

# The Cycle of Development in Africa: A Story about the Power of Economic Ideas

Martin Paldam

**Abstract** During the last 60 years development in Sub-Saharan Africa has had three main phases—P1, P2 and P3—divided by kinks in 1972 and in 1994. P1 and P3 had fairly satisfactory growth, but P2 had negative growth. This cyclical growth path has to be explained by variables with a similar path. A set of socio-economic variables representing 11 hypotheses are considered. Some of these hypotheses have been proposed to explain the low growth of Africa, while most are meant to explain the growth tragedy of P2. Most of the variables have paths with no relation to the cycle, but the path corresponds to the shifts in the dominating development strategy. At the end of P1 the main policy-package in Africa became the one of African socialism. It led to large scale rent seeking, inefficiency and economic regression. At the end of P2 policies were adjusted towards a more market based system and growth resumed.

## 1 Introduction

This essay deals with the economic development of Africa, which is taken to mean Sub-Saharan Africa. 44 countries on the continent are considered. I assume that they have so much in common that it makes sense to treat their development as a set of variations around a joint African path. This path has three distinct phases shown in Figs. 1 and 6 below: (P1) From the start of the data in 1950–1972 growth was decent. (P2) From 1973 till 1993 growth was negative. (P3) Since 1994 decent growth has resumed. This *cyclical* picture is evident in the data for 32 of the countries while

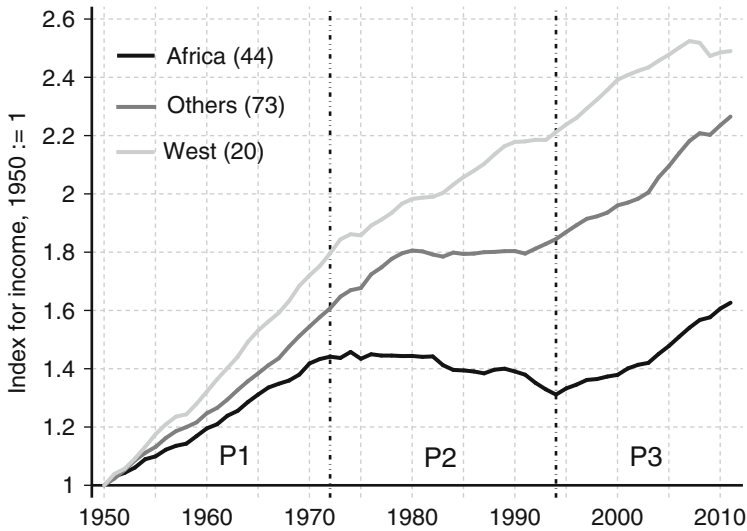
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M. Paldam (✉)

Department of Economics and Business, Aarhus University, 8000 Aarhus C, Denmark

e-mail: [mpaldam@econ.au.dk](mailto:mpaldam@econ.au.dk)



**Fig. 1** The growth path of income for three country groups, 1950–2011. The calculations cover 44 African, 20 Western countries and 73 Other countries, for which data is available for the full period. The data until 2005 are from Maddison (2003, URL ref) and updated with WDI/Penn World Tables (URL ref). A few missing observations for 2011 are from the CIA World Factbook (URL ref). The data are converted to indices starting at 1 in 1950. It is done by adding 1 and deducting the value in 1950 from all series

3 countries have a different path. The last nine countries follow the cycle for 1–2 periods, but not fully.

Due to the negative growth in P2, the GDP level from the end of P1 was only reached again in 2004, so Africa had 20 years of falling GDP per capita and 30 years of no economic growth. About 14 countries of the world have a GDP per capita that is lower today than in 1950. Of these no less than seven are African (see the left hand panel in Table 2 below). These facts have been known as Africa's *growth tragedy* following Easterly and Levine (1997).

It is covered by a substantial literature. I have searched this literature and found a number of theories used to explain Africa's development.<sup>1</sup> 11 of these theories are operational in the sense that they use an explanatory variable that is covered by a main economic indicator. The methodological idea of the paper is that a development that is visible in the GDP data for 44 countries must be strong. Thus, it is a necessary condition for a theory to be credible that the African average for its indicator variable should have a similar and clearly visible development.

<sup>1</sup>Several broader, less operational, theories are also available, such as the 'primacy of organizations' view; see e.g., Acemoglu and Robinson (2010) and Paldam and Gundlach (2008). My findings may relate to that view, but I do not discuss this in the present paper.

11 theories are a lot to cover, and the data for most of the indicators are incomplete, so I have to assume that the data for the countries covered are typical for all 44 countries. A pattern actually emerges: It appears that only one of these indicators follows the cycle of development in Africa reasonably well. It is the Fraser Index giving the big shifts in the development strategy. Consequently, if one of the theories is true, it is that the cycle is caused by the shifts in the development strategy, corresponding to the changes in the dominating sets of economic ideas in Africa and among the many development economists advocating these ideas. Thus it is a story about the power of economic ideas.

The paper proceeds as follows. Section 2 looks at the GDP data to show what has to be explained. Section 3 looks into the textbooks of economic theory for a general explanation. It discusses three theories most economists automatically reach for when they try to explain the slow growth of Africa. Section 4 considers five specific theories developed to explain period P2, the growth tragedy, and two additional theories that are supposed to apply to all three periods. These theories are all found to be empirically problematic. Section 5 looks at the only theory that is in accordance with the data. Section 6 concludes.

## 2 What Has to be Explained?

The analysis uses the Maddison (2003, URL ref<sup>2</sup>) data set updated to 2011.<sup>3</sup> It reports complete time series starting in 1950 for 44 countries.<sup>4</sup> The appendix lists the countries and brings a few descriptive statistics. The paper looks at national accounts data in real PPP prices. When GDP is written *gdp* (lowercase) it represents per capita GDP data. *Income* denotes the natural logarithm *gdp*. The *growth rate* is always based on the *gdp*-series.

### 2.1 The Path and the Three Periods: P1, P2 and P3

The income path of the 44 *African* countries is shown in Fig. 1. It is compared with the path for the average *Western* countries and 73 *Other* countries, which are all other countries in the Maddison set with complete series. The three periods—P1, P2 and P3—from the introduction, are indicated by the vertical lines.

Table 1 summarizes the information in Fig. 1. The averages in P1 and P3 do not differ significantly, but growth in P2 is significantly lower than growth in the other

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<sup>2</sup>(URL ref) means that the references bring the net address (URL).

<sup>3</sup>National accounts for many African countries are weak and some have gaps or jumps. The paper takes the data for granted. They are updated to 2011 as explained in the note to Fig. 1.

<sup>4</sup>The only country I would have included if data had not been missing is Eritrea. By choice Mauritius, the Seychelles and South Africa are excluded. However, South Africa follows the cycle perfectly well.

**Table 1** Average growth rates for 1950–2011

Group	Countries	Growth all years		The three periods			Change		N for all periods
		Per year	Times	P1	P2	P3	$\Delta P2$	$\Delta P3$	
Africa	44	1.21	2.1	2.14	0.30	1.84	-2.44	2.14	2684
		(0.23)		(0.31)	(0.46)	(0.44)			
Others	73	2.27	3.9	2.95	1.27	2.59	-1.68	1.32	4453
		(0.17)		(0.29)	(0.32)	(0.26)			
West	20	2.51	4.5	3.72	1.90	1.73	-1.82	-0.17	1220
		(0.15)		(0.26)	(0.23)	(0.25)			

Note: Same data as used for Fig. 1. Growth is in per cent of gdp, and brackets report 2 standard errors. Source: Maddison (2003, URL ref)

periods.<sup>5</sup> While the downswing from P1 to P2 is relatively large in Africa, so is the upswing from P2 to P3.

