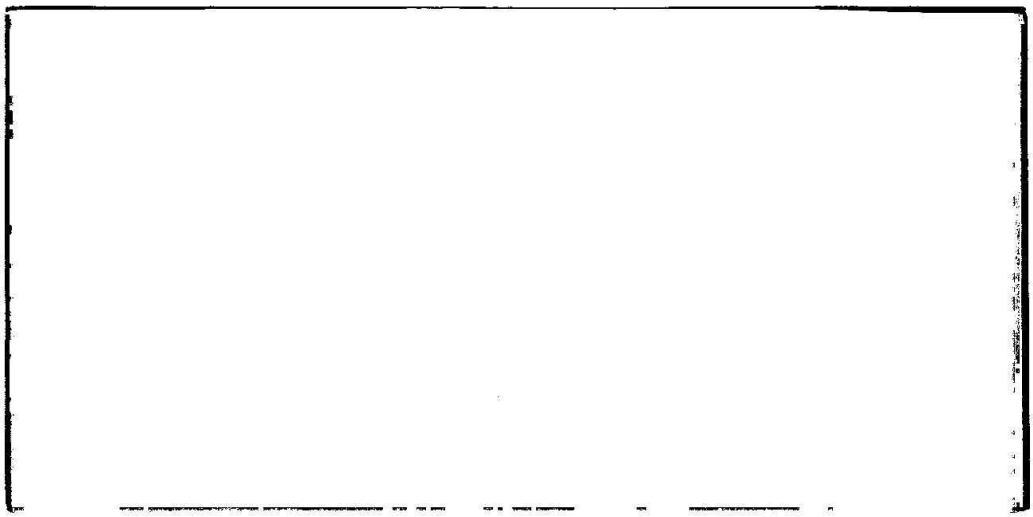
BOTSWANA INSTITUTE FOR DEVELOPMENT POLICY ANALYSIS

WORKING PAPER

The Long Term Impact of Structural Economic Change on Government Spending

By Keith Jefferis

BIDPA Working Paper No. 20
July 1999



Abstract

Botswana's current economic objectives centre on diversification away from its historical dependence on diamonds and government. Such diversification will change the structure of the economy, and has important implications for the ability of government to raise revenue through taxation and therefore for its ability to finance its expenditure. This paper explores the likely impact of diversification on government's revenue raising ability and hence on the magnitude of its overall role in the economy. It uses projections over a 20 year period to simulate possible scenarios for taxation and the size of government. The key point is that any diversification will cause government revenues to fall, in relative terms. The diamond sector is extremely profitable, and those profits are taxed at a very high rate; as the economy diversifies, other sectors will emerge that will be less profitable and less highly taxed. The projections in this paper show that under a variety of different assumptions about sectoral growth rates, and taxation and spending, government will have to significantly reduce its role in the economy. Such a change will have major implications for choices to be made about the allocation of public expenditure.

Keywords

Diversification
Public Finance
Taxation
Public Expenditure
Botswana

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The Long Term Impact of Structural Economic Change on Government Spending

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THE LONG TERM IMPACT OF STRUCTURAL ECONOMIC CHANGE ON GOVERNMENT SPENDING

INTRODUCTION

Botswana's current economic objectives centre on diversification away from its historical dependence on diamonds and government. The primary aim is to ensure economic growth into the future as mineral sector growth slows down. The growth of incomes would address problems of unemployment and poverty through employment creation. Beyond these objectives, diversification will change the structure of the economy and therefore the nature of economic activity. It also has important implications for the ability of government to raise revenue through taxation and therefore for its ability to finance its expenditure.

This brief paper explores the likely impact of diversification on government's revenue raising ability and hence on the magnitude of its overall role in the economy. It uses projections over a 20 year period to simulate possible scenarios for taxation and the size of government. The key point is that any diversification will cause government revenues to fall, in relative terms. The diamond sector is extremely profitable, and those profits are taxed at a very high rate; as the economy diversifies, other sectors will emerge that will be less profitable and less highly taxed. The projections in this paper show that under a variety of different assumptions about sectoral growth rates, and taxation and spending, government will have to significantly reduce its role in the economy. The base case scenario indicates that revenues will drop from around 40% of GDP at present to 30% over a 20 year period. Such a change will have major implications for choices to be made about the allocation of public expenditure.

