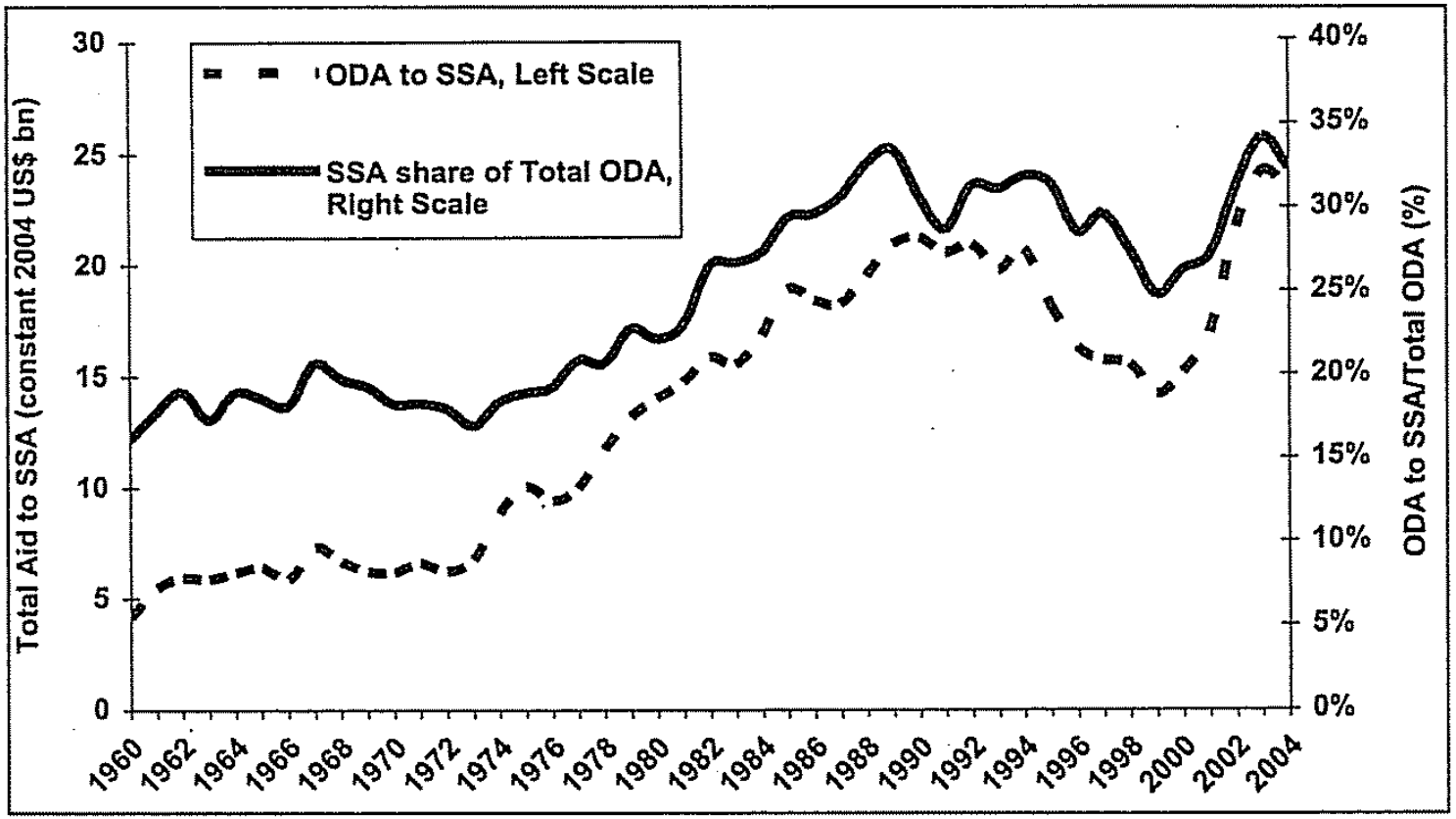

Source: Easterly (2008).

# Africa vs rest of the world



# Africa vs rest of the world

**Figure 8.1 Aid to Sub-Saharan Africa as a Share of Total Aid, 1960–2004**




Source: Moss (2007).

## Recipients of aid (Radelet, 2006)

**Table 1. Major Aid Recipients, 2004**

| | | Total ODA (millions US$) |
|---|---|---|
| 1. | Iraq | 4,658 |
| 2. | Afghanistan | 2,190 |
| 3. | Viet Nam | 1,830 |
| 4. | Ethiopia | 1,823 |
| 5. | Congo, Dem. Rep. | 1,815 |
| 6. | Tanzania | 1,746 |
| 7. | China | 1,661 |
| 8. | Egypt | 1,458 |
| 9. | Pakistan | 1,421 |
| 10. | Bangladesh | 1,404 |

| | | Aid as % of recipient GNI |
|---|---|---|
| 1. | Sao Tome & Principe | 67 |
| 2. | Guinea-Bissau | 64 |
| 3. | Micronesia | 47 |
| 4. | Eritrea | 42 |
| 5. | Timor-Leste | 42 |
| 6. | Marshall Islands | 41 |
| 7. | Burundi | 39 |
| 8. | Afghanistan | 35 |
| 9. | Sierra Leone | 32 |
| 10. | Malawi | 31 |

| | | **Aid per capita (US$)** |
|---|---|---|
| 1. | Nauru | 1368 |
| 2. | Mayotte | 1226 |
| 3. | Palau | 978 |
| 4. | Marshall Islands | 852 |
| 5. | Tuvalu | 801 |
| 6. | Micronesia, Fed. States | 719 |
| 7. | Cook Islands | 438 |
| 8. | Dominica | 417 |
| 9. | Palestinian Adm. Areas | 337 |
| 10. | Cape Verde | 298 |

Source: OECD *2005 Development Cooperation Report*

**Table 2. Official aid receipts by region, 2004**

| | Billions of US$ | Percent of GNI | $ per person |
|---|---|---|---|
| Sub-Saharan Africa | 26.0 | 5.3 | 35.8 |
| South Asia | 6.8 | 0.8 | 4.7 |
| East Asia & Pacific | 6.9 | 0.3 | 3.7 |
| Europe & Central Asia | 11.9 | 0.7 | 25.1 |
| Middle East & North Africa | 10.5 | 1.7 | 35.0 |
| Latin America & Caribbean | 6.9 | 0.4 | 12.6 |
| | | | |
| Low income | 34.0 | 2.8 | 14.5 |
| Lower middle income | 23.4 | 0.6 | 9.6 |
| Upper middle income | 6.8 | 0.2 | 11.7 |

Source: World Development Indicators online

# Top African recipients

**Table 8.4 Aid to Africa, by Recipient, 2003**

| ODA/GDP (%) | | ODA per capita (US$) | |
|---|---|---|---|
| Congo, Democratic Republic of | 94.7 | Cape Verde | 306 |
| São Tomé and Príncipe | 63.8 | São Tomé and Príncipe | 240 |
| Guinea-Bissau | 60.8 | Seychelles | 107 |
| Eritrea | 52.8 | Congo, Democratic Republic | 101 |
| Burundi | 37.7 | Guinea-Bissau | 98 |
| Sierra Leone | 30.2 | Mauritania | 85 |
| Malawi | 29.0 | Namibia | 72 |
| Mozambique | 23.9 | Eritrea | 70 |
| Ethiopia | 22.6 | Sierra Leone | 56 |
| Mauritania | 21.7 | Cameroon | 55 |
| Rwanda | 19.7 | Mozambique | 55 |
| Cape Verde | 17.3 | Zambia | 54 |
| Gambia, The | 17.0 | Tanzania | 47 |
| Niger | 16.6 | Malawi | 45 |
| Tanzania | 16.2 | Mali | 45 |
| Uganda | 13.7 | Lesotho | 44 |
| Zambia | 13.0 | Ghana | 44 |
| Mali | 12.0 | Senegal | 44 |
| Ghana | 11.9 | Benin | 44 |
| Burkina Faso | | | |

Source: Moss (2007)