## 2.2 *The Underlying Political Dynamics of Economic Ideology/Development Strategy*

In a broad historical perspective the *underlying political dynamics* had two mutually reinforcing parts: (i) The learning-to-rule part. The experienced colonial powers managed to set Africa on a nice growth path. The inexperienced new governments led the continent into economic trouble. And then they learned.<sup>6</sup> (ii) *The reacting-to-colonialism* part. The dynamics of independence caused African politicians to promise far more than they could possibly deliver. Also, they ascribed all problems to the misrule and exploitation of the imperialists. If they had pursued different policies, they would have done much better, but it became a tragedy, and time passed so the urge to differ from the old colonial policies weakened and hence the second shift. This political dynamics also has three phases: D1 to D3<sup>7</sup>:

(D1) From 1950 to about 1965 the countries had *MS*, market systems, as preferred by the main colonial powers.<sup>8</sup> In several countries independence came

<sup>5</sup>The only exception is that in the West growth does not increase from P2 to P3.

<sup>6</sup>It is a problem for this explanation that two of the countries that have followed the cyclical path most closely are Ethiopia and South Africa (not included).

<sup>7</sup>It is difficult to classify development strategies in periods, but the two strategies D2 and D3, chosen by the African countries themselves, were also the strategies advocated by the organizations speaking for Africa, such as the Organization for African Unity/African Union and the UN Economic Commission for Africa.

<sup>8</sup>Prior to World War II the African countries had economic systems that might be characterized as colonial systems, but fairly soon after the war it became clear that most colonies might be independent at some future point in time, and the main colonial powers started policies to create viable economic systems.

later and hereby the possibility to choose another development strategy. (D2) The 20 years 1965/85 was the *AS*-period of African Socialism, was the typical *ISI*-package, for Import Substitution Industrialization, with trade protection and *SOEs*, state owned enterprises. A main purpose of these policies was self-reliance. It was to be reached by insulating the economies from the world market. (D3) From about 1985 the preferred economic system changed back to a *MS*. To go there most countries implemented a set of *SA*, Structural Adjustment, of trade liberalizations and privatizations of *SOEs*.

This zig-zag movement in economic ideology is typical for the LDC world,<sup>9</sup> though it has been relatively strong in Africa. At a first glance, the three *Ds* do not appear to correspond to the three *Ps*. Section 5 looks at data showing the cycle in the actual policies. Due to implementation lags the correspondence turns out to be much better than it appears at first.

### 2.3 Two Exogenous Shocks: The Oil and the Debt Crises

In the 60-year period Africa was hit by two strong international shocks. They affected all three country-groups shown in Fig. 1, but somewhat differently:

The *Oil Crisis* of 1973. It originated in the Middle East, and affected most countries from 1974/75. Part of the downswing in P2 was no doubt due to the Oil Crisis, but as shown on Figs. 1 and 6 the kink started a bit before in Africa. Also, the downswing due to the Oil Crisis ought to have been relatively modest in Africa for two reasons: (i) The policies of self-reliance pursued. (ii) The African countries have relatively large subsistence sectors, which should not be affected at all. However, the fall in the growth rate was relatively large.

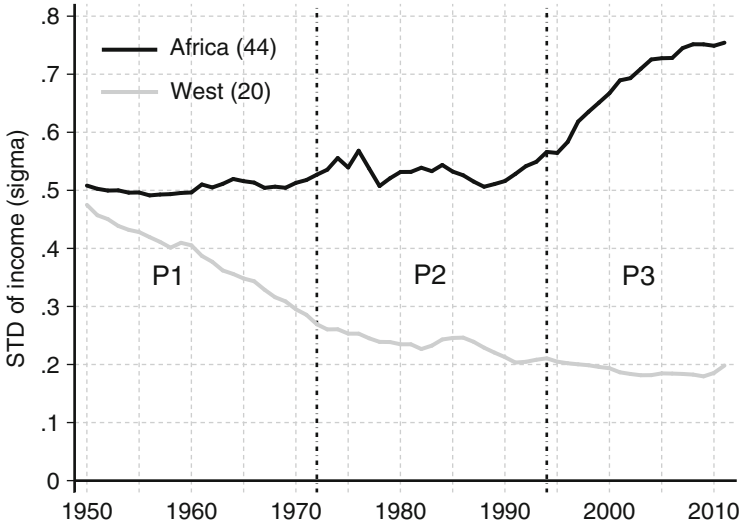
The *Debt Crisis* of 1982. From 1973 to 1982 most LDCs borrowed heavily to offset the effects of the Oil Crisis, and in other LDCs the kink in 1973 was small. However, debt burdens rose ominously. In August 1982 this led to a chain reaction of defaults starting in Latin America. For most LDCs the kink came in 1982 and caused one decade of zero growth—known as the *lost decade* in Latin America. In Africa the kink came a decade before and led to the growth tragedy of two decades of negative growth. The effect of debt is further discussed in Sect. 4.6.

### 2.4 The African Divergence in P3, and a Summing Up

Figure 2 shows the relative distribution of incomes—the  $\sigma$  measure of convergence—of the 44 countries compared with a similar curve for the West. The two country-groups had similar relative income differences in 1950, but while the

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<sup>9</sup>LDCs are Less Developed Countries, while DCs are Developed Countries.



**Fig. 2** Convergence/divergence in Africa and the West by the  $\sigma$ -measure. The  $\sigma$  measure of convergence is the standard deviation of income, i.e., of the logarithm to GDP per capita. Data source: Maddison (2003, URL ref)

West converged, Africa stayed at the same level till P3, where a strong divergence started. Maybe it is now leveling out, but it is certainly at a higher level. It follows that while the average African curve on Fig. 1 makes sense till 1992, it is less representative since then. The upswing since 1993 has affected some countries more than others.

Consequently, this section has shown that the African development is unusual in two ways: (1) It has had a relatively strong cyclical path, and (2) a relatively low average growth rate. The two facts interact: Imagine that the downswing in P2 had been only half of what it actually was, i.e.,  $-1.22$  percentage points only. Instead of the  $1.21\%$  growth rate reported, this would have caused Africa's growth to have been  $1.70\%$ . It would still have been lower than the one of the two other groups in Table 1, but not much lower. The low growth is thus partly—but not fully—due to the growth tragedy of P2.

Section 3 looks at the low growth of Africa, while the rest of the paper concentrates on the cyclical path. A convincing explanation of the cycle needs to have two characteristics:

- (a) It has to work through variables that are time variant over the three periods.
- (b) The variables have to be able to affect growth sufficiently to explain the cycle.

### 3 Looking in the Textbooks for General Explanations

The data has ( $44 \times 61 =$ ) 2682 African growth rates, of which 33 % are negative. The theory of economic growth suggests that the low growth of Africa is due to a low level equilibrium trap. A trap means that the growth diagram showing growth as a function of some determinant is non-linear, having a negative section that has to be overcome. To look for traps I consider scatter diagrams with kernel-regressions with a sufficiently low bandwidth.<sup>10</sup>

I cover the two main traps proposed in the literature by asking if the data look as demanded by these theories. The many negative growth rates lead to a third possibility: Maybe a negative shock can put an African economy on a stable negative growth path?

#### 3.1 Malthus' Low Level Trap

The first theory of a low level equilibrium trap goes back to Malthus (see Blaug 1962, Chap. 3). The trap is that increased income causes an extra population growth, wiping out the income per capita increase. Figure 3 shows how income explains the net-population growth rate.

If Malthus' theory explained Africa's development in the last 60 years, the *kernel-curve* curve should be non-linear and have a *positive* slope at the low end in Fig. 3. At the start and the end of the sample the average is only supported by few observations, but from an income level of about 6 to about 8 the curve is well estimated.