DIVERSIFICATION AND SECTORAL GROWTH RATES

As is well known, Botswana's mining sector has grown rapidly over the past 25 years, and has driven growth in the wider economy. Mineral revenues, primarily derived from diamonds, have provided the major share of government revenues, and these have been used to finance investment in physical and human capital, as well as the general expansion of government itself. Therefore, the development model that has served Botswana in the past has primarily involved the channelling of mineral revenues through government and into a range of public and private sector activities within Botswana. Government revenues and spending have grown extremely fast, and a substantial proportion of private sector activity - especially in sectors such as construction - has been heavily dependent upon public expenditure.

However it has long been recognised that this mineral-led growth cannot continue indefinitely, and that much slower growth rates are likely in the future - if indeed there is any growth at all in the minerals sector once the current expansion of the Orapa diamond mine is completed. The objective of diversification therefore requires the generation of new "engines of growth" in the economy. Given the small size of Botswana's domestic economy it is

recognised that such diversification will have to be export-led. Thus a central role will have to be played by producers of exportable (tradeable) goods and services, primarily manufactured goods and tradeable services such as tourism. The success of this strategy is dependent upon the ability of firms in Botswana to penetrate export markets both regionally and internationally; for export growth to be capable of leading the economy requires Botswana firms to be efficient and internationally competitive, and also for present and potential export markets themselves to be growing.

Diversification therefore involves increasing the share of non-mining private sector activities in the economy, and consequently a reduction in the share of mining and government in economy. This process should take place as the growth rates of manufacturing and other exporting sectors come to exceed the growth rates of minerals and government; it does not of course require that the mineral sector declines in size in absolute terms, only relative to other sectors.

Botswana's present economic structure is that mining accounts for approximately 35% of GDP, government for 15%, and the non-mining private sector for about 50%. If diversification is successful, the non-mining private sector will grow to account for more than its current one half share.

The reason that this is important for the present study - besides its implications for the structure of economic activity, employment and exports - is that the mining sector (or at least the diamond mining component of the sector) is exceptionally profitable by normal economic standards. Because of this, and the nature of the agreements negotiated between the government and De Beers, the revenues raised by the government from mining, through taxes, royalties and dividends, account for a very high proportion of the mineral sector's output. (value added). Over the past decade, mineral revenues have accounted for around 50% of total government revenues, much higher than its share of GDP. As diversification takes place and the share of mining in the economy falls, mineral revenues will account for a smaller proportion of total government revenues.

The activities that will grow to replace diamonds as diversification takes place are likely to earn more "normal" rates of profit[1]. This is mainly because of the control exerted over the marketing of rough diamonds internationally by a dominant firm - De Beers - whose monopolistic practices work to Botswana's benefit, as a producer. By contrast, most other activities are far more competitive both domestically and internationally. Profits account for a lower proportion of value added in these sectors, and furthermore the tax rate applied to profits in general is much lower than that applied to mining profits[2]. As a

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1 "Normal" in the economic sense, where profits include the cost of capital but no monopoly or "excess profit" element.

2 In addition, it may well be necessary to offer tax concessions (lower tax rates or tax holidays) to attract new inward investment.

result, government's capacity to raise revenue from these sectors is much lower than its capacity to raise revenues from diamond mining. Even if the non-mining sector partially replaces mining in the economy, government's capacity to raise revenue will fall relative to the size of the economy - in other words government revenues as a share of GDP will decline.

PROJECTIONS

In this section detailed projections are presented of sectoral growth, output, and taxation over a 20 year period. The base year is 1997/98 (the most recent year for which national accounts data are available), supplemented by information about government revenue and spending in 1998/99 and 1999/2000 from the 1999 Financial Statements and Tables, published by MFDP at the time of the 1999 Budget Speech.

The base year calculations are actually derived from averages over a five year period from 1993/94 to 1997/98 (in order to minimise the impact of year to year fluctuations). Table 1 below shows these 5 year averages for sectoral shares of GDP, tax revenues as a percentage of sectoral GDP, and sectoral contributions to total tax revenue. (The full data for individual years used to derive these averages is shown in Table A1 in the appendix).