# Bottom African recipients

| | | | |
|---|---|---|---|
| Senegal | 7.0 | Burkina Faso | 37 |
| Guinea | 6.5 | Angola | 37 |
| Lesotho | 6.5 | Madagascar | 32 |
| Central African Republic | 4.2 | Liberia | 32 |
| Angola | 3.6 | Burundi | 31 |
| Sudan | 3.5 | Guinea | 30 |
| Kenya | 3.5 | Chad | 29 |
| Namibia | 3.4 | Swaziland | 24 |
| Togo | 2.5 | Ethiopia | 22 |
| Zimbabwe | 2.1 | Congo, Republic of | 19 |
| Congo, Republic of | 2.0 | Sudan | 19 |
| Côte d'Ivoire | 1.8 | Somalia | 18 |
| Swaziland | 1.5 | Botswana | 17 |
| Seychelles | 1.3 | Kenya | 15 |
| Equatorial Guinea | 0.7 | Côte d'Ivoire | 15 |
| Nigeria | 0.6 | Zimbabwe | 14 |
| Botswana | 0.4 | South Africa | 14 |
| South Africa | 0.4 | Central African Republic | 13 |
| Gabon | –0.2 | Togo | 9 |
| Mauritius | –0.3 | Nigeria | 2 |
| Liberia | not avail. | Gabon | –8 |
| Somalia | not avail. | Mauritius | –12 |

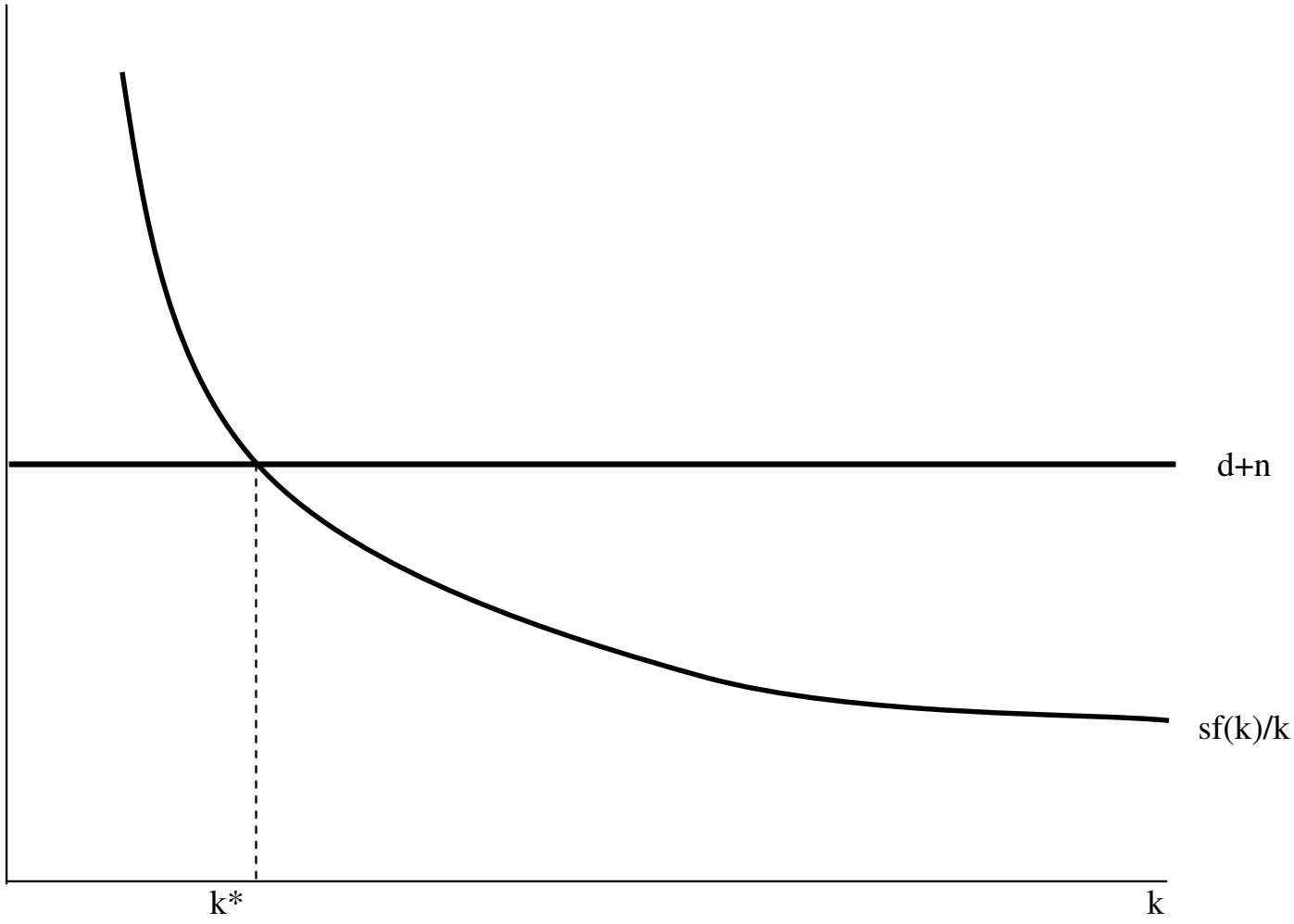
*Sources:* Estimates based on data from the OECD, IMF, World Bank.

Source: Moss (2007)

# 4 Aid and economic growth

## The Solow model again

- Framework to justify aid.
- Let's go back to the Solow model

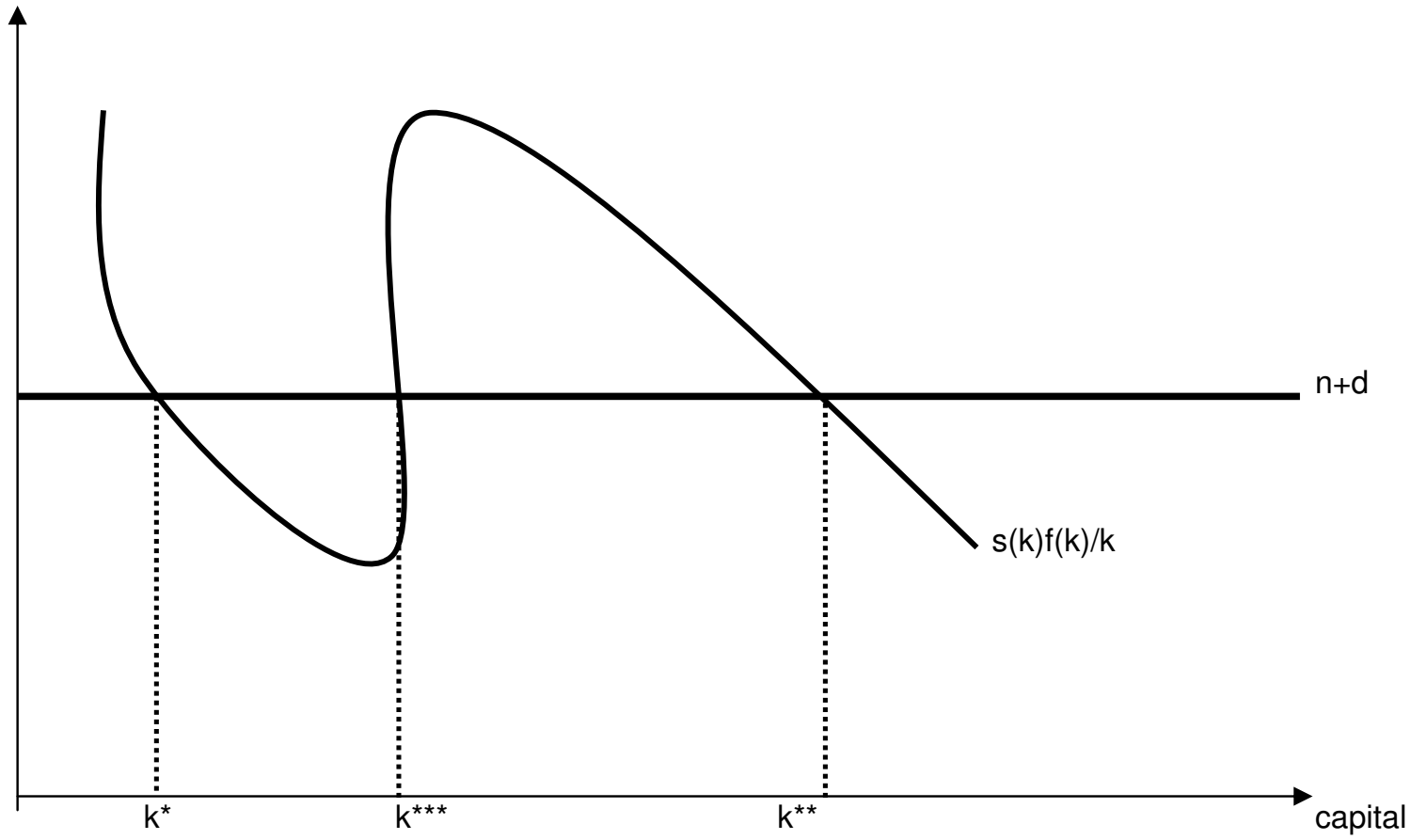



- In this model there is a unique equilibrium

## Multiple equilibria

Several factors can create multiple equilibria in this model.

