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## I. GROWTH PERFORMANCE IN KENYA DURING 1980–2004<sup>1</sup>

### A. Introduction

1. **This chapter examines Kenya’s growth performance during 1980–2004.**

Specifically, it considers the following issues: first, the stylized facts about Kenya’s growth performance in the past two decades, in comparison with other Sub-Saharan African countries; second, the main sources of economic growth in Kenya, in the context of a conventional growth accounting exercise; third, the main determinants of the results indicated in the growth accounting exercise; and finally, the key policy implications.

2. **The following stylized facts emerged from recent studies on the growth performance in Sub-Saharan Africa:<sup>2</sup>**

- The growth performance of the region has been weak in the past few decades;
- The main source of economic growth in the region has been factor accumulation, with growth in TFP playing little role; and
- TFP growth tends to be positively correlated with high quality institutions, good governance, and sound macroeconomic policies.

3. **The main findings of this chapter are the following:**

- Since the early 1990s, Kenya’s economic performance has been weaker than the average for Sub-Saharan African countries and the weakest among the three members of the East African Community (EAC);<sup>3</sup>
- As in other Sub-Saharan African countries, Kenya’s growth has been driven mostly by factor accumulation, with total factor productivity (TFP) declining markedly in the past two decades; and
- The low TFP growth over the past two decades has been significantly associated with poor governance and high inflation.

### B. Stylized Facts about Kenya’s Growth Performance

4. **Kenya’s economic performance has been lackluster.** During 1980–2003, real GDP growth averaged around one percent per annum. Growth was robust during the 1980s, when real GDP growth averaged 4.5 percent per annum, but declined notably in the 1990s, averaging 1.9 percent. The main source of growth during the 1980s and 1990s was the tertiary sector. (Table I.1).

5. **Kenya’s growth performance has slipped behind its neighbors since the 1990s.** As indicated in Figure I.1 and Table I.2, Kenya’s economic performance was well above its

<sup>1</sup> This chapter was prepared by Kevin C. Cheng (AFR).

<sup>2</sup> For details, see Tahari, Ghura, Akitoby, and Aka (2004).

<sup>3</sup> The three members of the EAC are Kenya, Tanzania, and Uganda.

East African neighbors and the average for all developing countries in the 1980s. However, since the 1990s, Kenya's growth performance has been weaker than most other developing countries, and underperformed both Tanzania and Uganda. During 2000–03, the gap between Kenya's growth performance and its East African neighbors has widened further.

Table I.1. Kenya: Sectorial Contributions to Real GDP Growth, 1980-2003 1/

	1980s	1999s	2001	2002	2003
(In percent of total GDP growth)					
Primary sector	21.9	13.8	28.5	19.5	22.6
Secondary sector	19.4	16.1	11.2	18.3	17.0
Tertiary sector	58.6	70.1	60.3	62.2	60.3

1/ Contribution is calculated by the share of the sector in total output multiplied by the growth rate of the sector.