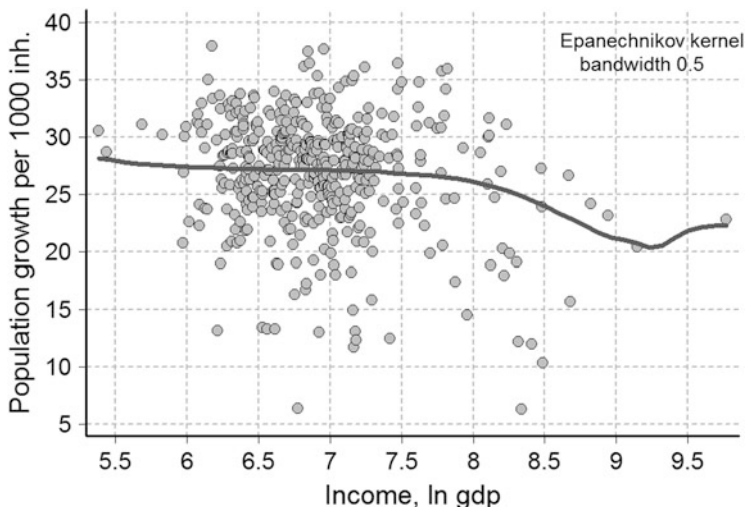
The figure shows no signs of a positive slope. The kernel-curve has an insignificant negative slope for most of its range until the last observation is added. If the bandwidth is reduced, the kernel becomes less stable at the ends, but stays the same in the range with many observations. The explanation of Malthus therefore seems irrelevant.<sup>11</sup>

The level of African population growth is high. Over most of the income range, i.e., from 6 to 8 on the horizontal axis, population growth was stable around 2.7 %,

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<sup>10</sup>The kernel is a continuous average with a fixed bandwidth. Kernel-curves, such as the ones in Figs. 2 and 3, are rather insensitive to the bandwidth. I have experimented with the range from 0.1 to 2, getting much the same results. Below 0.1 the regression-line becomes very erratic and above 2 it becomes a straight line.

<sup>11</sup>For 1700 and 1820 data exist for 12 Western countries. The annual gdp and population growth rates were  $0.12 \pm 0.05$  and  $0.45 \pm 0.11$  respectively, so it made sense that Malthus discussed if the real growth could be wiped out by small changes in population growth. The numbers for Africa since 1950 are quite different.



**Fig. 3** Looking for Malthus’ trap: Population growth over income. The curves are made for 10 observations per country for income and the crude population growth. The income data on the horizontal axis are for the years 1960, 1965, . . . , 2005, and the vertical axis considers averages for 1960/64, 1965/69, . . . , 2005/08. Sources: Maddison (2003, URL ref) and WDI (URL ref). The kernel-curve is robust to bandwidths from 0.2 to 1, where it becomes linear

which is close to the biological maximum of just above 3 %. This gives the African countries population increases of 4.5 times ( $\pm 0.3$ ) in the last 60 years.<sup>12</sup>

### 3.2 Solow’s Low Level Trap

In standard growth textbooks a version of the Solow model with two equilibria is quite common. As the reader will recall it analyzes a  $y = f(k)$ -production function, where capital per capita,  $k$ , explains production per capita,  $y$ . This is drawn in Fig. 4, showing a double-humped production function. The model has two attractors  $(y_{low}, k_{low})$  and  $(y_{high}, k_{high})$ , see Aziariadis and Stachurski (2005).

If  $0 < k < k_{piv}$ ,  $k$  converges to  $k_{low}$ , which gives one attractor  $(y_{low}, k_{low})$ .

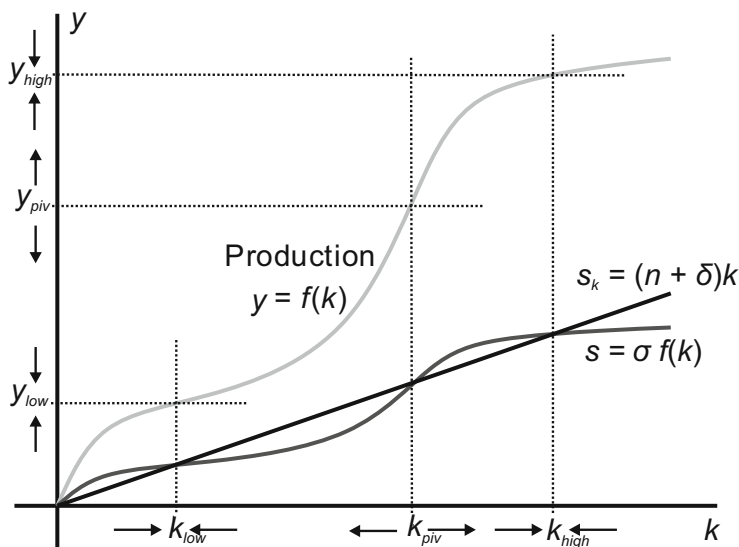
If  $k_{piv} < k$ ,  $k$  converges to  $k_{high}$ , which gives another attractor  $(y_{high}, k_{high})$ .

The model thus exhibits a pivotal point  $(y_{piv}, k_{piv})$  that is an unstable equilibrium.

The trap property of the model is that if income rises for some reason, but does not exceed the pivot, it falls back to the low equilibrium. When  $y_{low}$  and

<sup>12</sup>Maybe Africa could have had the same gross growth with half the population growth. This would have increased the real growth rate per capita from 1.2 % to about 2.5 %. See however Boserup (1965).



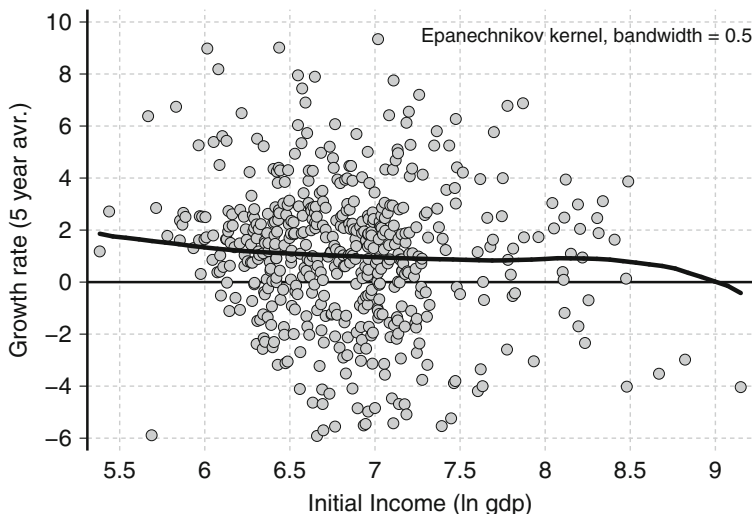


**Fig. 4** The Solow model with a low level equilibrium trap. The model contains a well-behaved production function  $y = f(k)$  where  $y$  and  $k$  denote production and capital per capita. The savings-investment function is  $s$ , where  $\sigma$  is the propensity to save. The  $s_k$ -function models the savings that keep  $k$  constant, where depreciation  $\delta$  and population growth  $n$  are covered. For a lucid textbook presentation see Jones (2002)

$y_{high}$  are wide apart, as e.g., the average African and Western countries, and  $y_{piv}$  is somewhere in the middle, it becomes difficult for an African country to exceed the pivot. Several explanations can be given why the production function may be double humped. The principle being that it aggregates a dual production structure, where the modern production technology has a large barrier to entry in the form of capital requirements.

The  $(y_{high}, k_{high})$  equilibrium is well known. It defines a production at the ‘world’ technology level of the West. It suggests that all DCs converge to the same steady state precisely as shown in Fig. 2. This has been known since Baumol (1986).

Imagine that the  $(y_{low}, k_{low})$  equilibrium is, in the same way, determined by a common technology. This appears possible on a continent where all countries border each other and are isolated from the rest of the world by large oceans and wide deserts. Thus, there may be convergence to a common equilibrium. Figure 5 is calculated as Fig. 3. If there is a low level equilibrium, a substantial part of the kernel-curve to the left should have a negative slope. The kernel-curve actually has a negative slope, but the slope is modest, and in the standard convergence regressions



**Fig. 5** Looking for Solow’s trap: Income growth over income. The data are 12 observations per country for initial income (ln gdp) for the years 1950, 1955, . . . , 2005, and the vertical axis considers average growth for 1950/54, 1955/59, . . . , 2005/09. Thus,  $N = 528$ , but 13 observations are outside the frame

it is insignificant.<sup>13</sup> Thus, it does not appear that the African continent has been held back in a low level equilibrium trap.

### 3.3 A Steady State Negative Growth?

The third possibility is that the African economies can generate a steady-state negative growth rate. Thus maybe a negative shock as the oil crisis of 1973 set the countries on that path. Table 2 shows the worst performers as regards growth.