1. Variable saving rate
   - Suppose that $s = s(y, r)$
   - $s$ is the saving rate, $y$ is income and $r$ is the interest rate (MPK)
   - Thus, $s = s(k)$ and it's not longer a constant.
   - This leads to a new curve




- Economies are identical except for their initial conditions.
- There is no global equilibrium. There are two local ones.

2. Non-convexities
   - Assume that $s$ is fixed, just like in the original Solow model.
   - *Non-convexities* arise when the APK is nonlinear due to technical reasons.
   - Or when there are two technologies available.
   - . . . but firms can only use one at a time.
   - In both cases the $s\frac{f(k)}{k}$ will follow the pattern shown above.

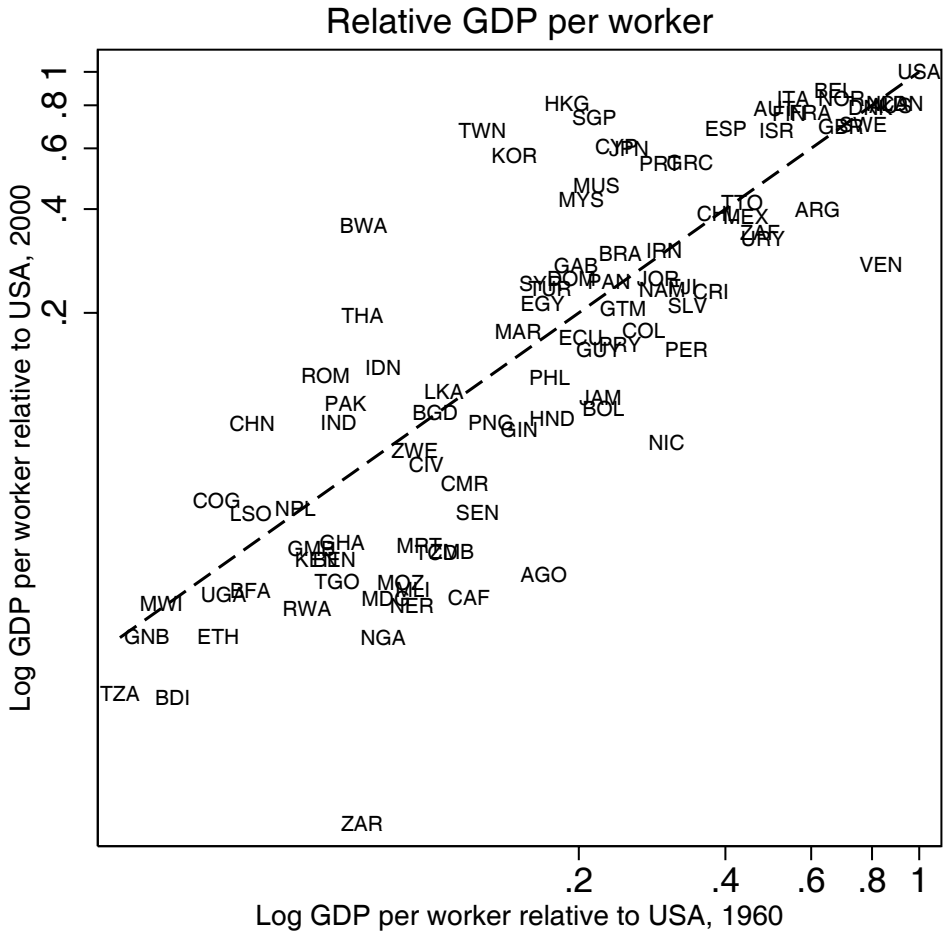
# Poverty traps?

**Table 1: International Disparities in GDP per Worker**

| Country | Population(m, 2000) | R1960 | R2000 |
|---|---|---|---|
| USA | 275 | 1 | 1 |
| United Kingdom | 60 | .69 | .69 |
| Argentina | 37 | .62 | .40 |
| France | 60 | .60 | .76 |
| Italy | 58 | .55 | .84 |
| South Africa | 43 | .47 | .34 |
| Mexico | 97 | .44 | .38 |
| Spain | 40 | .40 | .68 |
| Iran | 64 | .30 | .30 |
| Colombia | 42 | .27 | .18 |
| Japan | 127 | .25 | .60 |
| Brazil | 170 | .24 | .30 |
| Turkey | 67 | .17 | .24 |
| Philippines | 76 | .17 | .13 |
| Egypt | 64 | .17 | .21 |
| Korea, Republic of | 47 | .15 | .57 |
| Bangladesh | 131 | .10 | .10 |
| Nigeria | 127 | .08 | .02 |
| Indonesia | 210 | .08 | .14 |
| Thailand | 61 | .07 | .20 |
| Pakistan | 138 | .07 | .11 |
| India | 1016 | .06 | .10 |
| China | 1259 | .04 | .10 |
| Ethiopia | 64 | .04 | .02 |
| | | | |
| Mean | | .29 | .35 |
| Median | | .21 | .27 |

Notes:
- R is GDP per worker as a fraction of that in the USA.