Table 1: Summary of Sectoral GDP and Tax Revenues, 1993/94 to 1997/98

	share of GDP	*tax revenue as % of sectoral GDP*	*% of total tax revenue*
Mining	35.5%	57.3%	49.6%
Private sector	49.5%	28.0%	33.5%
Government	14.9%	n/a	16.9%
Total	100.0%	41.3%	100.0%

As the table above shows, the effective tax rate on the mineral sector (57.3% of value added) is approximately twice that on the non-mineral private sector (28%). Because of this, minerals contribute approximately 50% of total revenues, compared to 33% for the non-mining private sector - an almost exact reversal of their contributions to GDP.

The table shows that at present the government generates some revenue itself, and is not entirely dependent upon the rest of the economy for income. This represents revenue from the Bank of Botswana, derived from earnings on the government's assets at the Bank, which are in turn the result of accumulated budget surpluses over the past 16 years.

Using these five-year averages as base data, we can make projections of the revenues derived from the mining and non-mining private sectors over a 20 year period. These projections obviously depend upon the economic growth rates of each sector, which can only be "guesstimates". Therefore, we have

presented results for a variety of scenarios with different sectoral growth rates. However, not only do the results depend upon the growth rates of the mining and non-mining private sectors, they also depend upon the growth rate of government. Ultimately, the growth of government is dependent upon its ability to raise revenues from the rest of the economy (notwithstanding its present ability to generate some revenues itself); if it tries to grow at a faster rate, its existing savings will eventually run down and it will accumulate debt.

Future growth rates are highly uncertain. We therefore use a "base case" derived from NDP 8 and other information available at present, before examining the sensitivity of the outcomes of the base case to differing assumptions. The base case assumptions are as follows:

Minerals: an increase in output of 15% in 1999/2000, resulting from the Orapa 2000 expansion (which will double Orapa output in terms of carats). Thereafter, the minerals sector does not grow at all.

Non-mining private sector: output increases at 6% a year.

Tax rates: effective tax rates remain unchanged at the 1993-1998 averages given above. This means that tax revenues generated by each sector grow at the same rate as output. No allowance is made for lower effective tax rates on minerals due to the imposition of sales quotas that reduce sales below output, and which would therefore reduce the effective mineral sector tax rate (nor of any subsequent sale of stockpiled diamonds, which would raise the effective tax rate. Furthermore no account is taken of the likely declining profitability of diamond mining, as mining costs rise, which would also imply a declining mineral tax rate. Nor is any account taken of any possible further lowering of non-mineral tax rates.

Government: revenues raised directly from the Bank of Botswana are calculated at 5% of the value of government deposits (this is the assumed long term real rate of return on the reserves). Government spending grows at 3% in 1999/2000 (as per 1999 budget figures), and thereafter at 2% a year (approximately constant in real per capita terms).

Other: all calculations are in real terms.

Base Case Scenario Results (Scenario 1)

The base case scenario results are summarised in Table 2 below (and shown in full in Appendix Table A2). This shows that government spending will fall from the current 42% of GDP to 32% of GDP after 20 years. However, because government spending grows relatively slowly (2% a year), the situation is sustainable. After initially running a budget deficit, the government eventually returns to a budget surplus in year 16 (2013). All budget deficits can be financed from the reserves. The reserves fall from current levels, but are not depleted; hence earnings from the reserves continue to provide a significant proportion of overall tax revenues.

The reason that this scenario is sustainable is that government spending grows at a lower rate than the overall economy, and remains within the constraints of the lower growth rate of revenues imposed by the structural economic shift.

Scenario 2: Higher growth of government spending

The above scenario shows one way that a sustainable government budget position can be achieved even with declining (in relative terms) mineral revenues (although of course it would require some hard decisions to be made about spending priorities, given the fall in government spending in relation to GDP, and does not allow any real increase, on a per capita basis, in government spending). However, the fragility of this sustainable position is shown by scenario 2, which is the same as the base case scenario except that government spending grows at 3% a year from 1999 onwards, rather than 2%. This apparently small change completely transforms the budget position. The budget deficit grows to over 6% of GDP, and the reserves are depleted by year 16 (2016) (see table 2 above and appendix table A3). In order to finance the deficit, government must borrow, and hence the revenues that it generates itself become negative as it has to pay interest on its debt. In the long term, government revenue (net of interest payments) is lower, at 28% of GDP, than in the base case scenario.