The table has two sections: The left-hand panel shows the countries from Sect. 1 when the growth tragedy was defined. These countries had some growth in the 1950s and 1960s, but they peaked around 1973, and in the last 38 years they have had falling gdp by an annual rate of 1.6 %. The right hand (gray) panel covers an additional ten countries that had a positive growth over the full 61-year period. In most cases a peak occurs some time ago and the income has been falling since then.

<sup>13</sup>The regression for absolute convergence with  $N = 396$  is:  $gy = +1.71(0.7) - 0.13(-0.4) y$  with an  $R^2 = 0.0004$ , where  $y$  is (initial) income,  $gy$  is the growth of gdp and brackets hold t-ratios. If the 11 extreme observations are deleted,  $R^2$  increases to 0.012 and the coefficient on  $y$  decreases to  $-0.63 (-2.2)$ , which is significant, but still small. If the four additional extreme observations (two to the left and two to the right) are deleted, the coefficient on income once again vanishes.

**Table 2** The 20 countries with the worst economic performance 1950–2011

Countries with negative or negligible growth					Countries with low growth				
Country	Growth <sup>a)</sup> since 1950	Peak	Since peak Years	Growth <sup>a)</sup>	Country	Growth <sup>a)</sup> since 1950	Peak	Since peak Years	Growth <sup>a)</sup>
1 Congo, Ki	-1.2	1974	37	-2.9	11 Togo	0.2	1979	29	-1.8
2 Madagascar	-0.6	1971	40	-1.6	12 Senegal	0.3	1965	43	-0.0
3 CAR	-0.6	1961	50	-1.1	13 Gabon	0.4	1976	32	-0.3
4 Niger	-0.3	1965	43	-1.3	14 Benin	0.5	1982	Has caught up	
5 Djibouti	-0.2	1977	35	-1.3	15 Zimbabwe	0.5	1973	35	-1.0
6 Somalia	-0.1	1974	37	-1.0	16 Zambia	0.5	1965	43	-0.5
7 Comoros	-0.1	1972	39	-1.9	17 Burundi	0.6	1991	20	-1.7
8 Liberia	0.0	1978	33	-1.1	18 Chad	0.7	2005	6	-0.4
9 Côte d'Ivoire	0.0	1980	31	-2.1	19 Uganda	0.8	1969	Has caught up	
10 Sierra Leone	0.2	1981	30	-1.5	20 Angola	0.8	1973	40	-0.1
Average	-0.3	1973	38	-1.6	Average	0.5	1978	31	-1.2

Several country names are shortened. The first two letters of the capital city distinguish the two Congos. (a) *Growth* is the average annual growth of gdp. *Source*: See Fig. 1

The average peak year is 31 years ago and the fall in income is on average 1.2 % since then.

Thus half of the African countries have had 3–4 decades of falling income. I have analyzed the distribution of the 2684 growth rates. If a stable negative growth rate exists, the distribution should be bimodal, with a second peak in the negative section of the distribution. Growth rates typically have a symmetrical distribution with long tails, and so do African growth rates. I have found no indications of a negative peak in the distribution.

We may also turn to the theory of economic growth and ask: What are the conditions under which the growth rate becomes negative for 3–4 decades? The Solow-model uses a neoclassical production function<sup>14</sup>:

$$Y = F(A, K, L, H) \quad (1)$$

It can only produce negative growth (per capita) under two circumstances:

- (1) Investment is so low that the capital stock is constantly falling and the elasticity of substitution is small. In the limiting case of a Harrod-Domar model it might happen if savings are small. But the average African country receives about 14.5 % of GDP in development aid, which in principle is meant to finance development.<sup>15</sup>

<sup>14</sup>*Y* is GDP; *A* is technology; *K* is the real capital stock; *L* is the labor force; and *H* is the stock of human capital.

<sup>15</sup>If 8 % of the 14½ % aid finances investments and there are some additional investments, the share of investments (in GDP) in Africa is well above 10 %. This means that *K* must be growing. This assumes full fungibility; with less than full fungibility the investment share is higher.

- (2) Technical progress is negative, which means that techniques are forgotten at a steady rate. This also appears fanciful. Human capital has actually increased in Africa at a rather satisfactory rate, and under these conditions  $A$  is unlikely to fall.

Thus it is not easy to explain the long periods of negative growth in many African countries. However, model (1) has often been expanded with additional variables. One of these is  $Es$ , the economic system of the country<sup>16</sup>:

$$Y = F(A, K, L, H, Es) \quad (2)$$

In the last 60 years two groups of poor countries have had savings/investment rates of twice the ones of the West: East Asia and East Europe. While the former are the East Asian high growth countries that did catch up with the West, the latter were Communist countries where the gap to the West widened. Obviously, the economic system of the communist countries must have been less efficient,<sup>17</sup> so the economic system does matter. Maybe the negative growth in period P2 in Africa was due to a combination of small to moderate investments and the change into a bad economic system that is discussed in Sect. 5.

## 4 Specific Factors Explaining Africa's Development

As the general explanations seem irrelevant, researchers have looked for *specific* explanations. This section first considers five theories proposed in the literature on P2, the African growth tragedy, and then two theories that are supposed to be more broadly applicable. Each of the seven theories claim that one factor is crucial for the poor growth performance.<sup>18</sup>

To a large extent the specific explanations are a reaction to the theory that the cyclical path of Africa can be explained by the underlying political dynamics as set out in Sect. 2.2. This explanation appeared too easy, and this has generated a body of literature trying to explain the African growth tragedy by more exogenous factors. The five leading ones are:

- (1) Bad geography: (a) many landlocked countries, (b) widespread diseases, and (c) uncertain rainfall and poor soils.
- (2) Bad history: (a) the slave trade, (b) imperialism, and (c) the colonial legacy.

<sup>16</sup>This can be done in different ways, see e.g., Easterly and Levine (2003).

<sup>17</sup>See Chap. 4 in Paldam (2002b) and the brief summary around Table 3 in Paldam and Gundlach (2008), and Paldam (2003) on East Asia.

<sup>18</sup>Some of the factors may overlap, and several of the factors may work independently at the same time.

- (3) The tribal structure of the African countries and the arbitrary borders of the countries.
- (4) The relatively high frequency of war/civil war.
- (5) Poor governance.

#### **4.1 *Bad Geography***

The poor geography of Africa has been discussed by, e.g., Gourou (1966) and Kamarck (1967), and recently by Gallup et al. (1999). Geography is basically time invariant, but the importance of a geographical factor may change with technological progress.<sup>19</sup>

The factor of poor location may change with better transport technologies, the fertility of soils may increase with new agricultural technologies, and the high frequency of some diseases in Africa may fall with medical progress and when development changes the organization of society.<sup>20</sup> In poor countries geography is thus more important than in wealthy. However, technical progress gives trends, not cycles, in the importance of the factors.

#### **4.2 *Bad History***

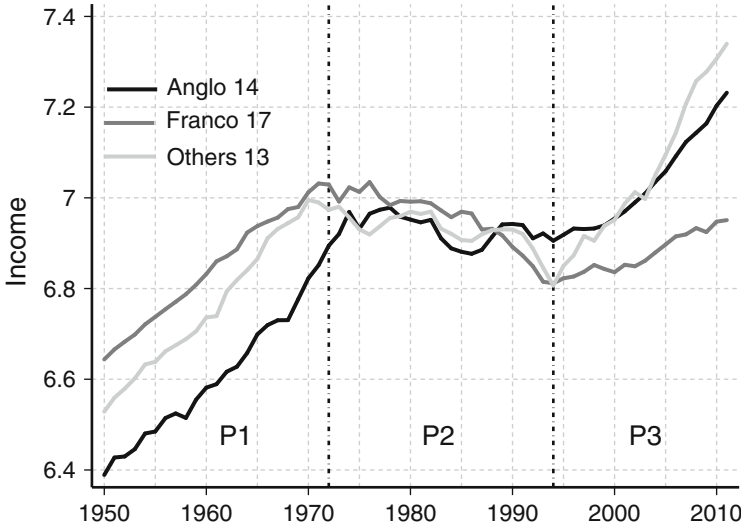
It has sometimes been argued that the pre-colonial history dominates development today. Nunn (2008) argues that effects of the slave trade are important until this day. The trade was concentrated in the eighteenth century (see Curtin 1969), so it appears a bit far-fetched, and it can certainly not explain the cycle of African development one and a half century later. Also, the areas most affected by the trade appear to be precisely the most developed ones, due to their good location relative to international trade.