Source: Kenyan Authorities

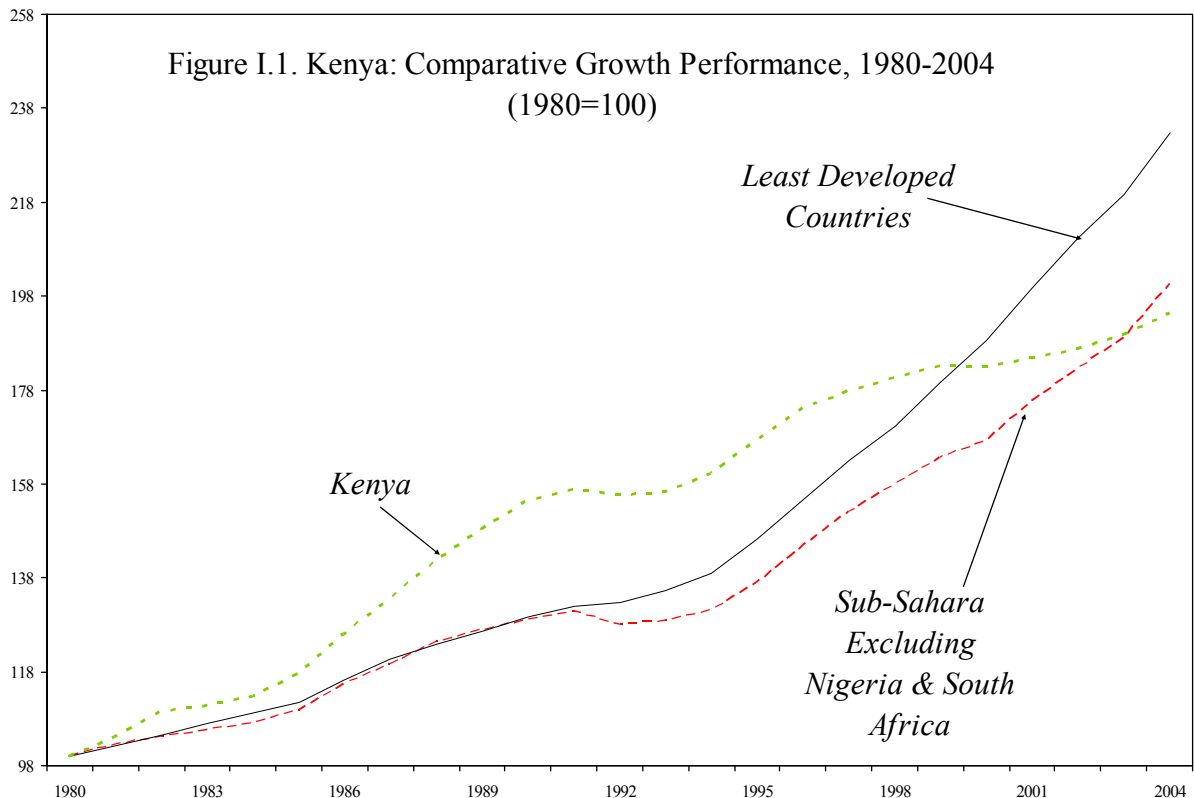


Table I.2 Kenya: Comparative Growth Performance, 1980-2003 1/

	Average Annual Growth (In Percent)			Number of Years of Decline		Number of Years of Growth Higher than 4 percent	
	1980s	1990s	2000-2003	1980-2003	Past Ten Years	1980-2003	Past Ten Years
	<b>Kenya</b>	<b>4.5</b>	<b>1.9</b>	<b>1.3</b>	<b>2</b>	<b>1</b>	<b>11</b>
Tanzania	2.9	2.7	6.9	1	0	9	5
Uganda	3.3	6.3	5.5	3	0	16	9
Developing Countries	3.8	3.9	5.0	0	0	15	9
Sub-Sahara Africa 2/	2.7	2.7	4.2	1	0	5	4
Least Developed Countries	2.7	3.7	5.2	0	0	10	9
World	3.4	3.2	3.1	0	0	6	3

1/ Kenyan Data were provided by the Kenyan Authorities. Data for other countries were provided by the World Economic Outlook (WEO) database. Aggregate groups were defined by WEO database.

2/ Excluding Nigeria & South Africa

### C. A Growth Accounting Exercise for Kenya<sup>4</sup>

#### Methodology and Data

6. The growth accounting exercise decomposes the real GDP growth into the growth of total factor productivity (TFP) and factor accumulation, including growth in physical capital, human capital, as well as total employment.<sup>5</sup> Following most studies, a Cobb-Douglas production function is assumed for the Kenyan economy. Specifically,

$$Y_t = A_t K_t^\alpha (L_t H_t)^{1-\alpha} \quad (1)$$

where  $Y$  is gross domestic product in real terms,  $A$  is the total factor productivity (TFP),  $K$  is the physical capital stock,  $L$  is total employment, and  $H$  is an index of human capital stock.

<sup>4</sup> The source of economic growth matters because if the main source of growth is factor accumulation, then according to the law of diminishing returns in factor inputs, long-term growth is not sustainable. For details, see Krugman (1994) and Young (1995).

<sup>5</sup> A growth accounting exercise was implemented for Kenya during 1960–2002 in the cross-country study of Tahari, Ghura, Akitoby, and Aka (2004). This chapter adds the following to the existing literature: first, it examines more closely the movements of TFP growth in Kenya during 1980–2004; second, it separates the growth of human capital from the TFP and treats it as a factor input; finally, it examines key factors significantly associated with TFP growth in Kenya during the past two decades.