**Figure 2: Output Per Worker: 1960 versus 2000**

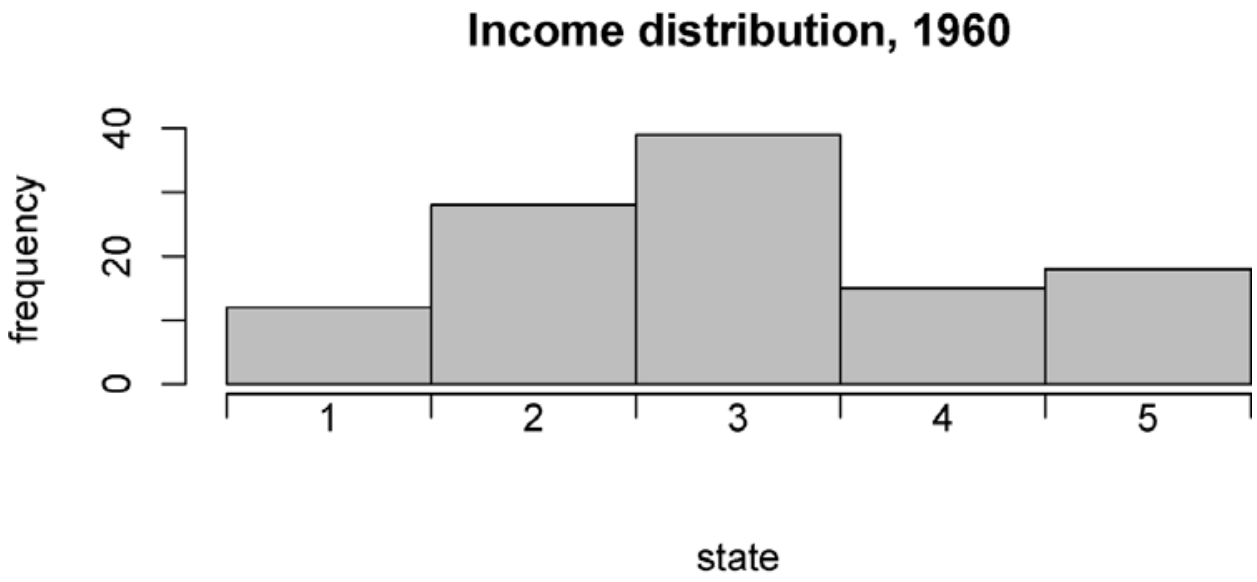


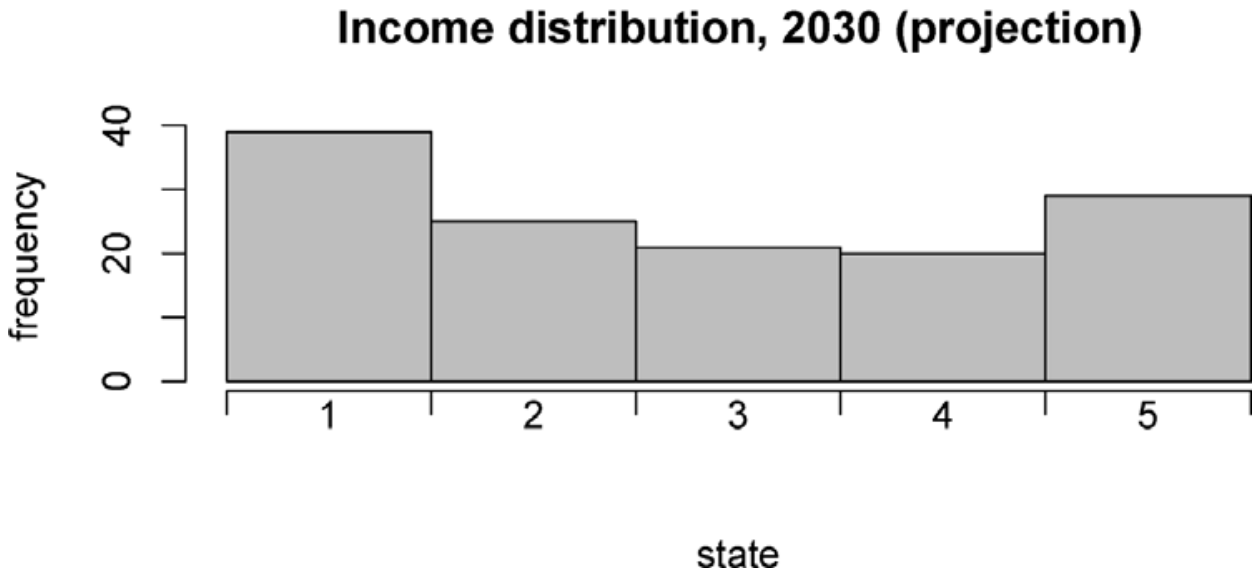

Source: Durlauf et. al (2005)

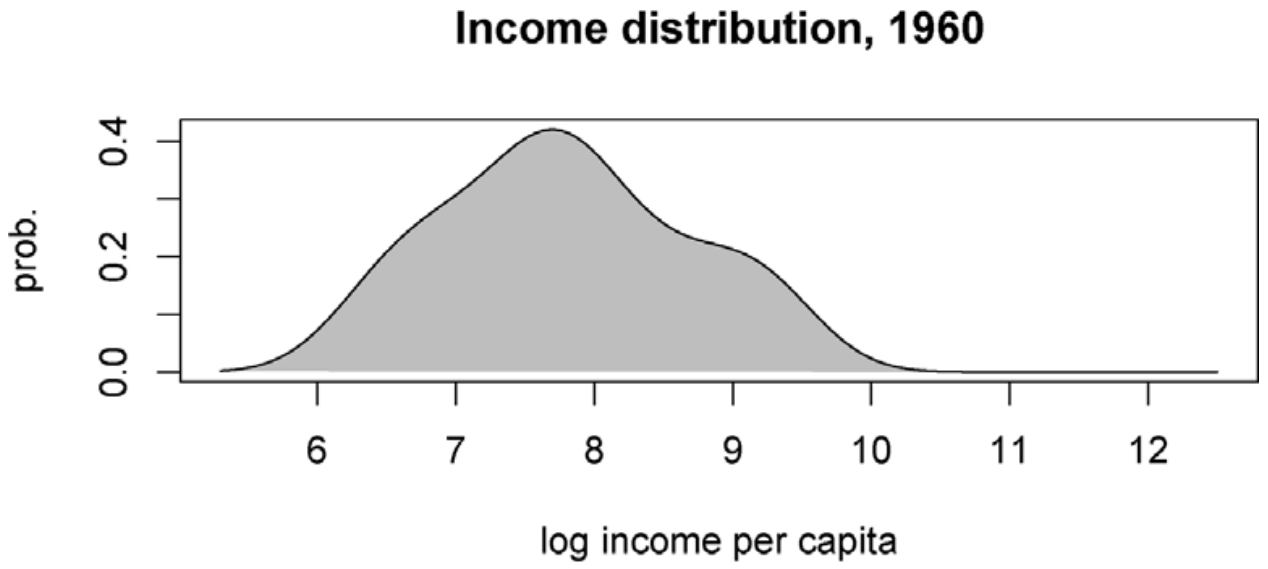
In his calculation, Quah uses per capita GDP relative to the world average over the period 1962 to 1984 in a sample of 118 countries. Relative income is discretized into state space $S := \{1, 2, 3, 4, 5\}$ consisting of 5 "bins", with states corresponding to values for relative GDP of 0–0.25, 0.25–0.5, 0.5–1, 1–2 and 2–$\infty$ respectively. The transition matrix $\mathbf{P} = (p_{ij})$ is computed by setting $p_{ij}$ equal to the fraction of times that a country, finding itself in state $i$, makes the transition to state $j$ the next year. The data is assumed to be stationary, so that all of the transitions can be pooled when calculating transition probabilities. The result of this calculation [Quah (1993, p. 431)] is

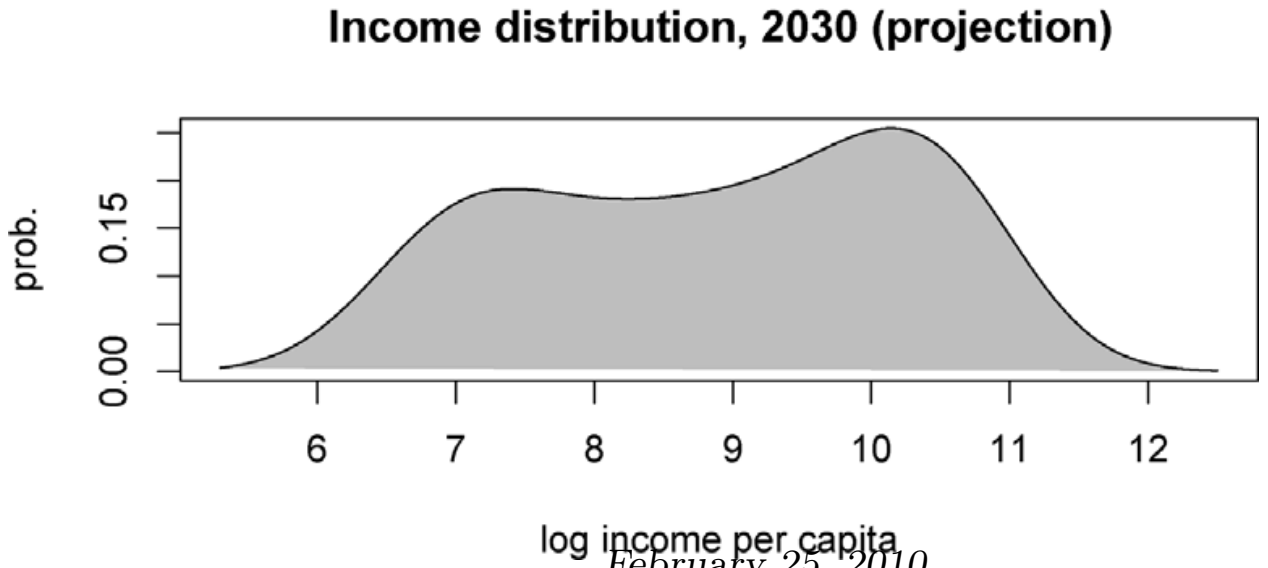
$$\mathbf{P} = \begin{pmatrix} 0.97 & 0.03 & 0.00 & 0.00 & 0.00 \\ 0.05 & 0.92 & 0.03 & 0.00 & 0.00 \\ 0.00 & 0.04 & 0.92 & 0.04 & 0.00 \\ 0.00 & 0.00 & 0.04 & 0.94 & 0.02 \\ 0.00 & 0.00 & 0.00 & 0.01 & 0.99 \end{pmatrix}.$$