The main historical explanation is the imperialism family of ideas, which were popular in the 1960s and 1970s, see e.g., Fanon (1961) and Rodney (1972). These theories claim that it explains African poverty that most of Africa was colonies subject to imperialistic exploitation. It follows that once the yoke of imperialism was lifted at independence, growth should catch up. However, the longer lasting colonies have good geography and better development than the colonies of shorter duration. So causality is difficult to untangle, and if colonial

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<sup>19</sup>Apart from microstates Western Europe has only two landlocked countries (Austria and Switzerland). That they are landlocked is no problem today but perhaps it was 200 years ago.

<sup>20</sup>A relevant story is the one of malaria, which is particularly widespread in Africa for geographic reasons. Today it is controllable with enough organization, but the creation of such organization is conditional on development, so malaria has a complex causal relation to development, see Carstensen and Gundlach (2006) for a survey of the discussion and the empirics.



**Fig. 6** A division of the 44 African countries by colonial legacy. *Data source:* See Fig. 1

past is a problem, the effect should be falling over time and not have a cyclical path.

The problem for these explanations is that most countries have been colonies in various periods of their development, and the data rather point to colonial past as an advantage; see La Porta et al. (1998) and Grier (1999). These studies, and a handful of later ones, discuss if the different colonial legacies influence future growth. Figure 6 divides the 44 countries into three groups: 14 ex-British colonies, 17 ex-French colonies and 13 others (ex-Portuguese, ex-South African, ex-Spanish and independent). The paths for each group are strikingly similar, though the data give some support to the hypothesis that British legacy is better.<sup>21</sup> However, the colonial legacy of countries is not the decisive factor for the cycle in their development.

Figure 6 has an additional implication. Below a handful of institutional indices are considered. They are rarely complete for all 44 countries or for the full period from 1950 to 2011. Figure 6 suggests that even if the data have gaps, the main trends are so strong that they also appear in random samples of the countries.

<sup>21</sup>The difference between the curves for the Anglo and the Franco countries in Fig. 5 has a strongly significant trend, so that the Anglo group that used to be the poorer is now the richer. However, the group of Others is doing much the same as the Anglo group.

**Table 3** Average values of the ethno-linguistic fractionalization index

	Avr	Std	N
Africa	0.66	0.23	45
West	0.28	0.21	25
Others	0.41	0.25	100
All	0.46	0.27	170

Values from the ELF85 index

Source: Roeder (URL ref)

### 4.3 The Tribal Structure

Tribal diversity is an important fact of life in Africa, and Easterly and Levine (1997) claimed that it is the key to the growth tragedy. The ethno-linguistic fractionalization index is calculated from a classification of the ethno-linguistic groups of each country.<sup>22</sup> The index shows the probability that two arbitrarily chosen people from a country belong to different groups.

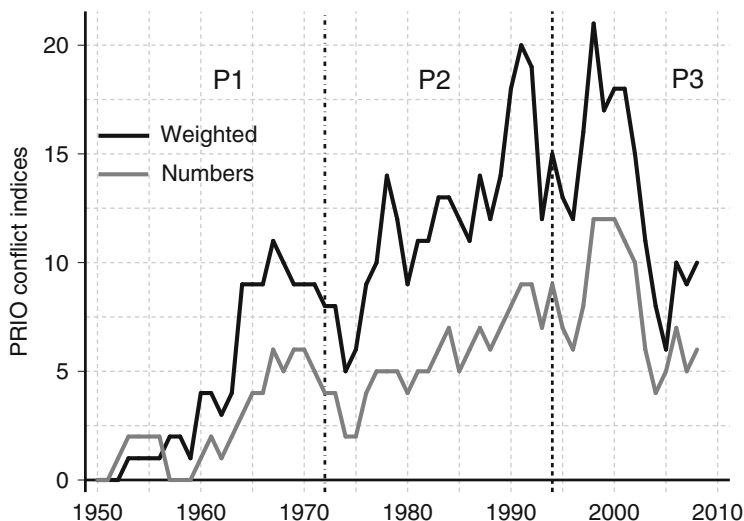
Table 3 shows that the average African country is relatively divided. One of the most divided countries in Europe is Switzerland where the index is 0.58. The average African country is even more divided. The literature since Easterly and Levine (1997) has developed a handful of related indices from the underlying data. They might be related to the underlying long-run growth, but the tribal structure changes slowly and cannot explain the cyclical pattern of African development. The tribal structure, partly created by the arbitrary borders, may be the factor behind the next two explanations.

### 4.4 Many Wars/Civil Wars

A great deal of effort has been put into documenting the extent of war/civil war in the world. The various indices point to Africa as the most war-plagued continent. This certainly has costs in the form of a growth loss. Figure 7 shows the path of conflicts from the PRIO (URL ref) – until 2000 there is a clear upward trend in the two series. Thus the data supported the analysis of Collier and Hoeffler (2004) up to a point. In P1 the various uprisings against the colonial power ceased and things looked well, but then pre-colonial conflicts resumed and new conflicts started, mostly due to tribal tensions. P2 starts with a dip in conflicts, but then they rise steadily. P3 starts with a small dip, but then the level rises—however, after 2000 conflicts fall. Thus, the path of conflicts does not follow the cyclical development in Africa.

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<sup>22</sup>The indices should be almost time-invariant, but several classifications of tribes and religions are possible and the available information differs over time—and so do the indices (see Roeder 2001). Also, the indices may reflect religious differences as well.



**Fig. 7** The paths of the PRIO-conflict indices for Africa. Index is complete for all 44 countries from 1950 to 2008. *Weighted* has two values: 1 if more than 25 are killed, and 2 if more than 1000 are killed. *Number* counts the number of conflicts where more than 1000 have been killed since the conflict started. I have only included the largest conflict in each country. Source PRIO (URL ref)

Figure 7 rather looks as if causality is from development to conflicts. Period 1 contains the big liberation wave where countries move out of imperial peace and can fight without interference. In period P2 there is a significant upward trend so negative growth leads to more war. In period P3 the trend is down so that new growth leads to less war.

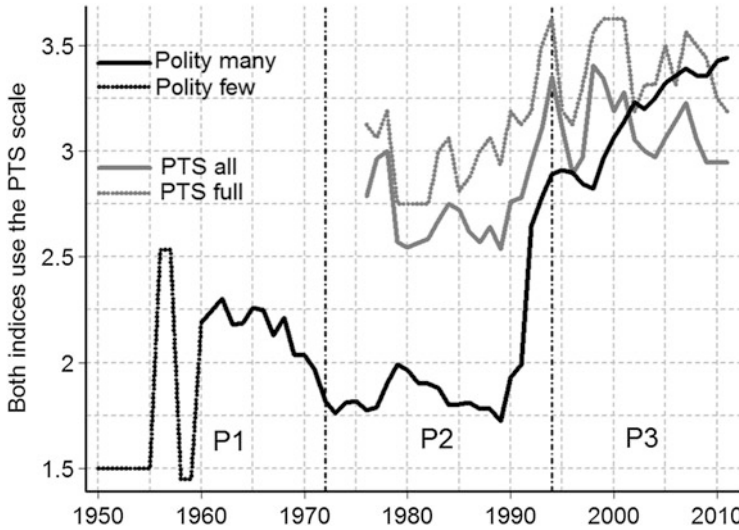
#### 4.5 Poor Governance

It is easy to tell stories as do Harden (1991) and Naipaul (1975) about bad governance in various African countries, but the world has seen many bad governments, also on other continents. The data do not confirm that African governments are unusually bad. Both the two main democracy indices (Polity and Gastil) and the Transparency International corruption index get an insignificant coefficient to Africa when controlled for income.<sup>23</sup>

The PTS-index (URL ref) gives Amnesty International's evaluation (1976–2009) of the level of government terror directed at the population. The index is scaled

<sup>23</sup>See Gundlach and Paldam (2009) for the Polity democracy index; Paldam and Gundlach (2011) for the Gastil democracy index (from Freedom House); and Paldam (2002a) for the corruption index.