The parameter  $\alpha$  is the income share of capital, which is assumed to be 0.4.<sup>6</sup> Taking logarithms and differentiating, we obtain the following growth accounting equation:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha \frac{\Delta K}{K} + (1 - \alpha) \frac{\Delta L}{L} + (1 - \alpha) \frac{\Delta H}{H} \quad (2)$$

Equation (2) decomposes the growth rate of output into the growth rates of TFP, physical capital, total employment, and human capital.

7. **Data for output, physical capital, labor, total employment, and human capital are displayed in Table I.3.** Physical capital  $K$  is calculated by the conventional perpetual inventory method, as discussed in Barro and Sala-i-Martin (2000):

$$K_{t+1} = I_t + (1 - \delta)K_t \quad (3)$$

where  $I$  is the level of real investment, and  $\delta$  is the rate of depreciation of the existing capital stock. Given estimates of the depreciation rate and the initial capital stock, as well as a time series for real investment, the capital stock series is calculated recursively using (3). In this study, the depreciation rate is assumed to be 6 percent, which is well within the range of 4–10 percent used in similar studies. The ratio of capital to GDP is assumed to be 2 in 1963.<sup>7</sup> The human capital index is calculated as follows:

$$H_t = \sum_j w_{jt} s_{jt} \quad (4)$$

where  $s_{jt}$  is the proportion of workers with education level  $j$ , where  $j$  varies from 0 (corresponding to no schooling) to 6 (corresponding to completion of tertiary education).  $w_{jt}$  is the relative wage corresponding to workers with education level  $j$ . Data on education attainments were obtained from Barro and Lee (2001), and relative wage corresponding to different education levels were calculated based on data on the return to schooling found in Appleton, Bigsten, and Manda (1999).

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<sup>6</sup> Senhadji (2000) found that the income share of physical capital in the Sub-Saharan Africa region was around 0.43. The sensitivity analysis in the Appendix shows that relaxing this assumption does not significantly alter the main results.

<sup>7</sup> These assumptions will be relaxed in the sensitivity analysis, which indicates that the growth accounting exercise is robust to these assumptions.

Table I.3. Kenya: Estimates of Real GDP and Factor Inputs, 1980-2004

Year	GDP	Investment	Capital	Employment 1/		Human Capital
				In thousands of		
	In billions of Kenya shilling, constant 1982 prices			persons	Index	
1980	64.3	14.6	93.3	1005.8	155.9	
1981	66.9	16.1	102.4	1024.3	154.1	
1982	70.3	15.4	112.3	1046.0	152.4	
1983	71.3	13.3	120.9	1093.1	150.6	
1984	72.5	13.9	127.0	1119.5	148.9	
1985	75.6	17.5	133.3	1174.4	147.2	
1986	81.0	14.9	142.8	1226.7	148.7	
1987	85.8	17.4	149.2	1285.4	150.3	
1988	91.2	19.0	157.6	1345.9	151.9	
1989	95.4	19.9	167.2	1368.3	153.4	
1990	99.4	19.1	177.0	1409.3	155.0	
1991	100.9	17.0	185.5	1441.8	156.5	
1992	100.1	14.8	191.4	1452.9	158.0	
1993	100.4	15.2	194.7	1475.0	159.5	
1994	103.1	17.1	198.3	1505.5	161.0	
1995	107.6	19.7	203.5	1557.0	162.5	
1996	112.1	20.6	211.0	1606.8	163.8	
1997	114.4	21.9	219.0	1643.9	165.0	
1998	116.2	22.1	227.7	1678.2	166.2	
1999	117.7	21.5	236.2	1688.7	167.5	
2000	117.5	20.6	243.5	1695.0	168.8	
2001	118.9	20.8	249.5	1677.1	170.0	
2002	120.1	19.9	255.3	1699.7	171.3	
2003	122.1	20.5	259.9	1727.6	172.6	
2004	<i>Proj.</i> 125.0	20.0	264.7	1756.0	173.9	

Source: Central Bureau of Statistics of Kenya

1/ Includes only the formal sector.

## Results

8. **Kenya's factor productivity during 1980–2004 has been disappointing.** As indicated in Figure I.2, capital productivity, defined as GDP/K, declined during 1980–2004, reflecting investment inefficiency. While labor productivity, defined as GDP/L, exhibited an upward trend in the 1980s, it was sluggish during the 1990s.

