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Assessing Adjustment in Africa

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Summary. — In 1994 the World Bank issued a report on structural adjustment, *Adjustment in Africa*, in which it was argued that orthodox macroeconomic management represented the road to economic recovery for the sub-Saharan countries. This article demonstrates that with its heavy emphasis upon macroeconomic policy, Bank policy shifts from structural adjustment to stabilization. Second, the statistical evidence presented by the Bank is analyzed and shown to be neither convincing nor internally consistent. Finally, an alternative approach to adjustment/stabilization is proposed and subjected to statistical testing.

1. INTRODUCTION

In 1989 the World Bank, in conjunction with the UNDP, published a report in which they optimistically predicted that a general recovery had begun in sub-Saharan to a great extent resulting from the policy reforms implemented under the umbrella of Bank-funded structural adjustment programs (World Bank/UNDP, 1989).¹ As demonstrated elsewhere (Mosley and Weeks, 1993), growth rates for the region through 1991 provide no support for this prediction, and statistical analysis indicates that adjustment programs were not associated with improvement in economic performance across countries. More recent statistics, to the mid-1990s, reinforce the conclusion that economic recovery of the sub-Saharan countries has yet to come, as Table 1 shows. Over the 10 years,² growth of gross domestic product for the sub-Saharan countries rose above the rate of population increase only in 1986 and 1988. In the event, the average for 1990-94 proved to be 1.2% per annum, compared to almost 2% for 1985-89. Though the difference may lie within the range of measurement error, these growth rates fail to confirm the optimistic prediction. In the context of this recovery failure, with its appalling implications for the vast majority of urban and rural Africans, the World Bank in 1994 issued another report assessing the region's progress and prospects, *Adjustment in Africa: Reforms, Results, and the Road Ahead*. Launched in a series of high-profile public fora, the 1994 document again set the parameters for the policy debate over the means to recovery in the sub-Saharan region.

This article provides a critique of *Adjustment in Africa*, developing in more detail earlier arguments that the report represents a striking analytical break with the previous World Bank approach to the region's economic problems (Mosley and Weeks, 1994). In section 2 it is shown that in the 1994 report the World Bank abandons its earlier definition of structural adjustment as supply-side reforms, in favor of a formulation that is essentially the same as short-run stabilization. As a result, the report transforms the Bank and the International Monetary Fund (IMF) in Africa from fraternal to identical twins. Unlike previous official and public documents on the sub-Saharan region, the 1994 report provides econometric tests to support the application of adjustment policies. Section 3 dissects these statistical exercises, reaching the conclusion that they are neither convincing nor analytically robust. In light of the unsatisfactory nature of the World Bank econometrics, section 4 offers alternative statistical investigations of economic performance in the region. The result of the alternative tests is to call into question the appropriateness of the Bank's adjustment policies in the region. In the final section the elements of the argument are brought together to advocate a break with the failures of past adjustment policy, in favor of a more eclectic and pragmatic approach.

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Table 1. *Rates of growth of real GDP by groups of countries (and China), 1985–94*

Year/Region	Latin America	West Asia	South & East Asia	China	Sub-Saharan
1985	3.6	-3.6	3.6	12.9	1.9
1986	4.2	-3.1	6.2	8.5	2.6
1987	3.0	-0.8	6.9	11.1	0.6
1988	0.7	0.0	8.5	11.3	2.9
1989	1.1	3.3	6.1	4.3	1.6
1990	-0.1	1.9	6.4	3.9	1.2
1991	2.8	-0.2	5.3	8.0	0.4
1992	2.1	5.7	5.2	13.2	0.3
1993	3.3	3.5	5.4	13.4	1.8
1994*	2.8	3.5	6.3	10.0	2.3

Source: United Nations, 1994, p. 261.

*Preliminary estimates.

2. FROM STRUCTURAL ADJUSTMENT TO STABILIZATION

The term "structural adjustment" came into common use in the early 1980s to distinguish a set of allegedly efficiency-raising policies from stabilization programs. Stabilization seeks to control the demand side of the economy, with the purpose of reducing inflation and quickly achieving a sustainable balance of payments position and reducing inflation. Structural adjustment, on the other hand, is directed to the supply side of the economy, in which the removal of "market imperfections" has the purpose of promoting growth (Corbo & Fischer, 1991; Khan, 1987).³ Stabilization seeks to achieve external and internal equilibrium; structural adjustment to foster growth; almost by definition, the IMF funds the former and the World Bank the latter. One interpretation of the famous "Washington Consensus" was that stabilization represented a prior condition for structural adjustment (Williamson, 1990). Whether sequential or simultaneous, the distinction between the two was central to the policy debate in the 1980s. Indeed, a recurrent critique of IMF and World Bank programs argued that the distinction involved no difference in practice; i.e., that World Bank programs suffered from the same stabilization emphasis as Fund programs. The Bank repeatedly sought to refute this accusation of demand-side focused, deflationary short-termism. As shown in more detail elsewhere (Mosley and Weeks, 1993, pp. 1584–1587), the 1989 World Bank report on adjustment in the sub-Saharan region argued that its structural adjustment programs were growth-increasing in the short and medium term:

... [T]he data in this report suggest that a strategy of *adjustment with growth* is viable in Africa. The evidence points to better overall economic performance in countries that pursue strong reform programs than in those that do not ... (World Bank 1989, p. iii, italics added)⁴

The view that structural adjustment programs were designed to stimulate growth and do achieve this result in practice represents the core justification (and defense) of the Bank's increasing involvement in policy-based lending during the 1980s (Mosley, Harrigan and Toye, 1991). The various empirical studies of adjustment lending issued or commissioned by the Bank have sought to demonstrate that countries which vigorously implemented Bank programs achieved faster economic growth than ones that do not, and that growth was achieved relatively quickly (Balassa, 1988; World Bank, 1988; World Bank, 1990). Empirical and analytical documents published in the late 1980s and early 1990s make it clear that adjustment programs were designed for growth, and that the Bank believed that they achieved this end. At the same time, critics have provided counter evidence that brought into doubt the growth-generating effectiveness of adjustment (e.g., Woodward, 1992), and the Bank itself has found it necessary to suspend or cancel several programs in the sub-Saharan region because of poor economic performance by borrowing countries (e.g., Sierra Leone, Senegal, and Zambia).

In this context of accumulating evidence that adjustment did not stimulate recovery in low-income countries and especially in ones in sub-Saharan Africa,⁵ the Bank issued in 1992 an "overview" of structural and sectoral adjustment "operations" (World Bank, 1992). This report substantially redefined both the context and purpose of adjustment programs. The "Executive Summary" states that the aim of adjustment loans "is to support programs of policy and institutional change to modify the structure of an economy so it can *maintain* its growth rate and the viability of its balance of payments" (World Bank, 1992, p. 1, emphasis added). It might be taken as pedantry to read too much into the use of the verb "maintain," rather than "increase" or "raise," were it not for the discussion which follows. Six "objectives" follow from this definition, the first on the list being "stabilizing the macroeconomic environment."⁶ With

explicit emphasis upon stabilization, the report summarizes its analytical approach:

... [This report] uses a simplified macroeconomic framework that assigns fiscal policy to reducing inflation, the real exchange rate to the current account, and monetary policy to the external balance in terms of foreign exchange reserves.⁷