The Markov chain governed by $\mathbf{P}$ is easily shown to be ergodic, so that


Income distribution, 1960
frequency
0
20
40
1
2
3
4
5
state


Income distribution, 2030 (projection)
frequency
0
20
40
1
2
3
4
5
state

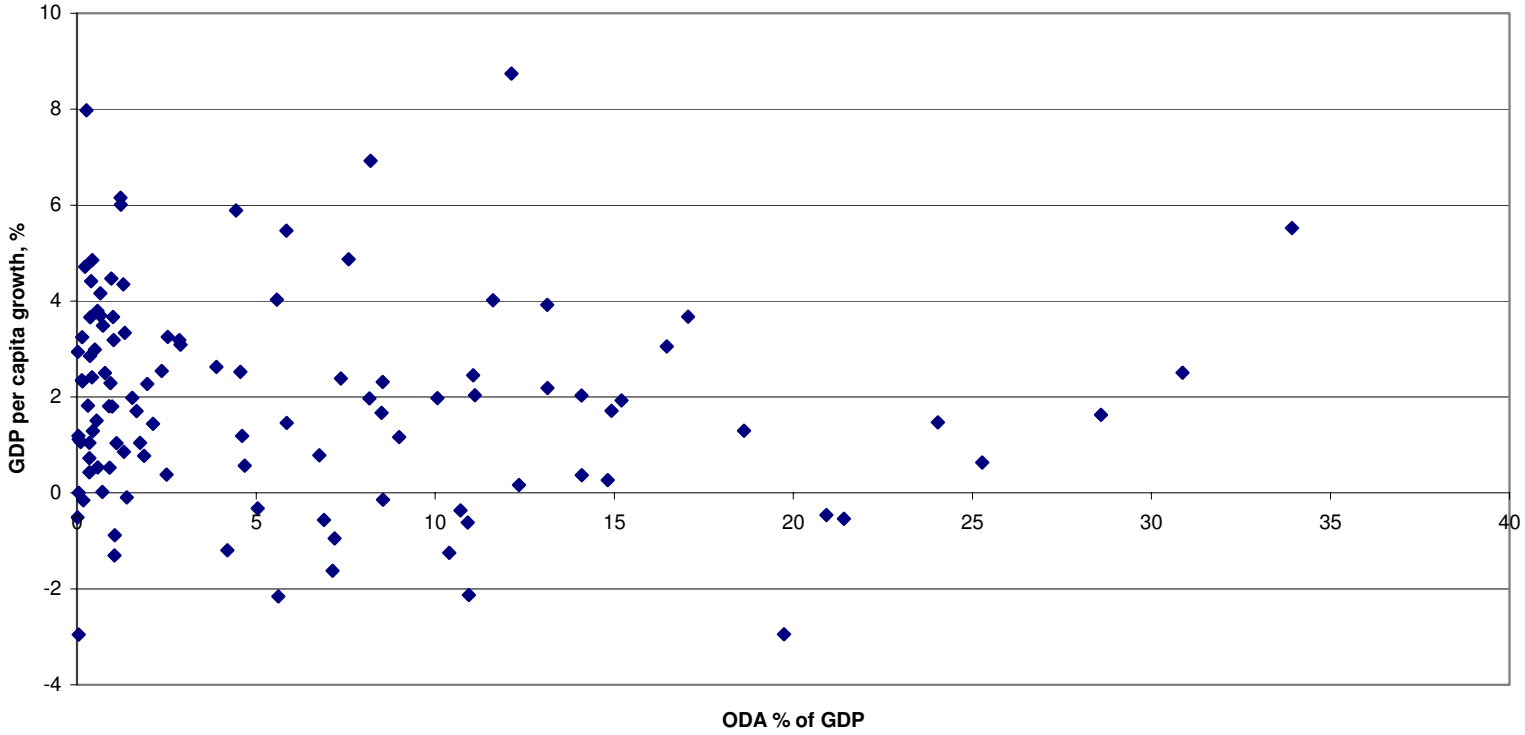

Income distribution, 1960
prob.
0.0
0.2
0.4
6
7
8
9
10
11
12
log income per capita


Income distribution, 2030 (projection)
prob.
0.00
0.15
6
7
8
9
10
11
12
log income per capita

## Correlates

# Aid and growth

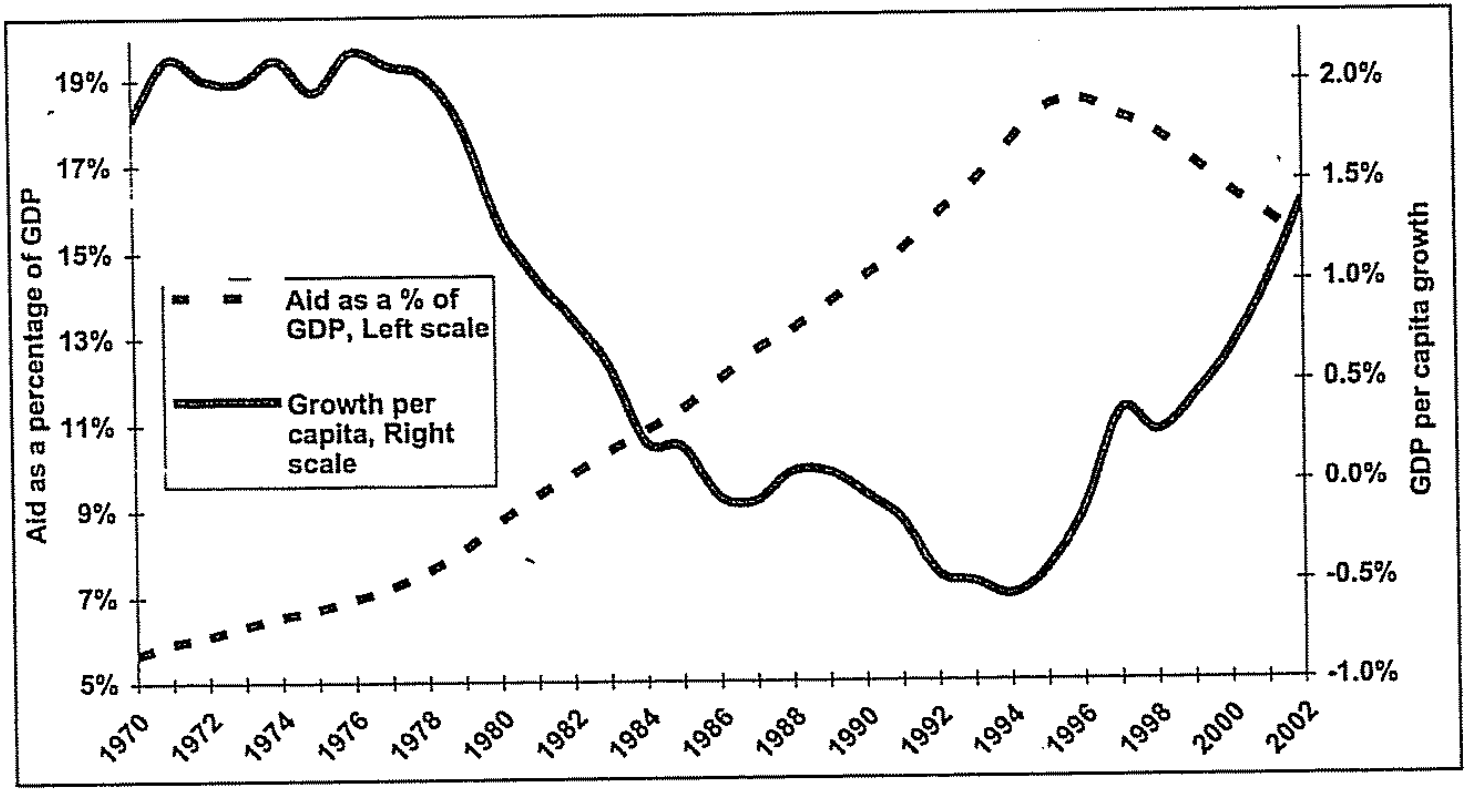
**Figure 2. Foreign aid and growth, 1994-2004**




Source: Radelet (2007)

# Aid and growth

**Figure 8.2 Aid and Growth in Africa (10-year moving averages)**




*Source:* World Development Indicators.

*Note:* This figure is an updated version of a chart that first appeared in William Easterly, *The Elusive Quest for Growth,* MIT Press, Cambridge, MA, 2001.

Source: Moss (2007)

## Burnside and Dollar, 2002

- Is the effect of aid on growth conditional of economic policies?
- Do donor governments and agencies allocate more aid to countries with good policies?
- These two are important question and BD (2002) try to answer them both.

## Empirical strategy

- To answer the first question, the authors will estimate the following equation

$$g_{it} = \alpha + \beta AID_{it} + \theta \text{Policy}_{it} + \gamma X_{it} + \eta_t + \epsilon_{it} \tag{1}$$

- $g_{it}$ is the percapita growth rate of country $i$ in period $t$.
- $AID$ is $\frac{AID}{GDP}$
- Policy and index of "good" policies (budget surplus, inflation and openness).
- $X_{it}$ are controlled variables.

$$g_{it} = \alpha + \beta AID_{it} + \theta \text{Policy}_{it} + \gamma (AID_{it} \times \text{Policy}_{it}) + \gamma X_{it} + \eta_t + \epsilon_{it} \tag{2}$$

- Question: can we obtained unbiased parameters for $\beta$? What about $\gamma$?