9. **Like most Sub-Saharan African countries, Kenya's economic growth appears to have been primarily driven by factor accumulation.** As indicated in Table I.4, which summarizes the estimates derived from equation (2), the decline in total factor productivity appears to have accounted for the sluggish growth of the Kenyan economy, reflecting efficiency losses typical of economies plagued by structural weaknesses. An important issue is therefore the identification of the key factors that have contributed to the decline in Kenya's total factor productivity.

Figure I.2. Kenya: Productivity, 1980-2000  
(1990=100)

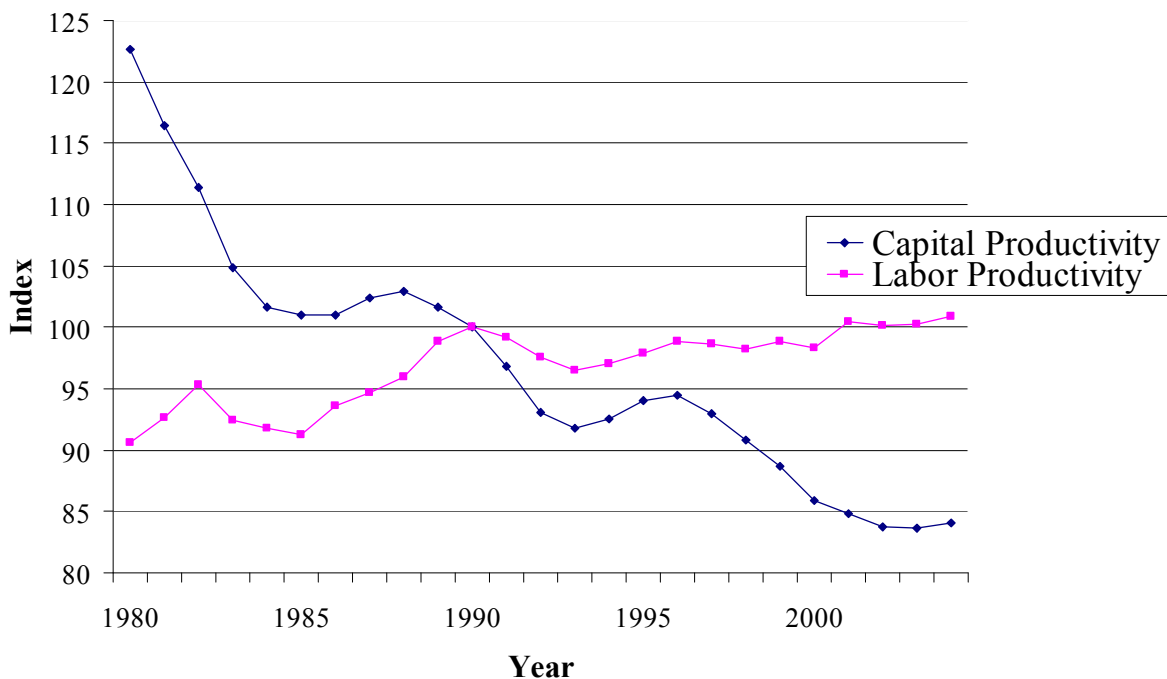


Table I.4. Kenya: Results of Growth Accounting Exercise, 1980-2004

Period	Annual Average Growth Rate of Output	Annual Average Contributions to Output Growth			
		Physical Capital	Total Employment	Human Capital	TFP
1980-84	3.05	3.20	1.63	-0.68	-1.10
1985-89	5.99	2.33	2.34	0.63	0.70
1990-94	0.90	1.15	1.00	0.57	-1.82
1995-99	2.28	1.52	1.23	0.45	-0.92
2000-04	1.56	0.84	0.53	0.45	-0.27
<i>of which:</i>					
2002	1.07	0.94	0.81	0.45	-1.13
2003	1.66	0.71	0.98	0.45	-0.49
<i>Proj.</i> 2004	2.37	0.75	0.98	0.45	0.18

Source: Staff estimates

#### D. Determinants of Year-on-Year TFP Growth during 1984–2004<sup>8</sup>

##### 10. Potential factors affecting the year-on-year TFP growth in Kenya during the past two decades include:<sup>9</sup>