This specification of the roles of fiscal policy and monetary policy involves an explicit choice to give all emphasis to demand management and none to economic growth.⁸ If one accepts that fiscal deficits are the cause of inflation, then use of the tax and expenditure instruments implies a strict tradeoff between growth and inflation. The report notes at a later point that adjustment program countries that maintained levels of social expenditure "have generally seen improvement ... in social indicators," and it has been shown that cuts in public investment reduce growth performance (Mosley and Weeks, 1993, pp. 1591–1592). Therefore, to "assign fiscal policy to reducing inflation," with no qualifications, is to assign fiscal policy no role in stimulating growth. It may or may not be that lower inflation will result in improved economic growth (see next section), but the outcome would be an indirect by-product of fiscal policy, not its intent. The tradeoff is even more obvious for "monetary policy," by which the report means the setting of interest rates. Here, the prescription is that the domestic central bank rate be set above international interest rates, with the purpose of attracting an inflow of short-term capital.⁹ In the strict neoclassical framework of the Bank analysis, investment should be assumed to be sensitive to the interest rate. A policy of raising interest rates would depress investment, thereby trading a short-term improvement in foreign exchange holdings for a lower rate of growth.¹⁰ Such an interest rate policy would almost certainly represent a major government-induced distortion of financial markets. The efficient time structure of interest rates is that short-term rates should be below long-term rates, and the latter should approximate the social rate of time-preference. Only by chance would the central bank rate that satisfied the short run-goal of attracting reserves be equal to that which would equate saving and investment in the long term.

In *From Crisis to Sustainable Growth* (World Bank, 1989) it is argued that lower investment rates in sub-Saharan countries are no cause for concern, because the higher interest rates associated with adjustment give rise to more efficient use of capital (lower capital-output ratios), an empirically unverified argument which has attracted much criticism (Weeks, 1993, pp. 12–15). In the 1992 report this argument is abandoned, and, perhaps for the first time, a Bank document concedes that adjustment policies might be the cause of declines in investment:

The long-term objective of a structural adjustment program is to increase the efficiency and growth rate of the economy. Thus, in the post-adjustment period, we expect to see an increase in investment and growth ... But an adjustment period is almost inevitably a period of public investment cuts and heightened uncertainty for private investment ... An investment pause is therefore to be expected during the adjustment period.

This pause is apparent in the data from the ... countries reviewed. In 27 of the 42 adjusting countries, mostly in Sub-Saharan Africa and Latin America, the investment-GDP ratio fell in the adjustment period. In nine of these, investment at least began to recover in the post-adjustment period; for several others it is too soon to tell ...

Implementation of an adjustment program may lead to a transitory decline in public and private investment: the former results from the need to adjust the fiscal balance, and the latter stems from trade liberalization and the pause that accompanies policy change (World Bank, 1992, pp. 3, 20–21).

The 1992 report unambiguously relocates structural adjustment in the stabilization camp. The same point can be made by invoking the famous principle of Tinbergen equating the number of objectives to the number of instruments (Tinbergen and Bos, 1962, Chapter 1).¹¹ In the stabilization reformulation of "structural adjustment," the Bank has four objectives, price stability, current account sustainability, foreign exchange accumulation, and economic growth (not to mention poverty reduction), but only three policy instruments: the fiscal deficit, nominal exchange rate, and the interest rate. One objective cannot be precisely targeted, namely growth. The authors of the report come close to making this explicit, referring above to growth as the "long term objective," at another point speculating on the process of "moving from adjustment to growth" (World Bank, 1992, p. 20, emphasis added), and, for the sub-Saharan region, referring to "partially successful achievements [that] represent in many cases *early foundations in a long and difficult process of improvement* on which more can be built in the future" (World Bank, 1992, p. 27).

In a "box" devoted to the sub-Saharan region, the report presents evidence of the singular lack of success for adjustment programs. Only seven of the 18 countries with World Bank programs showed improved growth performance, 14 suffered declines in investment rates, and "the impact of these [adjustment] operations is, overall, disappointing", such that "fewer than 20 percent of the [structural adjustment] projects were substantially effective" (World Bank, 1992, p. 27). Thus, by the mid-1990s, the Bank had accepted the assessment that adjustment had been largely unsuccessful in the sub-Saharan region, and, coincident with this, had redefined adjustment as stabilization.

In this context, *Adjustment in Africa* came forth as the new and definitive statement of Bank lending operations and their impact on the region. As in *Africa's Adjustment and Growth* five years earlier,¹² one finds the assertion that Bank programs have contributed to the recovery of the region, with the caveat that this occurred only for those countries whose governments most vigorously and thoroughly implemented the recommended reforms.¹³ Certainly the caveat was necessary. A bar chart divided between 1981–86 (preadjustment) and 1987–91 (adjustment period) showed that only 14 of the 28 adjusting countries increased GDP growth per capita (Figure 5.1, p. 134), a result consistent with a random relationship between Bank-funded adjustment and growth.

Notwithstanding this evidence, *Adjustment in Africa* concluded that “better macroeconomic policies have already turned growth around in Africa” (World Bank, 1994, p. 184). The “better” macroeconomic policies in question were those specified in the 1992 shift from adjustment to stabilization: “keeping budget deficits and inflation low, establishing fully convertible currencies and competitive exchange rates, and increasing public savings” (p. 184), with the last redundant, since it is implied by the first. While the 1994 report stresses the need for other policies to complement a “sound” macroeconomic framework,¹⁴ the latter was the keystone of the argument.

The method of the report is to differentiate among Bank-assisted adjusting countries, with the purpose of providing an ordinal ordering of policy achievements. This ordering was based upon a fourfold division of policy outcomes as “good or adequate,” “fair,” “poor,” and “very poor” (e.g., see pp. 48–49), with the first category assigned four “stars,” the second three, etc. The report applies these categories to three policy outcomes (or “stances,” to use the term employed by the report): fiscal policy, monetary policy, and exchange rate policy. For each of the 29 countries the simple average “star score” was calculated to give a ranking of countries into groups by “overall macroeconomic policy stance” (World Bank, 1994, p. 58).

In principle, the evaluation of adjusting countries by policy outcomes represents an important advance upon the Bank’s previous practice of treating all Bank-funded countries as implementing a common adjustment program, or dividing adjusting countries on the basis of rather arbitrary judgements about length and intensity of their reform efforts.¹⁵ Questions must be raised, however, about the manner in which *Adjustment in Africa* carried out this evaluation in practice. The method of ranking involved using quantitative measures of performance for fiscal, monetary, and real exchange rate outcomes, then converting these into ordinal ratings by use of numerical ranges. A country with a fiscal deficit of less than 1.5% of GDP during a specified period received a mark of four, three went to a country with a deficit in the range

1.5–3.5, two for the 3.6–7.0 band, and only one for a deficit over 7.0% of GDP.¹⁶ This method of evaluating macroeconomic performance raises several serious methodological issues. First, the ranges for the categories (four), is arbitrary, as are the boundaries of the ranges. While increasing the number of categories or their boundaries would not alter the ordering of countries for a single numerical indicator, the ranking of countries could change this ordering when the numerical ratings are averaged.¹⁷ Thus, the method of ranking is not unique with respect to a linear transformation of the arbitrary ranges.