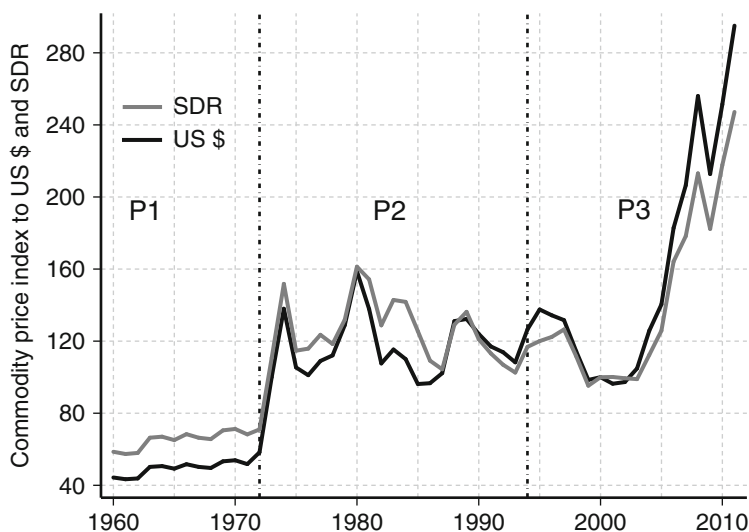


**Fig. 8** The path of governance. PTS all is average index for all available observations while, PTS full is the average for the countries that have almost complete series (except for a few interpolations). The Polity index covers very few countries before 1960. Sources: PTS and Polity (both URL ref)

from 1 to 5, where 1 is the ideal and 5 is for terror that covers everybody. The West is  $1.58 \pm 0.02$ , Africa is  $2.91 \pm 0.03$ , and all other countries are  $2.90 \pm 0.02$ , so if corrected for income, African countries are less brutally ruled than other countries. When these data are considered in more detail, some country-scores appear surprisingly unfair, but the calculations are done on all 4485 available observations so, they are robust to a great deal of measurement error.

Figure 8 compares the paths of the PTS-index for state terror and the Polity II index (URL ref) rescaled to the PTS-scale. Polity is thus rescaled to 1 for a fully authoritarian regime and 5 for full democracy. The graph shows that the level of democracy increases with a full Polity-point (due to the rescaling it is by 25 % of the full scale) just after 1990 and has even increased by another half point since then. However, at the same time the PTS-index went up, indicating an increase of suppression by half a point. Section 5 argues that the two seemingly contradictory developments may both be true.

From the analysis of governance it is clear that Africa suffers from bad governance, but only to the extent corresponding to the poverty of the continent. Poor countries have a low level of executive capacity.



**Fig. 9** UNCTADS commodity price index. The two versions show commodity prices relative to the US\$ and the SDI. *Source:* UNCTAD

#### **4.6 Hypotheses Related to All Three Periods: Debt and Commodity Price Movements**

Several additional explanations have been applied to both the shift from P1 to P2 and the shift from P2 to P3.<sup>24</sup> Two will be discussed:

As mentioned in Sect. 2.3, the African countries have seen a large debt cycle in the period from 1970 and onwards (see Freytag and Paldam 2011). The big upswing in debt was clearly a reaction to the crisis, so it was not causal for the shift from P1 and P2. Also, the big wave of debt forgiveness was in the period from 2003 to 2005 and cannot explain the shift from P2 to P3. While the relation between borrowing and growth is negative, it does not explain the cycle of African development. In fact, debt explains little of the variation in growth rates. It is as if the African governments quickly understood that they would never have to pay back what they borrowed.

It is a tradition in Africa—supported by UNCTAD (URL ref)—to ascribe all major internal economic fluctuations to the world market. UNCTAD has compiled the commodity price index shown in Fig. 9 to support its argument. The downswing

<sup>24</sup>The literature on P3 is modest at present, see Arbache and Page (2010), Johnson et al. (2007) and Beny and Cook (2009).

in the growth rate from P1 to P2 was surely triggered by the first oil price shock in 1973 as already discussed.<sup>25</sup>

The next major change in the development path of the African countries from P2 to P3 was not triggered by commodity price shocks. Several papers, notably Beny and Cook (2009), discuss if the world market had some role to play. They do find some small effect, but if the last decades of period P2 and P3 are compared, there do not seem to be important systematic changes in commodity prices that can explain the shift.

It is interesting to see that the commodity price shock around 2005 is larger than the one in 1973, but the effects on the growth rates (see Figs. 1 and 6) are barely noticeable.

## 5 The Cycle of Development Strategy

The underlying political dynamics of Sect. 2.2 suggest two major shifts in development strategy: (D1) The colonial powers had installed an MS, Market System, when the countries became independent. (D2) From about 1965, the African countries started to pursue AS, African Socialism. (D3) From the mid 1980s they turned to a policy of SA, Structural Adjustment, returning the countries to an MS. As suggested by the abbreviations, the AS and SA policies are the reverse. AS is a policy of regulation and SA is a policy of deregulation.

### 5.1 The Path of Economic Regulation

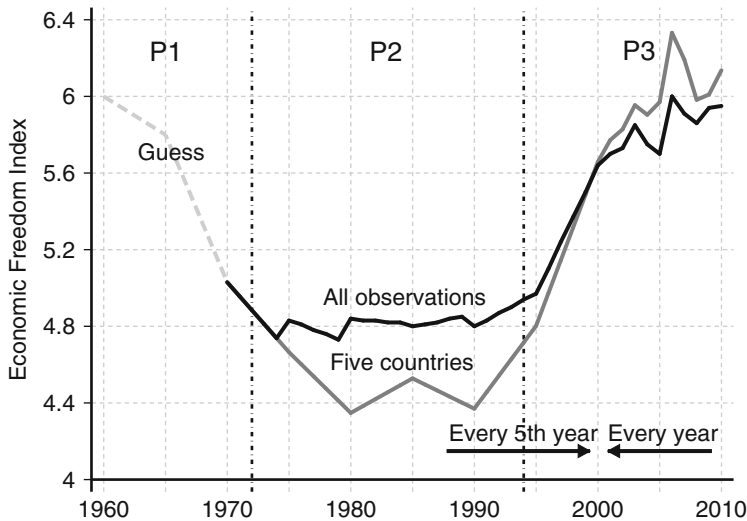
The best data available for the degree of regulation in African are the Fraser Index of economic freedom (URL ref), which is defined as the freedom to run a private business.<sup>26</sup> This is an index of policy outcomes, so it differs from the economic ideology by the implementation lag.

The index measures the distance to the *laissez faire*<sup>27</sup> on a scale where 10 is this ideal, and 0 is as far into regulation as a country can possibly get, or a collapse of law

<sup>25</sup>The UNCTAD-data does not cover the commodity price shock in 1951 in connection with the Korea war. It was as large as the Oil shock, but lasted only about 1 year. This commodity shock did not seem to have had much effect on African development.

<sup>26</sup>The index is compiled by an international network of more than 50 liberal think tanks. The information used is well explained and documented in the annual publication, see Gwartney et al. (2012), and the discussion in Paldam (2003).

<sup>27</sup>The *laissez faire* has law and order and no more regulation—this is an ideal for the group compiling the index. The closest to this ideal is Hong Kong, where the index is around 9, while the lowest value recorded is 2.3 for Nicaragua in 1985. The few recorded values from Eastern Europe in the Communist period were in the range from 3 to 5.



**Fig. 10** The Fraser Index for economic freedom. The index covers 33 countries, but not for all years. Only five of these are covered all years. My guess for 1960–70 is very uncertain, but the direction of the move from 1960 to 1970 is clear. *Source:* Economic Freedom Index (URL ref)

and order. The data started in 1970 where only five African countries were covered. Later the African sample increased to 33 countries. The average of all observations for Africa is 5.25, so the level is moderate. The West has 7.15 and others have 6.30.