## Data sources

- New data from the World Bank on aid.
- Sample of 56 countries and six four-year time periods from 1970-73 to 1990-93.
- There are 21 African countries.
- All major aid recipients in other regions are included.
- They also concentrate on lower income countries: those with GDP percapita lower than $1,900 in 1970.
- The sample is then reduced to 40 countries.

## Empirical strategy

- The authors recognize the "endogeneity" of aid.
- Two questions for you:
  - How can aid be endogenous?
  - How could you solve this problem?

## Empirical strategy (II)

- The authors will use *instrumental variables*.
- The key idea is that AID is *endogenous*.
- They also created an index for "good" policies.

  Policy = 1.28+6.85×Budget surplus−1.40×Inflation+2.16×Openness.

- However, they will treat the policy index as exogenous. Do you agree?

# Variables

TABLE 1—SUMMARY OF REGRESSION SPECIFICATIONS AND IDENTIFICATION

| | Equation | | | |
|---|---|---|---|---|
| Variable | Variants of (4), growth | | | (5), aid |
| Endogenous variables | | | | |
| Real growth rate | LHS | LHS | LHS | |
| Aid/GDP | RHS | RHS | RHS | LHS |
| (Aid/GDP) × policy | | RHS | RHS | |
| $(\text{Aid/GDP})^2$ × policy | | | RHS | |
| Exogenous variables | | | | |
| Logarithm of initial income | Included | Included | Included | Included |
| Policy index | Included | Included | Included | Included |
| Institutional quality | Included | Included | Included | |
| Ethnic fractionalization | Included | Included | Included | |
| Assassinations | Included | Included | Included | |
| Ethnic fractionalization × assassinations | Included | Included | Included | |
| M2/GDP, lagged | Included | Included | Included | |
| Logarithm of population | | | | Included |
| Arms imports/imports, lagged | | | | Included |
| Sub-Saharan Africa dummy | Included | Included | Included | Included |
| East Asia dummy | Included | Included | Included | |
| Egypt dummy | | | | Included |
| Franc zone dummy | | | | Included |
| Central America dummy | | | | Included |
| Logarithm of initial income × policy | | | | |
| Logarithm of population × policy | | | | |
| Arms imports/imports, lagged × policy | | | | |
| $(\text{Logarithm of initial income})^2$ × policy | | | | |
| $(\text{Logarithm of population})^2$ × policy | | | | |

*Notes:* LHS indicates that a variable is included as the left-hand-side variable. RHS indicates that a variable is included as a right-hand-side variable. All exogenous variables are used as instruments in 2SLS estimation.

# Results

TABLE 4—GROWTH REGRESSIONS: USING ALL COUNTRIES AND THE POLICY INDEX

| | (3) | | (4) | | (5) | |
|---|---|---|---|---|---|---|
| Estimation method | OLS | 2SLS | OLS | 2SLS | OLS | 2SLS |
| Initial GDP | −0.61 | −0.79 | −0.56 | −0.71 | −0.60 | −0.90 |
| | (0.56) | (0.59) | (0.56) | (0.60) | (0.57) | (0.65) |
| Ethnic fractionalization | −0.54 | −0.70 | −0.42 | −0.47 | −0.42 | −0.73 |
| | (0.72) | (0.75) | (0.73) | (0.83) | (0.72) | (0.81) |
| Assassinations | −0.44* | −0.43 | −0.45* | −0.44* | −0.45* | −0.41 |
| | (0.26) | (0.27) | (0.26) | (0.26) | (0.26) | (0.27) |
| Ethnic fractionalization × assassinations | 0.82* | 0.78* | 0.80* | 0.75* | 0.79* | 0.71 |
| | (0.44) | (0.44) | (0.44) | (0.45) | (0.44) | (0.45) |
| Institutional quality | 0.64** | 0.63** | 0.67** | 0.68** | 0.69** | 0.66** |
| | (0.17) | (0.17) | (0.17) | (0.19) | (0.17) | (0.18) |
| M2/GDP (lagged) | 0.014 | 0.019 | 0.016 | 0.025 | 0.012 | 0.017 |
| | (0.013) | (0.015) | (0.014) | (0.017) | (0.014) | (0.016) |
| Sub-Saharan Africa | −1.60** | −1.31* | −1.84** | −1.71** | −1.87** | −1.29 |
| | (0.73) | (0.72) | (0.74) | (0.82) | (0.75) | (0.84) |
| East Asia | 0.91* | 0.81 | 1.20** | 1.27** | 1.31** | 1.15** |
| | (0.54) | (0.53) | (0.58) | (0.63) | (0.58) | (0.56) |
| Policy index | 1.00** | 1.01** | 0.78** | 0.65** | 0.71** | 0.74** |
| | (0.14) | (0.14) | (0.20) | (0.30) | (0.19) | (0.20) |
| Aid/GDP | 0.034 | −0.12 | 0.49 | −0.10 | −0.021 | −0.32 |
| | (0.12) | (0.18) | (0.12) | (0.21) | (0.16) | (0.36) |
| (Aid/GDP) × policy | — | — | 0.20** | 0.37 | 0.19** | 0.18* |
| | | | (0.09) | (0.33) | (0.07) | (0.10) |
| $(\text{Aid/GDP})^2$ × policy | — | — | −0.019** | −0.038 | — | — |
| | | | (0.0084) | (0.038) | | |

TABLE 5—GROWTH REGRESSIONS: USING LOWER-INCOME COUNTRIES AND THE POLICY INDEX

| | (6) | | (7) | | (8) | |
|---|---|---|---|---|---|---|
| Estimation method | OLS | 2SLS | OLS | 2SLS | OLS | 2SLS |
| Initial GDP | −0.74 | −0.74 | −0.60 | −0.58 | −0.72 | −0.83 |
| | (0.80) | (0.78) | (0.79) | (0.78) | (0.81) | (0.77) |
| Ethnic fractionalization | −0.78 | −0.78 | −0.56 | −0.45 | −0.58 | −0.67 |
| | (0.81) | (0.83) | (0.80) | (0.95) | (0.80) | (0.84) |
| Assassinations | −0.75* | −0.75* | −0.84* | −0.90** | −0.79* | −0.76* |
| | (0.46) | (0.45) | (0.43) | (0.45) | (0.44) | (0.44) |
| Ethnic fractionalization × assassinations | 0.95 | 0.95 | 0.88 | 0.85 | 0.69 | 0.63 |
| | (0.89) | (0.89) | (0.90) | (0.90) | (0.91) | (0.90) |
| Institutional quality | 0.77** | 0.77** | 0.80** | 0.81** | 0.84** | 0.84** |
| | (0.19) | (0.19) | (0.20) | (0.21) | (0.20) | (0.19) |
| M2/GDP (lagged) | 0.028* | 0.028* | 0.031* | 0.035* | 0.024 | 0.025 |
| | (0.016) | (0.016) | (0.017) | (0.019) | (0.017) | (0.017) |
| Sub-Saharan Africa | −1.86** | −1.85** | −2.20** | −2.35** | −2.24** | −2.11** |
| | (0.65) | (0.67) | (0.67) | (0.91) | (0.67) | (0.73) |
| East Asia | 0.70 | 0.69 | 1.33* | 1.63 | 1.54** | 1.46** |
| | (0.56) | (0.56) | (0.71) | (1.21) | (0.67) | (0.71) |
| Policy index | 1.14** | 1.14** | 0.74** | 0.55 | 0.56* | 0.59 |
| | (0.19) | (0.19) | (0.35) | (0.76) | (0.31) | (0.38) |
| Aid/GDP | −0.033 | −0.034 | −0.013 | −0.010 | −0.18 | −0.24 |
| | (0.13) | (0.16) | (0.13) | (0.17) | (0.17) | (0.26) |
| (Aid/GDP) × policy | — | | 0.27** | 0.43 | 0.26** | 0.25** |
| | | | (0.12) | (0.49) | (0.08) | (0.12) |
| $(\text{Aid/GDP})^2$ × policy | — | | −0.024** | −0.041 | — | — |
| | | | (0.0093) | (0.047) | | |