Second, the scores on the basis of equal weighting have no obvious justification (and none is given in the report). Nonetheless, an aggregate index based on these arbitrary ranges, arbitrarily averaged, is used in various tables to demonstrate that “improving policies makes a difference” (World Bank, 1994, p. 139, section title). For example, a bar chart on page 153 purports to show that “countries with large improvements in macroeconomic policies” enjoyed on average an eight percent improvement in real export growth, 1981–86 to 1987–91, compared to only 3% improvement for “countries with small improvement in macroeconomic policies,” and negative change for “countries with deterioration in macroeconomic policies.” The relationship between “large,” “small,” and “deterioration,” on the one hand, and the score ratings, on the other, is not clear (see World Bank, 1994, p. 262), but it is clear that the method of measuring policy improvement does not allow for the first two categories. If one country’s fiscal deficit falls by 10 percentage points and another country’s by five, and if the judgement is made that lowering deficits is policy improvement, then one can unambiguously say that policy performance improved in the first country by more than in the second. When two or more indicators of policy performance are combined to form an index, the measure becomes ordinal. Given the weighting system, it is legitimate to say that a country improved if the index rises; it is possible to say that one country’s policy performance improved by more than another country’s; but it is not possible to say that a over a certain range the index shows “small” changes and above that “large” changes, for the principle of ordinality precludes this.¹⁸ Without pointing out this principle, the report uses the threefold categorization to demonstrate that “getting macroeconomic policies right” (World Bank, 1994, p. 184, emphasis added) led to more rapid manufacturing growth (Table 5.6), increased investment (Table 5.8),¹⁹ greater domestic savings (Table 5.9).

This rather convoluted process, moving to ordinal from cardinal measures, then deriving aggregate indexes with arbitrary weights, leaves one surprised, because it was unnecessary. Restaurant and hotel guides use ordinal ratings because of the absence of an accepted quantitative measure of culinary and accom-

modation outcomes, and no presumption is made about the proportional improvement associated with the number of stars. Each of the World Bank indicators of macroeconomic stance, however, is strictly quantifiable on a cardinal scale and, subject to measurement error, gives a ranking unique with respect to monotonic transformations. Further, a modern statistical analysis provides a generally accepted method of evaluating the impact or importance of various indicators without entering into arbitrary aggregation, namely regression analysis. As we see in the next section, the authors of *Adjustment in Africa* followed the method accepted in the economics profession and subjected their "policy-matters" hypothesis to econometric test. Before considering those statistical results, the other uses of the policy stance indicators in the report can be evaluated. Because the method of measurement (transforming cardinal measures to ordinal ones) and method of aggregation (simple averaging) are arbitrary, the indexes provide no support for the hypothesis that "policies matter." The same method could be followed with altered ordinal categories and weights and might produce an indeterminate or opposite outcome. Thus, the argument of *Adjustment in Africa*, that stabilization fosters growth, stands or falls on the results of the econometric testing presented in the report.

3. THE STATISTICAL EVIDENCE IN ADJUSTMENT IN AFRICA

It was argued in the previous section that the various tables and graphics in *Adjustment in Africa* relating policy performance to economic performance cannot be taken as evidence in support of the hypothesized relationship in the absence of appropriate statistical testing. In Box 5.1, entitled "Explaining the Increase in GDP per Capita Growth" (p. 140), the results of statistical tests are reported. Rather than using policy performance, the econometric exercise uses changes in policy performance, measured by the following indicators: "overall macroeconomic policies," exchange rate policy, inflation, and the overall fiscal deficit.

The calculation of these variables follows the procedure of star-ratings, as explained in the notes to Table B1. While all but the first of the policy indicators could be measured in its observable form (i.e., the fiscal deficit itself), in each case "scores" are assigned based upon arbitrary ranges. For clarity of exposition, the scoring system is presented in Table 2. Taking the columns by order in twos, they combine to give the scores for fiscal policy, exchange rate policy, and monetary policy, respectively. For reasons not explained, the two scores comprising fiscal policy were added, while for monetary and exchange rate policy averages were taken. Finally, an index for

"overall change in macroeconomic policy" is reached by averaging the three averages. Note that this would not give the same result as averaging across the six indicators, because of the anomalous summing of the two fiscal scores. The result is to give fiscal policy disproportionate weight (i.e., non-equal), especially because of the variation in the number of ranges.²⁰

On the basis of this scoring system, the *Adjustment in Africa* regressions seek to test the hypothesis that policies of the prescribed type enhance growth. To do this, the growth in GDP per head is divided into two periods, 1981–86 and 1987–91, and the change between the first period and the second taken as the dependent variable. Seven independent variables are employed over five regressions (see headings in Table 3), four of which are score-calibrated ordinal indexes from Table 2: overall macroeconomic policies, exchange rate policies, inflation, and the overall fiscal deficit. Two more variables are used to test for the impact of external factors, net external transfers and income from changes in the terms of trade, both measured as percent of GDP. A final variable, per capita growth in GDP during 1981–86, is included.²¹

It is not clear, however, what theory predicts for the sign of these coefficients even if one accepts the macroeconomic framework of the report. Consider the change in the overall fiscal deficit, whose "correct" (predicted) sign is negative according to the text of the report. One presumes that the theoretical argument is that an increase in the deficit has a negative impact on growth for two reasons: first, a larger deficit may "crowd-out" private investment via its impact on the interest rate; and, second, that changes in the deficit are associated with changes in the rate of inflation, and higher inflation via some mechanism depresses growth. But surely no one would argue that the first causal link holds independently of the initial size of the deficit. Since fiscal policy has a demand effect, there must be some initial deficit or surplus such that reductions in the deficit or increases in the surplus would generate a demand depressing effect that would render crowding-out irrelevant. In other words, predicting a negative sign on changes in the deficit presumes that the level of the deficit can never be too small nor the surplus too large. This view has little theoretical support. In the second case, the impact of the deficit on growth via inflation, one would also expect that the initial rate of inflation would be relevant: surely there are rates of inflation so low, that should they decline further, this would be associated with a compression of real demand and slower growth. Again, one has a noncredible assertion: for stimulating growth no rate of inflation is too low nor any rate of deflation too high. Independent of these considerations, the more policy-appropriate method of testing would be to regress the deficit against investment, then investment against growth. Also rather suspect is the exchange rate policy index, in which a presumption is

Table 2. World Bank adjustment in Africa scoring system for change in policy indicators (applied to 29 countries, 1981–86 to 1987–91)

Score	Fiscal balance	Government revenue	Percentage ranges for change in:			
			Depreciation exchange rate (real)	Parallel for exchange premium	Seigniorage	Inflation
-3	na	na	na	51 or more	na	31 & more
-2	-9.9 to -5	na	-10 & less	16 to 50	2 to 3.9	10 to 30.9
-1	-4.9 to -2	-4 & more	-9.9 to -5	5 to 15	1 to 1.9	5 to 9.9
0	-1.9 to 0.9	-3.9 to 3	-4.9 to 2	-9 to 4	-0.5 to 0.9	-2.4 to 4.9
1	1 to 2.9	3.1 & more	2.1 to 14.9	-29 to -10	-2 to -0.6	-9.9 to -2.5
2	3 to 4.9	na	15 to 30.9	-99 to -30	-3 to 2.1	-49 to -10
3	5 & more	na	31 & more	-100 or less	na	na

Source: World Bank, 1994, Appendix B.

made that all real devaluations are growth-enhancing no matter what the initial exchange rate or the size of the real devaluation associated with it.²² If one accepts the theory of comparative advantage, then there must be some real exchange rates so undervalued that they result in an inefficient reallocation of resources from nontradables to tradables, thereby reducing the rate of growth. A regression analysis that treats all real devaluations as a boon to growth has a decidedly mercantilist flavor.