Figure 10 shows the path over time for these data. The dark gray line covers the five countries with almost full data (with only one interpolation), while the black line is an average of all available observations. Fortunately the two curves have roughly the same shape. The data only starts in 1970. It appears likely that the level in the colonial period before 1960 was about 6.<sup>28</sup> So the data show a cyclical path. It corresponds to the three periods:

P1 1950–72. Gradually after 1965, the AS was introduced. It increased the level of regulation to just below 5 in Africa. The increase tapered off after 1975, but it only peaked around 1985.

P2 1973–93 was the period of the implemented AS-policy regime. One of the main purposes of the AS was to isolate the African economies from the vicissitudes of the world market. Therefore, the countries should have been relatively well-protected when they were hit by the oil crisis, but as already mentioned they were hit harder than everybody else.

P3 after 1993. Here, regulations were released and the economy quickly resumed growth as predicted by the analysis of de Haan and Sturm (2000).

<sup>28</sup>At that time the colonial powers probably had index values a bit below 7, and the legal systems in Africa were less efficient than in the colonial ‘motherlands’.

Of all indicators considered in this paper, none correspond so well to the three phases in the development of Africa as the Fraser Index. It ‘explains’ both the shift from P1 to P2 and the shift from P2 to P3.

It is arguable that the cycle is optimal according to the infant industry argument. Several schools of thought claim that the import substitution strategy such as the one of the AS-package is the ladder to development. The argument is summarized in Chang (2003).<sup>29</sup> In P2 infant industries were created in a protected environment. When they had grown strong enough, protection was gradually lifted, and now the countries have a competitive new industry and grow faster than before the policy started in P1. The main problem with this theory is that Africa grew before the AS-period, and it did not grow faster after the AS period than before. There is no point in going through a period of negative growth if there is no premium at the end.

Hence, I conclude that the explanation of the cyclical development path of Africa is simple: *The shift to negative growth was caused by the introduction of the AS-strategy, and when it was abolished, growth resumed.* It is surely debatable how strong the evidence is, but from now it is taken for granted that the said relation is clear. Also it follows the underlying political dynamics from Sect. 2.2.

## 5.2 *The Shift from Colonial Mixed Economy to the AS Regime*

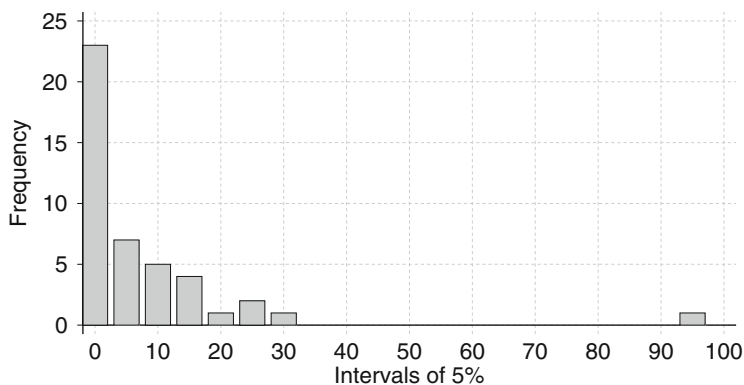
The shift from the colonial mixed systems to AS was justified by three beliefs: (1) Industrialization is the key to development. (2) The main generator of economic variability is the world market. (3) The African countries did not generate enough private savings. Thus the AS-package of policies levied substantial taxes on agriculture (see Bates (1981) and Krueger (1992)) and formed many SOEs (State Owned Enterprises) in the industrial sector which were allowed substantial rents due to tariffs protecting the economy against the world market.

The shift to AS-policies was also affected by the politics of national independence and the Cold War. Independence was supported by left wingers in the West and by the East Block. So in order to balance between West and East and become more independent, African countries wanted to become more socialist.<sup>30</sup> However, to be workable the AS-policies must be implemented under two conditions:

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<sup>29</sup>In the 1960s and 1970s many ISI (import substitution industrialization) schools existed. Also, radical proposals for countries to become self-reliant were quite common, see e.g., Amin (1971). The school of African Socialism was typical for these families of thoughts. It is strange that these proposals did not consider the failure of the first major experiment with AS in Ghana under Nkrumah (1958–66). It was the subject to several detailed studies such as Jones (1976) and Killick (1978). Somehow nobody took notice of the economic lesson, yet many noted the great political success of the flamboyant Nkrumah and the rhetoric he used to obtain the success.

<sup>30</sup>Independence was also supported by the USA, and the USSR was the last big colonial power, but somehow these facts were often overlooked.



**Fig. 11** The size of 44 African economies relative to the Danish economy in 1970. The column over 0 indicates that 23 countries (just above 50%) had GDP in PPP prices of between 0% and 5% of the Danish. The graph for 2008 is similar. Income has grown less than Danish income, but population growth is much higher. *Source:* Maddison (2003)

- (1) Enough market size. Modern firms supply goods for a considerable market. Figure 11 reports one measure of the size of the African economies in 1970 when the countries were well into the building of the AS-system. It shows that at that time 23 of the economies were below 5% of the Danish economy in size.<sup>31</sup> It is difficult to believe that autarchic development of such a small markets is a rational development strategy.
- (2) Enough executive capacity. The successful development of SOEs obviously put great strains on the efficiency and honesty of the public management of the firms and on the political climate in which the companies operate.<sup>32</sup>

The dynamics of the AS-package were not to create efficient modern industry, but as documented in the multi volume study of Bhagwati and Krueger (1973–78) and by IBRD (1995) the outcome was to create a dynamic path into inefficiency and political alliances upholding such inefficiency. That is, the path was into the rent seeking society.

<sup>31</sup>The reader may contemplate the development of Denmark if it has opted for autarky with high tax barriers using the tariffs to build a set of SOEs to supply the domestic market.

<sup>32</sup>It has been claimed that the policies of the Asian Tigers were the same as everybody else's, but worked much better as their bureaucracies were more efficient, see e.g., Rodrik (2005). This was not claimed in the 1950s and 1960s, and their policies were actually different, see Paldam (2003).

### 5.3 *The Rent Seeking Society*

Consider the dynamics of an SOE in a country with a weak administration, no critical press and a substantial level of corruption. The manager is an ex-bureaucrat appointed by the minister after due consultation with the president, who are the de facto owners. Irrespective of the charter of the company, the manager knows that he has to serve the owners, who can give his firm so much protection that it runs with a surplus. As the owners are politicians they have political agendas. The political agendas are typically to generate rents to finance the political support for the owner by employing his clients, i.e., his kin, his voters and his tribe.

So the typical dynamics of the SOEs is an upward slide into excess employment and consequently an upward slide in the level of protection. So instead of getting more ready to face international competition—as predicted by the infant industry argument—the typical African SOE grew steadily less efficient and more politicized. These dynamics seem to give an adequate explanation of the gradual strangling of the African growth in the late 1960s, and the negative growth in P2.

The oil crisis was a large price shock on the world market, and it generated an excessively large downturn in Africa. I conclude: (i) The policies had the reverse effect of the one desired, and (ii) the main reason for the size of the downswing was structural. The oil crisis was a *trigger* for a crisis that would have occurred anyhow. African countries had installed an economic system that made them unusually inflexible, when they were hit by the oil crisis.<sup>33</sup> My theory is, once again, simple: A rent seeking society is inflexible.

### 5.4 *Adjusting to the New World Order After 1990*

The second big strategy change was influenced by the three factors:

- (1) The AS-policies, which looked promising when they started, had clearly failed.
- (2) Africa had to adjust after the collapse of world socialism and the end of the Cold War.
- (3) The Washington Sisters (IMF and IBRD) developed SA-support packages after 1985.

Figure 10 shows that the change from 1985 to 1990 was marginal only, but after 1990 the change became noticeable. Annual data for the period do not exist, but it is likely that the liberalizations correspond to the upswing of P3 from 1994 until now.

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<sup>33</sup>Killick (1995) is a conference volume that discusses this theory. It asks why most LDCs adjusted better to the oil price shock than the African countries. It is, e.g., shocking to compare the reaction of the two main copper exporters Zambia and Chile to the dramatic fall in copper prices after the end of the Vietnam War.

The shifts from P1 to P2 and from P2 to P3 are both about 1 point on the Fraser index—this is a substantial change. The transition from communism in Eastern Europe amounts to about 2.5 points in the index over about 10 years. The transition from African socialism is smaller, but African socialism was more moderate than the Russian brand of socialism.