- **Governance**—During the last two decades, Kenya has been plagued by pervasive problems of internal conflicts, constitutional crises, and corruption scandals. All of these are likely to have undermined the growth of TFP.<sup>10</sup>
- **Macroeconomic environment**—The positive link between a favorable macroeconomic policy environment and high economic growth is well documented in the growth literature.<sup>11</sup>

11. **Observations of Figure I.3 suggest that movements of TFP growth have been significantly correlated with governance and inflation.**<sup>12</sup> Specifically, TFP growth has been positively associated with good governance but negatively with inflation.<sup>13</sup> For example, TFP growth was largely negative in the early 1990s amidst immense political instability and high inflation.<sup>14</sup> On the other hand, the robust TFP growth in 1995 was associated with good governance and low inflation. In addition, following the election in late 2002 of President Kibaki who promised “zero tolerance” on corruption, TFP growth began to rise in 2003. Other macroeconomic variables, however, do not bear such obvious and striking relations with TFP growth during 1984–2004. (Figure I.4).<sup>15</sup>

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<sup>8</sup> The sample period was truncated in 1984 because some key variables, such as governance, were not available prior to 1984.

<sup>9</sup> While HIV/AIDS is a key factor affecting Kenya’s long-term growth performance, it is unlikely to affect the year-on-year movements of TFP growth.

<sup>10</sup> The positive link between TFP and sound institutions as well as good governance is well documented in the growth literature. See, for example, Bosworth and Collins (2003) and Rodrik, Subramanian, and Trebbi (2002).

<sup>11</sup> See, for example, Senhadji (2000).

<sup>12</sup> Governance is calculated as the average of three political risk indicators compiled by *The International Country Risk Guide* (ICRG): corruption, law and order, as well as internal conflict. The higher the index, the better the performance.

<sup>13</sup> While inflation is an important variable on its own, it can also be interpreted as a proxy of the overall soundness of macroeconomic policy stance, because hyperinflation, as occurred in the early 1990s, also tends to reflect a poor macroeconomic environment at large.

<sup>14</sup> The early 1990s was a period of deep political fissures. For example, in 1990, the foreign minister was murdered and riots broke out in the summer. Also, the 1992 elections ended up in great social turmoil.

<sup>15</sup> Given the small sample size, the result should not be interpreted as suggesting that other factors are not important to the TFP growth in Kenya. In fact, other factors may well be the dominant factors determining TFP growth during another sample period.