It might be argued that while none of these variables is monotonic with respect to growth, they can be treated as such for the range of initial and final period values for the countries in question. This would need to be argued explicitly, however, not taken on faith. Finally, the inclusion of the first period's growth rates as an argument on the subsequent change in growth is theoretically suspect. The authors include it, "because countries that were doing particularly poorly (or well) are more likely to experience an improvement (or decline)" (World Bank, 1994, p. 140). This seems a strange variable, for if the desire is to incorporate initial period growth, this can be done by using the first relative difference in growth rates, rather than the first absolute difference. By so measuring the dependent variable, it would become unnecessary to include a variable whose theoretical credentials are suspect. Further, even if the coefficient is significant, the variable represents a random relationship with no explanatory role.²³

This analytical discussion of the variables in the regression, issues of consistency of ordinal measurement and theoretical modeling, suggest that the implications of the statistical results, whatever they might be, are difficult to penetrate. The World Bank results are presented in Table 3, copied directly from the source. In the view of the authors of the report, "the [statistical analysis] supports the foregoing conclusion [that] changes in macroeconomic policies have positive and statistically significant effects on growth" (World Bank, 1994, p. 139). The macro policy index proves significant at the 1% level of probability,

(equation 1) exchange rate policy at the 2% level along with the fiscal deficit at the 1% level (equation 2), and each of these last significant at 1% when taken without the other (equations 3 and 5). Inflation is not significant by the usual benchmark (equations 2 and 4). The coefficients of the two variables measuring external factors are nonsignificant in most cases, apparently supporting long-standing Bank views on their importance.

Before considering these results in more detail, a striking anomaly in the regression results can be pointed out. According to the report's discussion of the results, inflation is measured by the scoring system given in Table 2. In this table, score values rise as the change in inflation declines; e.g., minus two is assigned to an increase of inflation of 10–30.9%, while a plus two is given for a reduction of inflation of 10–49%. If the hypothesis is that reductions in inflation stimulate growth, then the "correct" sign for the coefficient is positive, not negative. Unless the World Bank statisticians reversed the signs of the scores in Table 2, it follows that the regression results support the view that increases in inflation are associated with increases in the rate of growth (though the coefficient is significantly different from zero at only the 10% level in equation 2). In the absence of further clarification, the results lend no support to the benefits of a low-inflation regime.

Along with the results, *Adjustment in Africa* provided the cross-section data from which the regressions are calculated.²⁴ Using these numbers, the authors sought to replicate the World Bank's statistics, and the results are shown in Table 4. It came as a surprise to discover that the attempt at duplication was not entirely successful. In our regressions, while the "overall macropolicy" index remains significant (albeit at a lower level, 5%), the fiscal deficit index changes sign (becomes "wrong"). Further, external transfers become significant at the 2% level in two cases, and the significance of terms of trade losses increases (though it is not of the predicted sign). The cause of the difference in results between Table 3 and

Table 3. *Regressions for analyzing the change in growth rates, 26 countries, World Bank results (using scores) (dependent variable: change in GDP per capita growth, 1981–86 to 1987–91)*

Regressions	Change in:							Adjusted R ²	
	Constant	Overall macro-economic policies	Exchange rate policy	Inflation	Overall fiscal deficit	Net external transfers	Income DT of T		DGDP Per cap. 1981–86
1	-1.84 (-3.5)	2.11 (4.4)				0.45 (1.6)	-0.55 (-1.3)	-1.04 (-5.3)	0.75
2	-1.85 (-4.4)		0.59 (2.6)	-0.43 (-1.8)	-1.04 (-4.5)	0.20 (0.8)	-1.08 (-2.9)	-0.98 (-7.2)	0.85
3	-1.13 (-2.2)		1.09 (3.8)			-0.06 (-0.2)	-0.05 (-0.1)	-0.84 (-5.1)	0.70
4	-0.62 (-1.0)			-0.47 (-1.1)		0.22 (0.6)	0.04 (0.1)	-0.92 (-4.4)	0.53
5	-2.00 (-4.0)				-1.28 (-5.0)	0.58 (2.2)	-1.06 (-2.5)	-1.16 (-7.5)	0.79

Source: World Bank, 1994, p. 140.

*Numbers in parenthesis are *t*-statistics.

Table 4. *Regressions for analyzing the change in growth rates, 26 countries, World Bank data recalculated (using scores) (dependent variable: change in GDP per capita growth, 1981–86 to 1987–91)*

Regressions	Change in:							Adjusted R ²	
	Constant	Overall macro-economic policies	Exchange rate policy	Inflation	Overall fiscal deficit	Net external transfers	Income DT of T		DGDP Per cap. 1981–86
1	-0.90 (-1.7)	1.21 (2.4)				0.68 (2.5)	-0.62 (-1.5)	-0.66 (-4.1)	0.59
2	-0.83 (-1.6)		0.64 (2.5)	-0.44 (-1.5)	0.52 (1.7)	0.32 (1.1)	-0.76 (-1.8)	-0.56 (-3.5)	0.67
3	-0.59 (-1.2)		0.76 (2.8)			-0.29 (1.0)	-0.30 (-0.8)	-0.56 (-3.4)	0.62
4	-0.25 (-0.4)			-0.50 (-1.4)		0.46 (1.5)	-0.32 (-0.7)	-0.62 (-3.4)	0.52
5	-0.90 (-1.5)				0.64 (1.8)	0.73 (2.5)	-0.68 (-1.4)	-0.74 (-4.3)	0.55

Source: World Bank, 1994, pp. 260–261.

*Numbers in parenthesis are *t*-statistics.

Table 5. *Regressions for analyzing the change in growth rates, 26 countries, using actual values where possible (dependent variable: change in GDP per capita growth, 1981–86 to 1987–91)*

Regressions	Change in:							Adjusted R ²	
	Constant	Overall macro-economic policies	Exchange rate policy	Inflation	Overall fiscal deficit	Net external transfers	Income DT of T		DGDP Per cap. 1981–86
1	-0.90 (-1.7)	1.21 (2.4)				0.68 (2.5)	-0.62 (-1.5)	-0.66 (-4.1)	0.59
2	-1.08 (-2.1)		0.01 (2.4)	0.04 (1.5)	0.15 (1.2)	0.54 (1.9)	-0.64 (-1.3)	-0.49 (-2.9)	0.64
3	-0.79 (-1.6)		0.01 (2.8)			0.49 (1.9)	-0.12 (-0.3)	-0.53 (-3.2)	0.62
4	-0.48 (-0.85)			0.02 (0.8)		0.54 (1.7)	-0.32 (-0.7)	-0.64 (-3.4)	0.49
5	-0.74 (-1.4)				0.23 (1.8)	0.82 (2.7)	-0.72 (-1.4)	-0.71 (-4.1)	0.54

Source: World Bank, 1994, pp. 260–261.

*Numbers in parenthesis are *t*-statistics.

Table 4 remains a mystery.²⁵ The results of the attempt at duplication suggest the following policy guidelines: while the polyplot "overall macroeconomic" index assumes the predicted sign, a decomposition of the index into some of its parts shows that neither inflation nor fiscal deficits retard growth.