TABLE 6—THE IMPACT OF AID AND POLICY ON GROWTH

| Regression | Method | Derivative of growth with respect to Aid/GDP | Policy |
|---|---|---|---|
| | A. In regressions without interaction terms | | |
| All countries (3) | OLS | 0.03 | 1.00 |
| | | (0.12) | (0.14) |
| | 2SLS | −0.12 | 1.01 |
| | | (0.18) | (0.14) |
| Lower-income countries (6) | OLS | −0.03 | 1.14 |
| | | (0.13) | (0.19) |
| | 2SLS | −0.03 | 1.14 |
| | | (0.16) | (0.19) |

B. In regressions with simple and quadratic interaction terms

| | | At policy = 1.2 | At policy = 2.4 | Difference | At aid = 1.6 |
|---|---|---|---|---|---|
| All countries (4) | OLS | 0.21 | 0.39 | 0.18* | 1.06 |
| | | (0.19) | (0.26) | (0.10) | (0.17) |
| | 2SLS | 0.20 | 0.51 | 0.32 | 1.15 |
| | | (0.39) | (0.63) | (0.26) | (0.23) |
| Lower-income countries (7) | OLS | 0.21 | 0.44* | 0.24** | 1.10 |
| | | (0.18) | (0.27) | (0.12) | (0.24) |
| | 2SLS | 0.34 | 0.71 | 0.37 | 1.13 |
| | | (0.47) | (0.88) | (0.43) | (0.23) |

C. In regressions with simple interaction terms

| | | At policy = 1.2 | At policy = 2.4 | Difference | At aid = 1.6 |
|---|---|---|---|---|---|
| All countries (5) | OLS | 0.20 | 0.43** | 0.23** | 1.01 |
| | | (0.15) | (0.18) | (0.09) | (0.14) |
| | 2SLS | −0.12 | 0.11 | 0.22* | 1.02 |
| | | (0.31) | (0.31) | (0.13) | (0.15) |
| Lower-income countries (8) | OLS | 0.13 | 0.47** | 0.33** | 0.99 |
| | | (0.15) | (0.20) | (0.11) | (0.22) |
| | 2SLS | 0.05 | 0.37 | 0.32** | 1.00 |
| | | (0.22) | (0.27) | (0.15) | (0.24) |

* Significantly greater than 0 at the 10-percent level.
** Significantly greater than 0 at the 5-percent level.

## What explains aid?

- Now the focus is on the variables that correlate with aid.
- The new equation is

$$AID_{it} = \alpha_2 + \lambda \text{Policy}_{it} + \pi X_{it} + \psi_t + u_{it} \qquad (3)$$

# Correlates of aid

TABLE 8—ALLOCATION OF AID: LOWER-INCOME COUNTRIES

| | Total | Bilateral | Multilateral | World Bank |
|---|---|---|---|---|
| Initial GDP | −2.43** | −1.11** | −1.32** | −0.47** |
| | (0.44) | (0.27) | (0.27) | (0.080) |
| Population | −0.84** | −0.45** | −0.39** | −0.079** |
| | (0.14) | (0.082) | (0.084) | (0.018) |
| Policy | 0.20 | 0.061 | 0.14** | 0.040** |
| | (0.16) | (0.12) | (0.062) | (0.020) |
| Sub-Saharan Africa | 0.082 | 0.43 | −0.34 | −0.12* |
| | (0.38) | (0.26) | (0.25) | (0.068) |
| Egypt | 1.81** | 1.60** | 0.21 | 0.10 |
| | (0.56) | (0.45) | (0.19) | (0.071) |
| Franc zone | 0.54 | 0.34 | 0.19 | 0.040 |
| | (0.50) | (0.36) | (0.18) | (0.098) |
| Central America | 0.28 | 0.52 | −0.23 | −0.060 |
| | (0.40) | (0.34) | (0.21) | (0.072) |
| Arms imports (lagged) | 0.012 | 0.011 | 0.0006 | −0.0028* |
| | (0.018) | (0.014) | (0.0044) | (0.0015) |
| Observations | 195 | 195 | 195 | 195 |
| Mean of aid/GDP | 2.07 | 1.38 | 0.69 | 0.17 |
| $\bar{R}^2$ | 0.61 | 0.53 | 0.55 | 0.50 |

*Notes:* The estimates were obtained by OLS. The variables are described in the text. The dependent variable is the indicated type of aid as a percentage of GDP. Standard errors are in parentheses. They were computed to be robust to heteroskedasticity and first-order serial correlation.

* Significant at the 10-percent level.

** Significant at the 5-percent level.

## Big impacts on policy

[1] See, for instance, the World Bank (1994, 2001, 2002), the U.K. Department for International Development (2000), President George W. Bush's speech (March 16, 2002), the announcement by the White House on creating the Millennium Challenge Corporation (White House, 2002), as well as a *Washington Post* editorial (February 9, 2002), a *Financial Times* column by Alan Beattie (March 11, 2002), and *The Economist* (March 16, 2002).

## New evidence

- Easterly, Levine and Roodman (2004) collected more data.
- BD data ended in 1993 while ELR expanded it to 1997

TABLE 1—TESTING THE ROBUSTNESS OF BURNSIDE AND DOLLAR PANEL REGRESSIONS 5 AND 8 TO MORE DATA (DEPENDENT VARIABLE: GROWTH OF GDP/CAPITA)

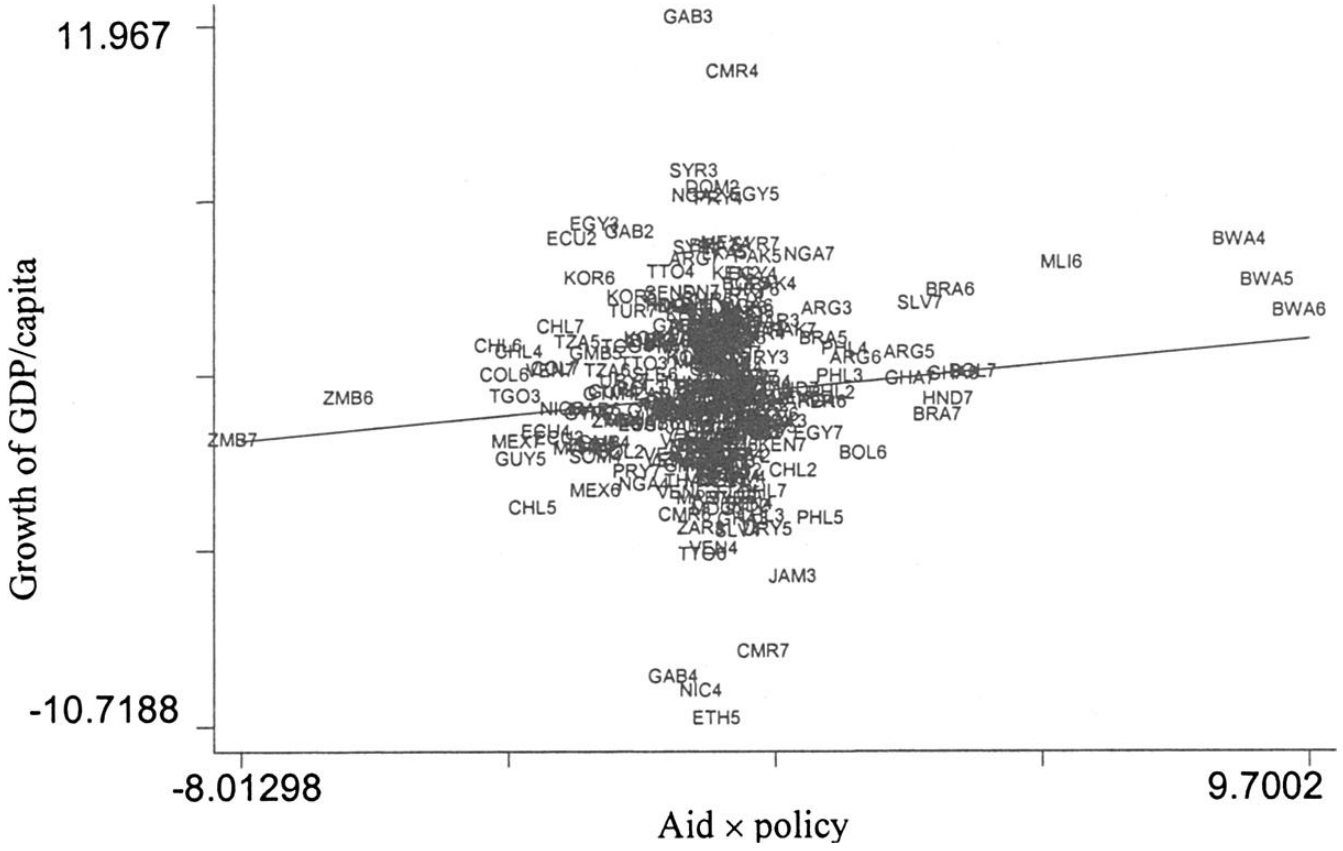
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Sampling universe: | All developing countries, outliers omitted | | Only low-income countries, outliers omitted | |
| Burnside-Dollar regression: | Regression 5, OLS | | Regression 8, 2SLS | |
| Right-hand-side variable: | BD data, BD sample, 1970–1993 | New data set, full sample, 1970–1997 | BD data, BD sample, 1970–1993 | New data set, full sample, 1970–1997 |
| Aid | −0.02 | 0.20 | −0.24 | −0.16 |
| | (0.13) | (0.75) | (−0.89) | (−0.26) |
| Aid*policy | 0.19** | −0.15 | 0.25* | −0.20 |
| | (2.61) | (−1.09) | (1.99) | (−0.65) |
| Log initial GDP per capita | −0.60 | −0.40 | −0.83 | −1.21* |
| | (−1.02) | (−1.06) | (−1.02) | (−2.02) |
| Ethnic | −0.42 | −0.01 | −0.67 | −0.74 |
| | (−0.57) | (−0.02) | (−0.76) | (−0.82) |
| Assassinations | −0.45 | −0.37 | −0.76 | −0.69 |
| | (−1.68) | (−1.43) | (−1.63) | (−1.68) |
| Ethnic*Assassinations | 0.79 | 0.18 | 0.63 | 0.69 |
| | (1.74) | (0.29) | (0.67) | (0.78) |
| Sub-Saharan Africa | −1.87* | −1.68** | −2.11** | −1.20 |
| | (−2.41) | (−3.07) | (−2.77) | (−1.79) |
| Fast-growing E. Asia | 1.31* | 1.18* | 1.46 | 1.01 |
| | (2.19) | (2.33) | (1.95) | (1.40) |
| Institutional quality | 0.69** | 0.31* | 0.85** | 10.38* |
| | (3.90) | (2.53) | (4.17) | (2.46) |
| M2/GDP lagged | 0.01 | 0.00 | 0.03 | 10.02 |
| | (0.84) | (0.16) | (1.39) | (1.00) |
| Policy | 0.71** | 1.22** | 0.59 | 1.61** |
| | (3.63) | (5.51) | (1.49) | (2.93) |
| Observations | 270 | 345 | 184 | 236 |
| $R^2$ | 0.39 | 0.33 | 0.47 | 0.35 |