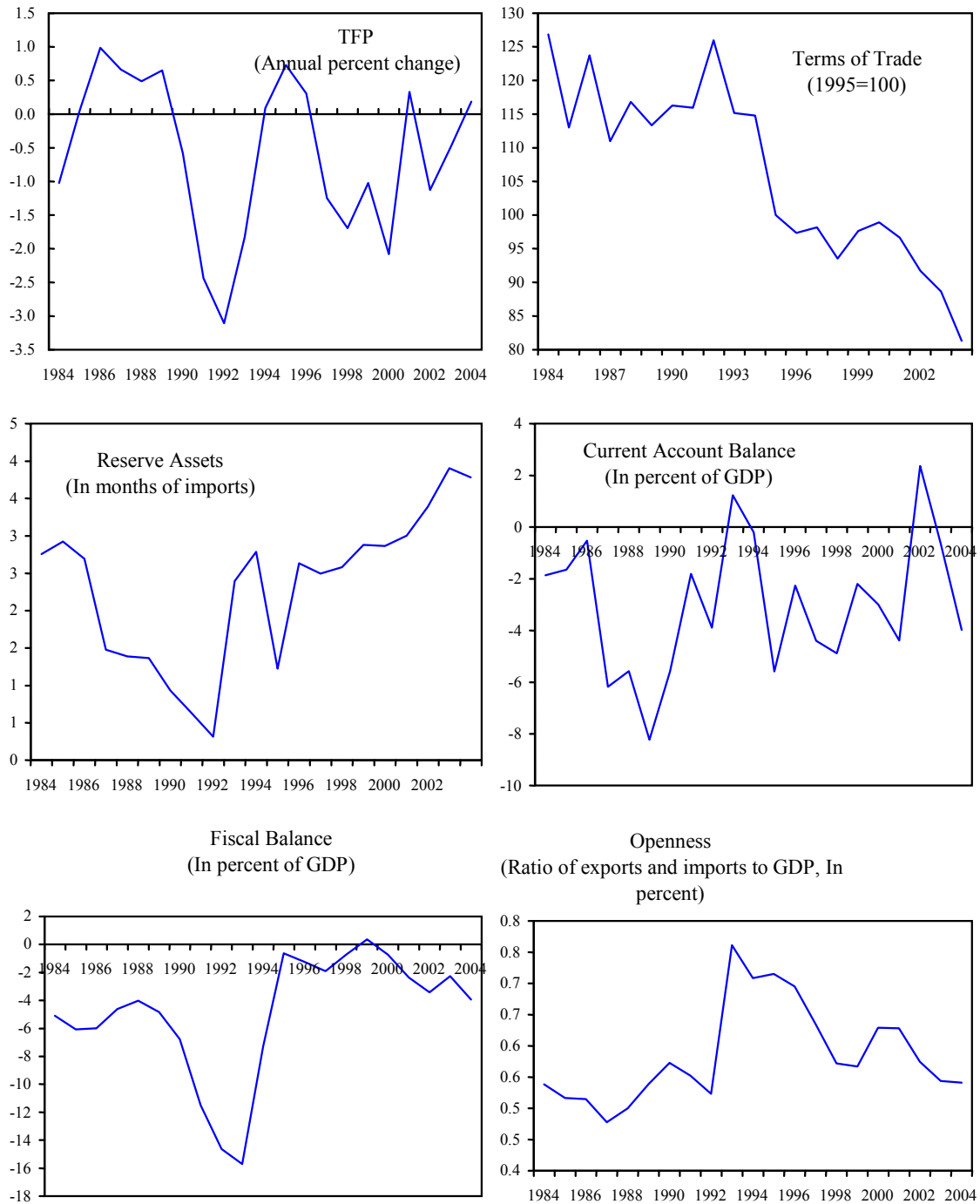


Figure I.3. Kenya: TFP, Governance, and Inflation, 1984-2004



Source: Staff estimates.

Figure I.4. Kenya: TFP Growth, and Macroeconomic Indicators, 1984-2004



Source: Staff estimates

12. **A simple econometric model supports the above observations on the relations between TFP and governance, as well as other macroeconomic variables.**<sup>16</sup> The model is estimated by ordinary least squares, using annual data for 1984–2004. A general-to-specific principle is utilized in the regression analysis: initially, a general model encompassing all variables that may potentially affect TFP—governance, inflation, openness to trade, fiscal indicators, as well as external indicators—was estimated. Thereafter, variables found to be statistically insignificant were eliminated sequentially.

13. **The regression results suggests that governance and inflation appear to have been significantly correlated with TFP (Table I.5) .**

Table I.5. Kenya: OLS Estimates of a Reduced-Form Regression, 1984-2004

TFP Growth Regression Explanatory Variables	<i>Constant</i>	<i>Governance</i>	<i>Inflation</i>
Coefficient Estimates	3.68	0.07	-0.06
Absolute t-statistics	(3.70)	(3.44)	(3.38)
Number of Observations:	21		
R <sup>2</sup> :	0.49		
Prob(F-Statistics)	0.00		

Source: IMF staff calculations.

Note: Sample period is 1984-2004. The dependent variable is the annual growth rate of TFP. The explanatory variables are *Governance and Inflation*. *Governance* is measured by the average of three indicators, consisting of corruption, law and order, and internal conflict, compiled by *The International Country Risk Guide*. *Inflation* is the 12-month percent change of the CPI. The figures in parentheses are absolute t-statistics, based on standard errors calculated using Newey-West heteroscedasticity and autocorrelation consistent covariances.

### E. Policy Implications

14. **The above results lend support to the government’s ongoing efforts to strengthen governance.** The governance agenda focuses on several reforms, including upgrading the public budget and financial management systems, strengthening the anti-corruption institutions, and improving the judicial framework. Moreover, the government’s ongoing efforts to reform the political system is integral to the overall governance agenda.

15. **Maintaining price stability should be the overriding objective of the monetary policy.** Considerable caution, therefore, needs to be exercised when using monetary policy for counter-cyclical purposes.

<sup>16</sup> Results should be interpreted with caution in light of the small sample size of the regression analysis. Also, owing to the small sample size, a simple ordinary least squares estimation was used here instead of a fuller VAR model typically used in studies on cross-country differences in TFP.