Scenarios 3 and 4: Slower economic growth

The above two scenarios both assume a relatively high rate of growth for the non-mining private sector. However, this is by no means assured; given that this will have to be mainly driven by exports (as two of the previous drivers of the private sector - mining and government - will no longer be growing fast), much depends on the growth of regional and international markets. With the current economic stagnation in South Africa (the main market for Botswana's manufactured exports) and the southern African region more generally, this may be optimistic. Botswana has managed to increase its exports to South Africa in recent years, despite the very slow growth of the South African economy, by increasing its market share; this has been possible because Botswana's economy is so small relative to that of South Africa, but export growth based on increasing market share cannot be assumed to be possible indefinitely. Scenario 3 assumes that the private sector grows at 6% in 1998, 4% in 1999, and 3% a year thereafter (see table 2 and appendix table A4). Government spending grows, as in the base case scenario, at 2% a year from 1999 onwards.

This scenario gives an outcome that is even worse than scenario 2. With the slow growth of the private sector, and hence in total tax revenues, a government growth rate of 2% becomes unsustainable. Government savings are depleted by year 15 (2012), and the government budget deficit reaches 12% of GDP by year 20 (2017). Government revenue (net of interest) declines to 29% of GDP.

In order for the government budget to become sustainable with slower private sector growth, the growth rate of public spending must be cut from 2% to 1% a

year (Scenario 4, see tables 2 and A5). Although the government does exhaust its reserves, the deficit is contained at a manageable level.

Scenario 5: Higher mineral growth

The assumption of no mineral growth after the Orapa expansion may be considered to be unduly restrictive. Even though no major new mineral discoveries have been announced in recent years, there is extensive exploration and prospecting, which might well lead to further exploitable mineral deposits in due course. Scenario 5 (tables 2 and A6) therefore includes modest mineral growth, at 4% a year, from 2000-2017. While this permits a somewhat higher rate of government spending growth, it does not remove the need for a major reduction in the share of GDP accounted for by government spending. A 5% growth rate of government spending still leads to an unsustainable budget deficit, and revenue falls to 31% of GDP. Even this may be optimistic, as it is unlikely that the present mineral tax rate (which mainly derives from diamonds) can be applied to other mineral activities. But even if there is modest mineral growth, it does not change the basic conclusions.

Chart 1 shows the different paths of budget deficit projections under the five scenarios. This shows that the sustainable scenarios are 1 and 4; the others involve budget deficits that are too high, or unstable, or both.

Implications

The above analysis has a number of implications for public finance policy. First, government spending will have to increase at much slower rates than in the past. Over the last 15 years, real spending has increased at an average annual rate of nearly 10%. This kind of growth rate is obviously unsustainable into the future. Second, whether or not the government budget is sustainable is highly sensitive to relatively small changes in the growth rate of government spending - what appears to be a small difference in spending growth rates can lead, when compounded over a long period of time, to very different outcomes.

However, a sustainable level of government spending in relation to GDP is not necessarily unachievable. Although the proportion of GDP accounted for by government spending is at present relatively high (over 40%), it has been much lower in the recent past: in 1994/95, for instance, the ratio was only 34%, and this had been reduced from 43% in 1991/92. However, what is needed though is a change in the underlying trend of government spending; over the past 15 years the trend has been for government spending to increase as a percentage of GDP (see chart 2). From now on, it is clear that the long term trend will have to be downwards. In considering whether this can be achieved, it is important to recall that the almost total colonial neglect of Botswana required a prolonged period of high government spending to catch up, but that this catch up period is now over. Second, a period of more than 30 years of high rates of increase of government spending, with no financial constraint, must mean that there is considerable scope for increasing efficiency - increasing the real output of government services without increasing their cost - through initiatives such as privatisation and reform of government departments and ministries.

Finally, the need to reduce government spending in relative terms will give rise to the need for some hard decisions over the allocation of spending. In the future there will be a need for increases in health spending (due to AIDS), welfare spending (AIDS orphans etc.), and education (to address skills shortages). Other areas of spending will need to be cut if these increases are to be financed.