Faced with the perplexing inconsistencies between the Bank results and the results from recalculation, along with the analytical problems with the use of scores, the authors decided to estimate the equations using actual values where possible. These results are shown in Table 5, in which all variables are measured in their phenomenal form, as it were, with the exception of "overall macroeconomic policies," for which this is not possible. Equation (1), with the macro index, is the same as in Table 4, but use of actual values significantly changes the other five regressions. Both inflation and the fiscal deficit prove nonsignificant and not of the predicted sign, and net external transfers become consistently significant at the .1 to .02 level. The most important variable remains the initial period growth rate, though it explains nothing. These results suggest the following conclusions: (i) with respect to the negative impact of inflation and the fiscal deficit on growth, the null hypothesis is sustained; (ii) the significance of the "overall macroeconomic" index has no obvious interpretation given the former finding; and (iii) a depreciating real exchange rate is associated with faster growth. The last result is consistent with other studies and is neither controversial nor supportive of the Bank's emphasis on stabilization in *Adjustment in Africa*.

We have suggested that the equations estimated in the report suffer from a number of serious deficiencies, such that even if they produced significant coefficients of the predicted signs, they could not be taken as credible evidence. The most important of these deficiencies is the arbitrary character of the "policy stance" indices and the inclusion of the *ad hoc* initial period growth variable. Both of these deficiencies are easily overcome. In the regression below, employing the same data as before for 26 countries, three variables are used to explain the change in growth rates per capita (*GRP*): depreciation of the real effective exchange rate (*ER*, percentage change), change in the rate of inflation (*INF*, percentage change), change in the fiscal deficit (*DEF*, percentage change), and the change in external transfers (*TRN*, percentage change).

$$DGRP = -.562 + .016ER + .045INF + .001DEF + .468TRN$$

$$(-1.12) \quad (3.69) \quad (1.79) \quad (.01) \quad (1.52)$$

$$\text{Adj}R^2 = .588 \quad N = 26$$

These results, which avoid use of the nonsense initial growth variable and introduce actual values rather than dubious proxy indexes, lend no support for the macro orthodoxy advocated in *Adjustment in Africa*.

The exchange rate variable is highly significant and of the predicted sign. This is consistent with virtually all macro policy "stances," not just World Bank orthodoxy. The change in the rate of inflation is marginally significant at the 10% level of probability, but as in all previous regressions shows itself to be growth-enhancing. The coefficient on the fiscal deficit is nonsignificant, as are external transfers (though the latter performs considerably better than the former). Specifying the relationship as above indicates the implicit theory behind the World Bank regressions, which is no more than a cross-sectional test of the Quantity Equation. If one assumes no change in the real exchange rate and that external transfers are zero, the equation collapses to a regression in which the change in the growth rate is a function of the change in inflation and the fiscal deficit. If the deficit is entirely monetized, as is typically the case in sub-Saharan countries, then the change in the deficit becomes the change in the money supply. As is well known, the first relative difference of the Quantity Equation, $vM = py$, can be written as:

$$p^* = a_0 + a_1m^* + a_2y^*$$

where a_0 is the rate of change of the velocity of money. The predicted values of the coefficients are zero, plus one, and minus one, respectively; i.e., velocity is constant and money is neutral.²⁶ GDP growth is: $y^* = m^* - p^*$. When this is rendered into the second difference, the predicted values of the coefficients are still unity.²⁷ Thus, by the most orthodox of monetary theory, the Quantity Equation, regression number two in the famous Box 5.1 is misspecified²⁸ and the results contradict theoretical prediction. It is misspecified because the Quantity Equation has been combined with a mix of supply-side and demand-side influences, which even in reduced form are not necessarily comparable. Since the regression does not yield the predicted coefficients, the results support the null hypothesis that GDP growth, money growth, and inflation do not conform to the Quantity Theory. Even if the coefficients were not significantly different from unity in absolute value, the result should be interpreted as verifying the neutrality hypothesis, with no obvious implication for the appropriate rate of money growth or fiscal deficit.

Overall, the World Bank regression results inspire little confidence, suggesting that the hypotheses are *ad hoc*, and that the cross-sectional estimations, which do not even include all sub-Saharan countries receiving adjustment loans, are not the appropriate statistical tests.²⁹ The lesson we carry forward to the next section is that growth performance of the sub-Saharan countries requires a more theoretically sound specification, and measures of independent variables should be transparent and nonarbitrary.

4. EFFECTS OF "ORTHODOX" AND "ALTERNATIVE" ADJUSTMENT PROGRAMS

The preceding analysis casts sufficient doubt on the Bank's recipe for adjustment in Africa to warrant the putting forward of an alternative policy package. It does not, of course, prove that any such alternative approach will work better than that proposed by the Bank. The first step beyond our negative critique is to specify a coherent alternative adjustment package, which we designate as "heterodox" in contrast to the World Bank and International Monetary Fund (IMF) "orthodoxy." We can identify two key elements of the structural World Bank reform programs which we accept as effective in African conditions: real exchange rate devaluation and low taxation, through marketing boards or otherwise, of the prices received by farmers (Bates, 1981). These two policy instruments form part of both the orthodox and heterodox models.

While we broadly agree with the Bank on these, we argue that two other elements in the orthodox model yield few benefits for growth or other macroeconomic targets: excessive focus upon inflation control, and, closely related to this, single-minded reduction of the fiscal deficit. While these are not excluded from the heterodox model, they would be introduced with different targets from those implicitly or explicitly assigned by the Bank. Since inflation is not itself a policy variable, but an outcome, there is only one instrument to consider in the policy models, the fiscal deficit.

The difference between the proposed heterodox model and the orthodox is not merely different targets for two policy instruments, but, also, the inclusion of other instruments to supplement those specified by the World Bank. We identify three of these, perhaps the most important of which is the level of public investment. Particularly for sub-Saharan countries, this policy variable appears to complement, rather than "crowd out," private investment (Taylor, 1988, p. 51). Empirical work shows a strong correlation between capital expenditure by the state and the growth rate (Mosley and Weeks, 1993, Table 8). While the World Bank does not ignore this instrument, in practice pressure in adjustment programs for deficit reduction relegates it to low priority.

Second, the level of agricultural loans and subsidies has an important impact on the supply resource of crops and livestock. Sub-Saharan economies are typically constrained by the capacity of the financial system to support technical innovation and diversification in agriculture. In regions where small farmers are unable to borrow through the formal credit system at market rates, their acceptance of new technology may be facilitated by subsidies on modern inputs such as fertilizers and new feeds. Subsidies in this situation act as a temporary and second-best substitute for reforms

in the capital market that would give greater access by smallholders to credit (Mosley, 1994b). In World Bank adjustment programs subsidies both to inputs and credit are uneconomic distortions to be eliminated unconditionally.

Third, most African countries would benefit from a selective industrial policy. Whereas much of the manufacturing created in Africa after independence proved inefficient, this does not negate the case for protection designed to "back winners" and make them competitive on export markets. Our heterodox proposal is for efficient protection that would be contingent on improvement in competitive performance over a relatively short period of time, as in Mauritius and in many countries in East and Southeast Asia (Gulhati and Nallari, 1991). Empirical work by Mosley (1994a) shows a correlation between export performance and a "performance-weighted protection rate"; that is, the effective protection rate adjusted by an index of productivity change in protected sectors.