*Notes:* *T*-statistics are given in parentheses. The regressions omit outliers, either as described in Burnside and Dollar (2000) or using the Hadi method as discussed in the text. Variable definitions: Aid is Development Assistance/real GDP; Policy is a regression-weighted average of macroeconomic policies described in BD; Ethnic is ethnic fractionalization from Easterly and Levine, 1997; Assassinations is per million population; Sub-Saharan Africa and Fast-growing E. Asia are dummy variables; Institutional quality is from Stephen Knack and Philip Keefer (1995). Other data sources are described in the Data Appendix available at www.cgdev.org.

* Significant at the 5-percent level.

** Significant at 1-percent level.

## Partial association (BD)



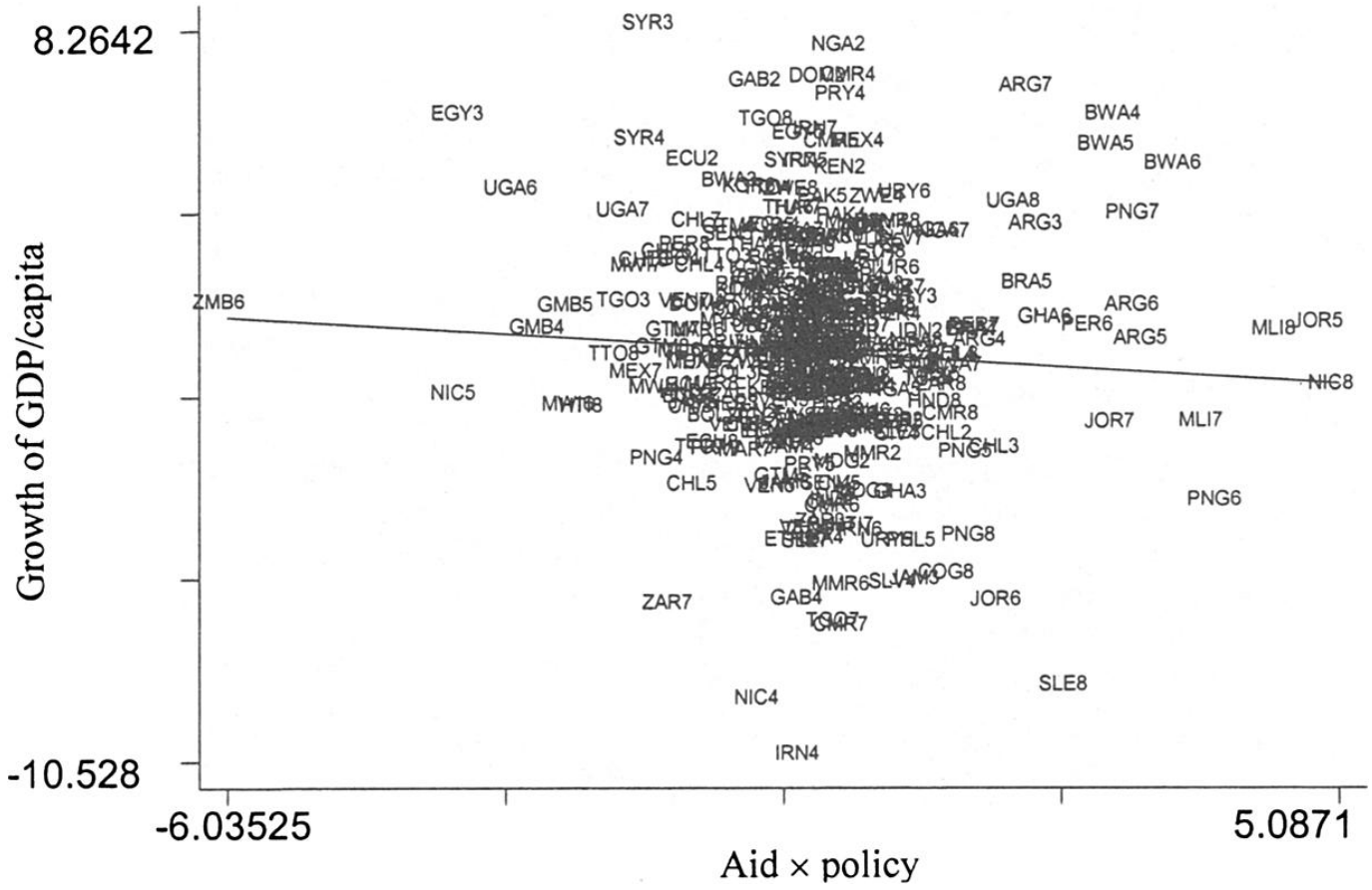



FIGURE 1. PARTIAL SCATTERPLOTS OF GROWTH AGAINST AID*POLICY

*Notes:* These partial scatterplots are from regressions 1 and 3 in Table 1. The top graph represents Burnside-Dollar original results; the bottom graph shows results using the new data set. The partial scatterplot involves the two-dimensional representation of the relationship between growth and aid*policy controlling for the other regressors. Thus, we regress growth against all of the regressors listed in Table 1 except aid*policy and collect these growth residuals. Then we regress aid*policy against the same regressors and collect these aid*policy residuals. The figures plot the growth residuals against the aid*policy residuals along with the regression line. Point labels are three-letter ISO country codes followed by a digit for the time period (2 = 1970–1973; 3 = 1974–1977, etc.).

# Sources


- Radelet, S. (2006) "A Primer on Foreign Aid" CGD Working Paper 92.
- Easterly, W. (2008) "Can the West Save Africa?" NBER Working Paper 14636.
- Burnside and Dollar (2000) "Aid, Policies, and Growth", *American Economic Review*, 90(4): 847-868, September.
- Easterly, W.; R. Levine and D. Roodman (2004) "Aid, Policies, and Growth: Comment" *American Economic Review*, 94(3): 774-780.