Table A1: Source Data

1A. Sectoral GDP (current prices)

Pm	1993/94	1994/95	1995/96	1996/97	1997/98
Mining	3922	4075	4846	6469	7682
Private	5344	6297	7239	8543	9777
Govt.	1707	1880	2117	2490	2970
Total	10972	12252	14202	17503	20428

Source: MFDP Annual Economic Report, 1999

1B. Shares of GDP

%	1993/94	1994/95	1995/96	1996/97	1997/98	**Average**
Mining	35.7%	33.3%	34.1%	37.0%	37.6%	**35.5%**
Private	48.7%	51.4%	51.0%	48.8%	47.9%	**49.5%**
Government	15.6%	15.3%	14.9%	14.2%	14.5%	**14.9%**

Source: MFDP Annual Economic Report, 1999

1C. Tax Revenues

Pm	1993/94	1994/95	1995/96	1996/97	1997/98
Mineral	2279	2349	2591	3640	4681
Private	1974	1672	1822	2054	2653
BOB profits	1107	451	1051	1700	947
Total	5359	4473	5464	7395	8281

Source: MFDP Financial Statements and Tables, 1999

1D. Tax Revenues

as % of sector GDP	1993/94	1994/95	1995/96	1996/97	1997/98	**Average**
Mineral	58%	58%	53%	56%	61%	**57.3%**
Private	37%	27%	25%	24%	27%	**28.0%**
Govt.	65%	24%	50%	68%	32%	**n/a**
Total	49%	37%	38%	42%	41%	**41.3%**

Source: calculations based on MFDP Financial Statements and Tables, 1999

1E. Tax Revenues

% of total revenues	1993/94	1994/95	1995/96	1996/97	1997/98	**Average**
Mineral	43%	53%	47%	49%	57%	**49.6%**
Private	37%	37%	33%	28%	32%	**33.5%**
Govt.	21%	10%	19%	23%	11%	**16.9%**
Total	100%	100%	100%	100%	100%	**100.0%**

Source: calculations based on MFDP Financial Statements and Tables, 1999

Table 2: Results Summary

Scenario 1: Base Case

Growth rates

	1998	1999 2000-2017
Mineral	0%	15% 0%
Private	6%	6% 6%
Govt.	3%	2% 2%

Outcomes, 2017

	Share of GDP	Taxes	Taxes % GDP
Mineral	19%	35%	11%
Private	69%	61%	19%
Govt.	12%	4%	1%
Total	100%	100%	32%

Government Budget	
Revenues	14423
Spending	13534
Surplus/(deficit)	890
% GDP	2.0%
Assets @ BOB	11836

Scenario 2: High Government Growth

Growth rates

	1998	1999 2000-2017
Mineral	0%	15% 0%
Private	6%	6% 6%
Govt.	3%	3% 3%

Outcomes, 2017

	Share of GDP	Taxes	Taxes % GDP
Mineral	19%	38%	11%
Private	67%	66%	19%
Govt.	14%	-5%	-1%
Total	100%	100%	28%

Government Budget	
Revenues	13193
Spending	16132
Surplus/(deficit)	-2939
% GDP	-6.3%
Assets @ BOB	-12771

Scenario 3: Slow Private Sector Growth

Growth rates

	1998	1999 2000-2017
Mineral	0%	15% 0%
Private	6%	4% 3%
Govt.	3%	2% 2%

Outcomes, 2017

	Share of GDP	Taxes	Taxes % GDP
Mineral	27%	54%	16%
Private	56%	55%	16%
Govt.	16%	-9%	-3%
Total	100%	100%	29%

Government Budget	
Revenues	9364
Spending	13402
Surplus/(deficit)	-4038
% GDP	-12.4%
Assets @ BOB	-16587

Scenario 4: Slow Private Sector and Government Growth

Growth rates

	1998	1999 2000-2017
Mineral	0%	15% 0%
Private	6%	4% 3%
Govt.	3%	2% 1%

Outcomes, 2017

	Share of GDP	Taxes	Taxes % GDP
Mineral	28%	48%	16%
Private	58%	49%	16%
Govt.	14%	3%	1%
Total	100%	100%	33%

Government Budget	
Revenues	10467
Spending	11224
Surplus/(deficit)	-757
% GDP	-2.4%
Assets @ BOB	5471

Scenario 5: More rapid mineral growth

Growth rates

	1998	1999 2000-2017
Mineral	0%	15% 0%
Private	6%	4% 3%
Govt.	3%	2% 1%

Outcomes, 2017

	Share of GDP	Taxes	Taxes % GDP
Mineral	31%	57%	18%
Private	54%	49%	15%
Govt.	16%	-5%	-2%
Total	100%	100%	31%