We have identified six policy instruments for promoting recovery in Africa south of the Sahara, and now collect these into stylized orthodox and heterodox models. For two, the exchange rate and taxation of agriculture, the target values are the same in both models. For the other four, the fiscal deficit, public investment, agricultural subsidies and tariff protection, the orthodox model seeks a reduction in all cases (with the possible exception of public investment), and some instances to zero (i.e., subsidies). Identifying a heterodox alternative does not a compelling argument make, and at this point we face a dilemma. On the one hand, we argued that cross-sectional statistical exercises are not the appropriate manner to test for the impact of policies. On the other, the absence of annual data for the heterodox policy instruments makes a country-by-country time series exercise impossible.³⁰ Thus, either we must leave our advocacy of the heterodox program as unsubstantiated assertion, or enter into dubious cross-sectional estimations. Taking our guide from civil law suits in which litigants can enter contradictory pleas, we choose the cross-sectional route, while not retracting our critique of it.

Taking some consolation that our opponents in the policy debate have revealed their faith in the cross-section method, we estimate a regression equation of the World Bank type with the six policy instruments as arguments. This estimated equation is then used to compare the average growth rate under "orthodox" and "heterodox" adjustment packages by substituting the alternative values for the policy instruments. Inclusion of all the policy variables is straightforward, with the exception of the fiscal deficit and inflation. Notwithstanding the World Bank specification, both should not be included, since one is the instrument (the deficit) which is supposed to determine the other as outcome (inflation). In the heterodox framework the

instrument requires indicative targeting only if the outcome proves problematical. Therefore, we include the outcome, inflation, rather than the instrument as the explanatory variable.

It would be absurd to believe that these policy instruments are the only systematic influences on the rate of growth, so other variables are included in the cross-sectional equation as arguments. The choice of

Table 6. *Impact of orthodox and heterodox policy instruments (dependent variable: growth of real GDP 1980–91). Ordinary least squares analysis across 15 countries*

Regressions	Orthodox instruments:			Heterodox instruments:			New growth theory variables:						
	Constant	Real exchange rate	Average inflation rate	Real interest rate	Agric subsidies per capita	Av. eff protection rate	Public investment in GDP	1970 GDP per capita	Investment rate	Export growth	Change in literacy rate	Adjusted R ²	SEE
1	1.78* (1.95)§	-.008 (0.92)	-.001 (0.71)	-.100† (2.53)	.007† (2.44)	.140† (3.39)	.001 (0.30)	-.0003 (0.22)	.006‡ (4.36)	.270‡ (4.72)	.006 (1.31)	.772	1.17
2	1.90* (1.68)	-.007 (0.82)		-.100† (2.19)		0.14‡ (2.53)		-.200 (0.12)	.060‡ (4.30)			.43	1.34
3	2.17* (1.74)	-.004 (0.45)		-.006† (1.90)		.150 (0.83)		-.017 (.09)	.059‡ (3.85)	.220‡ (4.45)	.005 (1.22)	.62	1.29

Sources:

Effective exchange rate from IMF, *International Financial Statistics*.

Average effective protection rate 1980–1991, from United Nations, *Handbook of International Trade Statistics*. See Mosley (1994) for clarification of productivity weighted index.

Agricultural loans and subsidies per capita, 1980–91, from Lele (1989) and national publications.

*Significant at the 10% level.

†Significant at the 5% level.

‡Significant at the 1% level or lower.

In equation (3) the unweighted effective protection rate is used.

§t-statistics in parentheses.

Table 7. *Adjustment packages, orthodox (WB) and heterodox: alternative values for policy instruments*

		Postulated average values: sub-Saharan 1980–91			
		Unit of measurement	Actual values	WB value	Heterodox core value
<i>Policy "Stance"</i>					
Common elements					
1. Flexible exchange rate		Percent change	-2.6	-30	-30
2. Agricultural taxation (Ratio of farm-gate to export prices of crops)		Ratio	0.53	0.75	0.75
Disputed elements					
<i>Orthodox (WB)</i>		<i>Heterodox</i>			
3a. Reduce budget deficit if inflation >5%	3b. Reduce budget deficit only if inflation exceeds 20%	Inflation rate	18.4	5	15
4a. Eliminate agricultural input subsidies	4b. Retain subsidies at existing level & link to productivity	Subsidies per capita (US\$)	29.5	0	30
5a. Public investment kept at existing level	5b. Expanded public investment	Percent change constant prices	35.8	35.8	70
6a. Reduce average tariff to 15%	7b. Retain average tariff level but link to productivity	Efficiency-weighted effective production rate	34	15	34

nonpolicy explanatory variables reflects our analytical view that African economies are demand constrained, and the influence of the New Growth Theory with its emphasis upon changes in the quality of human resources, the ratio of investment to GDP, and the rate of growth of exports.³¹ As a proxy for the change in the quality of human resources we use the change in the literacy rate. Several authors have argued that stabilization and adjustment programs are less effective in countries with underdeveloped markets and infrastructure. To incorporate this "initial condition," the equation uses per capita income in a base year period to the period of analysis.³² Finally, not to prejudge the model in favor of the heterodox solution, we include a variable stressed by the Bank (though, strangely enough not explicitly included in its regressions), the real discount rate of the central bank. The putative impact of the former was discussed in detail in the previous section. In the case of the latter, it is argued that positive real interest rates stimulate growth by eliminating "financial repression" and "mobilizing" saving. In order to carry out this alternative cross-section estimation, it is necessary to calculate the "heterodox" variables. Unfortunately, this is not possible for all the 26 countries in the World Bank sample. Indeed, close review of the data sources allowed only 15 countries to be used in the estimation. As a result, we must accept a poverty of degrees of freedom and moderate our conclusions accordingly. As argued above, however, the need to provide some empirical support for the heterodox adjustment package dictates this exercise, flawed as it may be.

The results of the regression, for 1980–91 over 15 countries, is shown in Table 6. As in Tables 3–5, the influence of the inflation rate on growth is statistically insignificant, whereas both performance-weighted protection and per capita agricultural loans, the "unorthodox" policy instruments, have a positive and significant influence on GNP growth. We also can note that the real interest rate is significant, but with a negative sign. This sign is what standard IS-LM analysis would predict, in contrast to the *ad hoc* argument of the World Bank about "financial repression."

Since these equations include both the orthodox and the heterodox policy instruments, we can test the

two frameworks by using values recommended by each. The alternative values are shown in Table 7. The "World Bank values" are based upon the scoring system in *Adjustment in Africa*, plus the recommendations there about subsidies, tariffs, and government expenditure restraint. Let us take a naive approach by assuming no interaction between the independent variables; in other words let us assume that all the independent variables are free to move, that there are no nonlinearities, and that the equation will predict accurately as if the policy variables acted only to shift the growth equation. This assumes that the policy variables are not influenced by the "nonpolicy" variables which constitute "new growth theory" influences. Then, we standardize the nonpolicy variables (1970 GDP, investment rate, export growth and the literacy rate) at their African average values for 1980–91, and allow only the policy variables to change.