Not surprisingly it was faster to make changes in the political system—after all African countries had democratic systems *de jure*—so it was just a question of putting a little more content into the existing institutions, such as allowing opposition parties to run for office, and to stop having critical journalists beaten, etc.

To liberalize the economy, overstuffed SOEs must be turned into efficient companies that are viable on market conditions so that they can be sold. This policy inevitably has considerable social costs in the short to medium term. Even when the SA-loans from the Washington Sisters contained social compensations, it was not always enough. Therefore, it demands some increase in social control, and some repression may result. This might explain the seemingly contradictory trends in Fig. 8. However, it is amazing to see that as the SA-policies were implemented, growth resumed.

## 5.5 *The Politics of Policy Change*

In many ways Africa is an extreme continent as the data have shown. But this does not mean that Africans are politically extreme.

The World Values Survey has an item asking people about their preferences for private vs public ownership. It has been polled 200 times in altogether 92 countries. Unfortunately only ten of these polls are made in Africa. Bjørnskov and Paldam (2012) use these data to calculate a CS-score that measures the preferences for Capitalism/Socialism for each poll. The theoretical range is +100 for full support for capitalism to −100 for full support for socialism, but the observed range is only from +52 to −36. The average score for Africa is  $+1.3 \pm 10.2$ , Others are  $3.5 \pm 3.3$ , and the West is  $+26.9 \pm 3.5$ . Thus, the African populations are by no means extreme.<sup>34</sup> Maybe this explains why African Socialism was fairly moderate in most countries. Consequently, deregulation has also been moderate.

The changes showed in Fig. 10 are smaller than one should expect from the debates that have accompanied the changes. The discussion of the costs and benefits of SAs have been mixed up in the discussion of neo-liberalism of the Chicago brand. The path depicted in Fig. 10, and more anecdotal evidence, shows that the actual changes are in no way a movement between extremes. But policy changes often

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<sup>34</sup>The CS-score rises with income, so corrected for income the African populations are rather capitalist minded. Note that the only reason that the two times the standard error is so large for Africa is the small number of observations. The standard deviations are much more similar.



take place in a dense ideological haze, and seen from afar only the haze may be visible.<sup>35</sup>

While most African countries have been moderate on a socialism/capitalism scale, a few countries have had periods of extreme socialist policies. It appears that these periods were rather destructive. The Fraser index does not point to countries that have pursued extreme libertarian policies, so it is not known if growth would have been faster if the SA-policies had gone further.

## 6 Conclusion

The economic development of 44 countries is surely complex. This paper is written on the assumption that the more the development is aggregated, the clearer the basic pattern stands out. And, in fact, a rather clear pattern does appear.

Economic development in Africa has had a cyclical path with three distinct phases: P1 from 1950 (where data start) till 1972, was a period of satisfactory growth; P2 from 1973 to 1993 had negative growth; and P3 from 1994 onwards satisfactory growth has resumed. The growth in P1 and P3 suggests that the underlying growth rate in Africa is about 2%.

The cyclical path has been confronted with a set of 11 explanations of the development in Africa, where most are described by one variable. It is likely that some of these variables explain why the underlying long-run growth in Africa is 2% and not, e.g., 4%. However, most of these indicators have a path that differs from the cycle of African development. Only one fits the cycle:

The development corresponds amazingly well to the changes in the economic development strategy.<sup>36</sup> The African version of the ISI-policy was African Socialism that became the dominant strategy from about 1965 onwards. By the time the package was closest to implementation in the early 1970s, growth turned negative. The downturn was kick-started by the oil-crisis, but then it continued for 20 years.

In the mid 1980s the countries entered a process of deregulation—notably privatizations and foreign trade liberalization—known as structural adjustment. The process started slowly, but by 1995 it was clearly visible in the regulation index, and the process continued until 2000. This corresponds to the upswing in P3, the last phase of the cyclical path.

My interpretation is that this shows that moderate middle-of-the-road policies serve well also in Africa. The analysis suggests that Africa could have grown with about 2% per year throughout the period. A growth rate of 2% is too little to catch

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<sup>35</sup>The confusion has spread to the moderate common sense rules of thumb known as the Washington Consensus (see Williamson, 1997). They have somehow been politicized so that many think that they are a recipe for libertarian policies (see, e.g., Stiglitz 2002).

<sup>36</sup>The changes are in accordance with the underlying political dynamics from Sect. 2.2.

up, but it is better than the growth achieved. The AS-policies aimed at a higher growth rate, but failed with tragic consequences.

With the zig-zag in the economic system, Africa still had a doubling of GDP per capita in the period from 1950 to 2011. The results presented suggest that if Africa had been economically moderate throughout, GDP per capita would have tripled.

## Appendix

**Table 4** The countries included in the analysis 1950 and 2010

	Countries	Population in 1000 inh.			GDP per capita, i.e., gdp		
		1950	2010	Growth	1950	2010	Growth
1	Angola	4118	13,072	1.94	1052	1721	0.82
2	Benin	1673	9059	2.86	1084	1416	0.45
3	Botswana	430	2031	2.62	349	4838	4.48
4	Burkina Faso	4376	16,242	2.21	474	1140	1.47
5	Burundi	2363	10,408	2.50	360	506	0.57
6	Cameroon	4888	19,299	2.32	671	1225	1.01
7	Cape Verde	146	588	2.34	450	2913	3.16
8	CAR	1260	5060	2.34	772	537	-0.60
9	Chad	2608	10,551	2.36	476	737	0.73
10	Comoro Islands	148	773	2.79	560	545	-0.04
11	Congo, Br	826	4124	2.72	1198	2388	1.16
12	Congo, Ki	13,569	70,943	2.80	570	263	-1.28
13	Côte d'Ivoire	2860	21,064	3.38	1041	1135	0.14
14	Djibouti	60	1038	4.87	1500	1316	-0.22
15	Equatorial Guinea	211	650	1.89	540	21,695	6.35
16	Ethiopia (& Eritrea)	21,577	93,813	2.48	390	1,023	1.62
17	Gabon	416	1545	2.21	3108	3881	0.37
18	Gambia	271	1822	3.22	607	1,083	0.97
19	Ghana	5297	24,404	2.58	1122	1777	0.77
20	Guinea	2586	10,316	2.33	303	619	1.20
21	Guinea Bissau	573	1565	1.69	289	642	1.34
22	Kenya	6121	40,081	3.18	651	1134	0.93
23	Lesotho	726	1725	1.45	355	1985	2.91
24	Liberia	824	3850	2.60	1055	1017	-0.06
25	Madagascar	4620	21,284	2.58	951	669	-0.58
26	Malawi	2817	16,213	2.96	324	775	1.46
27	Mali	3688	14,664	2.33	457	1175	1.59
28	Mauritania	1006	3205	1.95	464	1392	1.85
29	Mozambique	6250	22,060	2.12	1133	2256	1.15
30	Namibia	464	2130	2.57	2160	4,565	1.26

(continued)

**Table 4** (continued)

	Countries	Population in 1000 inh.			GDP per capita, i.e., gdp		
		1950	2010	Growth	1950	2010	Growth
31	Niger	3271	15,881	2.67	617	513	-0.31
32	Nigeria	31,797	152,263	2.64	753	1643	1.31
33	Rwanda	2439	11,337	2.59	547	1066	1.12
34	São Tomé	60	143	1.47	820	1688	1.21
35	Senegal	2654	14,091	2.82	1259	1492	0.28
36	Sierra Leone	2087	4184	1.17	656	715	0.14
37	Somalia	2438	10,113	2.40	1057	998	-0.10
38	Sudan	8051	41,976	2.79	821	1554	1.07
39	Swaziland	277	1584	2.95	721	3120	2.47
40	Tanzania	7935	41,902	2.81	424	780	1.02
41	Togo	1172	6210	2.82	574	642	0.19
42	Uganda	5522	33,404	3.05	687	1080	0.76
43	Zambia	2553	12,060	2.62	661	898	0.51
44	Zimbabwe	2853	11,436	2.34	701	891	0.40

Gdp data are as explained in Table 1. Growth is in % p.a

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