This exercise yields average growth rates for African economies for the period under the two alternative strategies, with the result presented in Table 8. Subject to all its limitations, this statistical exercise gives an indication of the contribution of particular "structural adjustment policy" variables. The striking result is that the orthodox prescription of stabilization and eliminating distortions generates a growth rate over two percentage points below actual performance, while the heterodox strategy imparts an enhancement of growth by a modest one-half of one point. There are compelling theoretical reasons to take the results seriously, but they should also be taken with a generous helping of salt. As pointed out the statistical procedure averages across all African countries, a dubious exercise when considering the dynamics of policy change. Perhaps more problematical, the specification does not take account of interactions between policy and nonpolicy variables. Therefore, we cannot demonstrate that the heterodox policy package is a feasible and consistent combination for specific African countries. For example, additional spending on public investment and agricultural credit, which has a positive impact on output according to regression equation (1), must be financed. The way in which it is financed might feed back into the macroeconomy through routes not specified in the equation, with growth-

Table 8. *Aggregate cross-section approach: average growth rates 1980–91 under orthodox (WB) and heterodox strategies*

Actual	Value, orthodox strategy	Value, heterodox strategy
2.7	0.5	3.2
Method: Substitution of the following numbers (averages for African countries over the period stated) into equation (1) in Table 6:		
1970 per capita GDP (\$):		201.6
Investment/GDP 1980–91 (%)		20.0
Export growth rate p.a. 1980–91 (%)		3.53
Growth rate of literacy 1970–85		90.3
All other variables: as in Table 7.		

reducing effects. In principle, therefore, it would be highly desirable to complement the approach taken here with micro-modeling of individual African countries.

In the absence of complete confidence in the cross-section exercise, it is incumbent upon us to provide a coherent theoretical justification for taking seriously the results in Table 8. The simulation shows that orthodox adjustment reduces the growth rate; theory provides support for this. All coherent theoretical "stories" must begin from a position of equilibrium with the crucial variables stable. At the same time, the introduction of stabilization and structural adjustment programs typically occurs when economies suffer from unsustainable macroeconomic imbalances. To accommodate these two apparently contradictory initial conditions, we assume a temporary equilibrium, in which a long-term unsustainable external account is maintained momentarily by the decumulation of foreign reserves. Internally, inflation proceeds at the rate at which the fiscal deficit is monetized, which implies maximum utilization of resources and money neutral.³³ At this position of momentary equilibrium, the government implements an orthodox package: the fiscal deficit is sharply reduced, stringent credit limits are imposed upon the banking system, the nominal discount rate is raised to above the rate of inflation, and the exchange rate is set to "float."

Ceteris paribus, the effect of the fiscal restraint and credit limits would be to reduce monetary demand. If prices do not instantaneously adjust, this would result in a drop in real demand. The rise in the nominal discount rate would reinforce this real demand contraction by increasing the cost of credit to the formal sector. Working capital would become more expensive and repayments for debts on variable interest rates would rise. To the extent that the increased nominal interest rate, via an increased real interest rate, attracted funds into the banking system, this would further depress real demand. If, at the same time, the release of the exchange rate led to its real devaluation, imports would become more expensive, raising input costs. While the real devaluation might stimulate exports, this would be unlikely to manifest itself in the short term because most exports would come from agriculture, which has a nature-imposed supply lag. Further, the devaluation could have medium-term Taylor-Krugman effects on aggregate demand and possibly reduce aggregate supply.³⁴ In the longer term, the outcome of the growth process would depend upon the balance between the export-stimulating effect of real devaluation and the investment-depressing and cost-increasing consequence of higher

interest rates.

The orthodox reply to this standard analysis of stabilization is to place stress upon improved expectations by potential investors as a result of lower inflation and putative efficiency gains from deregulation. With regard to the former, empirical studies of adjustment unanimously report that investment falls during adjustment. The latter would seem a thin thread by which to hang hopes for short or medium-term recovery.

The heterodox policy package seeks to combine the benefits of real devaluation with policies to mitigate short run demand contraction, and to do the latter in a growth inducing manner. If initial inflation is in the low double digits, no attempt would be made to reduce the fiscal deficit. Rather, government expenditure would be maintained on producer subsidies, and public investment increased, especially for infrastructure. Improved infrastructure would reduce transport cost, facilitating exports and increasing aggregate supply. Simultaneously, a selective industrial policy would be implemented to diversify exports into manufactures. Since empirical evidence for Africa suggests that household saving is insensitive to interest rates (Weeks, 1994), the central bank would pursue a positive, but low real discount rate policy. The appropriate combination of devaluation, public investment expansion, and protection would vary from country to country, depending upon initial conditions, institutional capabilities and flexibility of markets.

5. THE "ROAD AHEAD"

After its attempt to provide credibility for orthodox stabilization in the guise of structural adjustment, *Adjustment in Africa* points to the "road ahead" as more of the same. We have argued that the journey to date has proved an unsuccessful route by which to arrive at the goal of recovery in Africa, and we strongly counsel against further hopeful traveling along that particular path. The empirical evidence is clear: World Bank structural adjustment programs have not stimulated recovery in Africa. The attempt in *Adjustment in Africa* to demonstrate the contrary is technically flawed beyond salvaging and rests upon unsustainable theoretical arguments. Persistence in the face of adverse outcomes might under some circumstances be lauded as determination. In the case of orthodox stabilization-cum-adjustment, however, less persistence and more flexibility, based on sound economic theory and statistical methods, would seem the appropriate course.

NOTES

1. This report, *Africa's Adjustment and Growth in the 1980s*, should not be confused with another report of the same year, *Sub-Saharan Africa: From Crisis to Sustainable Growth* (World Bank, 1989). The former attempted a quantitative assessment of the result of adjustment programs on the economies of implementing countries (and compared these to "nonadjusting countries"). The latter, subtitled "A Long-Term Perspective Study," hardly treated structural adjustment programs at all.
2. The table begins with 1985, corresponding to the terms of the debate over recovery as set by the 1989 World Bank report, which identified this year as the start of a "watershed": "[T]he period 1985–87 may turn out to have been a watershed between the difficulties of the early 1980s and adjustments in the second half of the decade, with the prospect of steadier growth later on" (World Bank/UNDP, 1989, p. 5).
3. The distinction became widely accepted throughout the "development community" in the 1980s: "'Stabilization' is understood to refer to the correction of excessive inflation ... Stabilization policies to combat inflation are usually short term and have a strong component of aggregate demand management ... 'Adjustment' is used to refer to the policy changes needed to put the economy on a sustainable economic growth path ..." (United Nations, 1992, pp. 1–2).
4. Even more explicitly:
 "The report suggests that programs of economic reform and adjustment have helped African countries begin to improve their economic performance. Between 1983 and 1988, over half the countries of the region began ... to initiate policy reforms to favor increased efficiency in the use of scarce resources and to strengthen their competitiveness...
 The growth that appears to be resulting, at least in part, from this reform and adjustment helps raise living standards overall and especially for the poor.
 But when the performance of reforming countries is compared with that of nonreforming countries, there is evidence that the combination of reforms and added assistance has led to higher agricultural growth, faster export growth, stronger GDP growth, and larger investment ... (World Bank, 1994, p. iii, 3).
5. A recent study for the European Commission comments as follows: "The major reason for the continuing debate on adjustment ... is that the results achieved have remained well below expectations" (Guillaumont and Guillaumont, 1994, p. 32).
6. The others are: promoting the openness of the economy, improving the transparency of the incentive system, improving efficiency in resource allocation, improving scope for private sector development, and strengthening institutions and capacity for policy analysis (World Bank, 1992, p. 1).
7. To this is added, "Tightening the overall fiscal position was a central component of the macroeconomic adjustment program ..." (World Bank, 1992, p. 2).
8. For a rigorous demonstration of the consistency between stabilization policy and long-term growth, see Fine (1994).
9. "Of the 42 countries [covered in the study], 37 increased their differential [between domestic and international interest rates] (or reduced a negative differential) across the adjustment period" (World Bank, 1992, p. 3).
10. For most sub-Saharan countries there would probably be little gain in foreign reserves in response to a higher interest rate differential, because financial markets are narrow and undeveloped. Econometric evidence suggests that there was no correlation between the domestic/international interest rate differential and foreign exchange flows for the region during the 1980s (Weeks, 1994). The 1992 report also finds that foreign exchange inflows seemed inelastic with respect to the interest rate differential: "Ten of the 18 [sub-Saharan] countries increased their international-domestic interest rate differential or reduced negative differentials, but only two ... had their foreign exchange reserves increase ..." (Weeks, 1992, p. 27).
11. Indeed, the view that achieving one goal (stabilization) will lead to the success of another (growth) with no policy intermediation is a denial of the Tinbergen principle.
12. It is interesting to note that *Africa's Adjustment and Growth* does not appear in the bibliography of *Adjustment in Africa*, though *From Crisis to Sustainable Growth* does.
13. "The evidence shows that progress has been mixed ... There are rewards to adjustment, however, as countries that have come the furthest in implementing good policies — particularly good macroeconomic policies — have enjoyed a resurgence of growth" (World Bank 1994, p. xi).
14. Chapter 3, provocatively entitled "unleashing markets," dealt with these.
15. The first Bank evaluations of its policy-based lending lumped all loan recipients together, after which these countries were divided into analytically ambiguous categories, such as "strong" and "weak" adjusters" (World Bank/UNDP, 1989) and/or "early intensive adjusters" and others (Corbo and Fischer, 1991). These categories are critiqued in detail in Mosley and Weeks (1994, pp. 1585–1587).
16. The assessment of monetary policy was less straightforward, for it involved a weighting of inflation, the level of real interest rates and "seigniorage." Precisely how the three indicators were combined for an aggregate index is unclear. A note to the relevant table states: "Ratings range from 'good or adequate', which generally means low seigniorage (less than 0.5 percent of GDP), low inflation (less than 10 percent), and reasonable interest rates (–3 to 3 percent), to 'very poor', which means high seigniorage, inflation over 100 percent, and high or extremely negative interest rates" (World Bank, 1991, p. 49, note to Table 2.2). The concept of "seigniorage" measured the growth of the money supply in excess of the rate of GDP growth. This was incorrectly described as "the inflationary impact of money creation (that is, the increase in

monetary growth in excess of what is needed to satisfy the transactions demand for money)" (World Bank, 1994, pp. 59–60). This measure coincides with inflationary impact if and only if there is no increase in idle money, the demand for money is stable, and money is strictly neutral. For exchange rate policy two indicators were used, the "parallel market premium for foreign exchange" and depreciation in the real effective exchange rate. For the former, the ratings were the following: 0–10% (four stars), 11–30% (three), 31–50% (two), and 51% or more (one). The exchange rate ranges were: 40% and over (four stars), 21–40 (three), 6–20 (two), and less than 6 (one) (World Bank, 1994, pp. 49, 55, 57, and Appendix B).

17. This is especially the case because the ranges are not of the same size for only one numerical indicator, even for those ranges that are not open-ended (see previous footnote).

18. For example, in Table B1 (pp. 260–261), the change in fiscal policy is "calculated by averaging the scores [number of stars] for change in overall fiscal balance and change in revenue." On this basis, Ghana receives a composite score of two and Mali receives a one. Whether Ghana's performance was infinitesimally, slightly or spectacularly better cannot be inferred from these numbers.

19. In this case the "small improvement" countries performed better than the "large improvement" countries.

20. Note, for example, a country could score a perfect three on exchange rate policy, but achieve no more than a two on monetary policy no matter how zealously it constrained the money supply and reduced inflation.

21. When referring to the results, the authors of the report refer to coefficients as having the "right sign" or "wrong sign," by which one presumes they mean "the theoretically predicted sign" (because statistical results are never "right" or "wrong" in the dictionary sense, unless a computation error has occurred).

22. This index gives cause for concern. As noted, it is "calculated by averaging the scores for change in the real exchange effective rate and change in the parallel market exchange rate premium" (p. 261). For eleven of the 26 countries, however, those in the CFA Zone, changes in the latter are defined as "not applicable." In these cases the score for the devaluation in the effective exchange rate is taken as the composite score, while for the other 15 countries two scores are averaged. The effect of this procedure for 11 countries is to assign the devaluation score to the parallel market, even though the latter is "not applicable."

23. While in principle the set of growth rates is unbounded (i.e., can vary from minus to plus infinity), in practice they fall into a narrow band. Let growth rates be randomly determined and assume that one had an improbable 11-sided die, with the numbers –5 through +5 on the sides. An initial roll of –4, for example, would make a subsequent roll of greater than –4 considerably more probable than a roll of less than –4. Thus, inclusion of the initial period's growth rate serves no role other than to raise the correlation coefficient.

24. The policy indexes are given by country in Table B1,

inflation in Table A3, changes in external income and terms of trade in Table A15, and initial period growth rates in Table 5.1.

25. In July 1994 we wrote to the appropriate official at the World Bank requesting further details on the method of calculation of the statistics in Table 3. We received a reply informing us that our request had been passed on to the Bank professional who had been responsible for the statistical work, and that an answer would be forthcoming. As of August 1995 no answer had been received.

26. The measure of seigniorage used in *Adjustment in Africa* implicitly assumes the Quantity Equation, by equating non-inflationary money growth to growth in the transactions demand, py/v .

27. For example, if we do this by subtracting values for the earlier period from the later period, we obtain: $(y_1^* - y_0^*) = (m_1^* - m_0^*) - (p_1^* - p_0^*)$, with all coefficients equal to unity.

28. It is misspecified in two ways. First, it contains extraneous variables not implied by the Quantity theory. Second, in proper specification, causality runs from the money supply and output as independent variables, to inflation as the dependent variable, while in the World Bank formulation output is treated as the dependent variable.

29. We tried numerous variations of the regression, all yielding similar, nonsignificant results. For example, the seigniorage variable showed itself to be negative but nonsignificant in all but one case, when inflation was positive and also significant. The policy implication of a negative coefficient on relative money growth but a positive coefficient on inflation is unclear.

30. Most social statistics such as literacy are collected in censuses. While in principle government investment data should be available annually, in practice it is not (World Bank and UNDP, 1992, Table 7–19, p. 188).

31. There is ambiguity in interpreting the role of export growth and investment. The standard New Growth view is that export growth yields dynamic gains (such as technology transfer), and investment increases capacity (as well as embodying innovations). Alternatively, they could be interpreted in a Kaldorian framework in which the economy is demand constrained and, therefore, growth is pulled by autonomous expenditure.

32. This initial condition use of per capita income in a base year does not suffer from the same problems as the World Bank's incorporation of an earlier period's growth rate (see footnote 22). While a low base period growth rate makes a subsequently higher growth likely merely by the laws of chance, this is not true for the relationship between the level of per capita income and its subsequent growth.

33. The assumption of neutrality is for simplicity only. We assume maximum utilization of resources rather than full utilization to allow for technological (fixed-coefficient) idleness, price-constrained underutilization (inside the production possibilities frontier), and/or idleness due to a foreign exchange constraint.

34. The Taylor-Krugman effect is the demand-reducing consequence of a devaluation's impact on real wages (Krugman and Taylor, 1978). Van Wijnbergen argues that devaluations might reduce aggregate supply via the cost of credit and the impact on the local currency cost of the external debt (van Wijnbergen, 1986).

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