Government Budget	
Revenues	18037
Spending	22804
Surplus/(deficit)	-4767
% GDP	-8.2%
Assets @ BOB	-19723

Table A2
Scenario 1: Base Case

Projected Real Growth Rates

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(a)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Mineral	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Govt.	10.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total	6.3%	8.7%	3.1%	3.2%	3.3%	3.3%	3.4%	3.5%	3.6%	3.6%	3.7%	3.8%	3.8%	3.9%	4.0%	4.0%	4.1%	4.2%	4.2%	4.3%

GDP	*(b)*																			
Mining	7682	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835
Private	10363	10985	11644	12343	13083	13868	14700	15582	16517	17508	18559	19672	20853	22104	23430	24836	26326	27906	29580	31355
Govt.	3680	3790	3866	3943	4022	4103	4185	4268	4354	4441	4530	4620	4713	4807	4903	5001	5101	5203	5307	5413
Total	21725	23610	24345	25121	25940	26806	27720	28685	29706	30784	31923	33127	34400	35745	37168	38672	40262	41943	43722	45603

Tax revenues, Pm	*(b)*																			
Mining	4401	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061
Private	2899	3073	3257	3452	3659	3879	4112	4358	4620	4897	5191	5503	5833	6183	6554	6947	7364	7805	8274	8770
Govt.	900	850	825	799	772	744	715	687	658	631	605	582	562	546	534	529	530	540	560	592
Total	8200	8984	9143	9313	9493	9684	9888	10106	10340	10589	10858	11146	11456	11789	12149	12537	12955	13407	13895	14423

Tax revenues, as % of GDP																				
Mining	20.3%	21.4%	20.8%	20.1%	19.5%	18.9%	18.3%	17.6%	17.0%	16.4%	15.9%	15.3%	14.7%	14.2%	13.6%	13.1%	12.6%	12.1%	11.6%	11.1%
Private	13.3%	13.0%	13.4%	13.7%	14.1%	14.5%	14.8%	15.2%	15.6%	15.9%	16.3%	16.6%	17.0%	17.3%	17.6%	18.0%	18.3%	18.6%	18.9%	19.2%
Govt.	4.1%	3.6%	3.4%	3.2%	3.0%	2.8%	2.6%	2.4%	2.2%	2.1%	1.9%	1.8%	1.6%	1.5%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%
Total	37.7%	38.1%	37.6%	37.1%	36.6%	36.1%	35.7%	35.2%	34.8%	34.4%	34.0%	33.6%	33.3%	33.0%	32.7%	32.4%	32.2%	32.0%	31.8%	31.6%

Government	*(b)*																			
Assets at BOB	18000	17000	16508	15986	15441	14878	14305	13731	13167	12622	12109	11642	11237	10911	10683	10574	10608	10810	11209	11836
Rate of return	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Earnings	900	850	825	799	772	744	715	687	658	631	605	582	562	546	534	529	530	540	560	592
Spending	9200	9476	9665	9858	10056	10257	10462	10671	10885	11102	11324	11551	11782	12017	12258	12503	12753	13008	13268	13534
% GDP	42%	40%	40%	39%	39%	38%	38%	37%	37%	36%	35%	35%	34%	34%	33%	32%	32%	31%	30%	30%
Surp/(def)	-1000	-492	-522	-546	-563	-573	-574	-565	-545	-513	-467	-405	-326	-228	-109	34	202	399	627	890
% GDP	-5%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-1%	-1%	-1%	-1%	0%	0%	1%	1%	1%	2%

Notes: *(a) 1998 refers to 1998/99 financial year (April-March) and statistical year (July-June)*

Table A3
Scenario 2: High Government Growth

Projected Real Growth Rates

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(a)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Mineral	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Govt.	10.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Total	6.3%	8.7%	3.3%	3.3%	3.4%	3.5%	3.6%	3.6%	3.7%	3.8%	3.8%	3.9%	4.0%	4.0%	4.1%	4.2%	4.2%	4.3%	4.3%	4.4%
GDP (1997/98 prices)	*(b)*																			
Mining	7682	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835
Private	10363	10985	11644	12343	13083	13868	14700	15582	16517	17508	18559	19672	20853	22104	23430	24836	26326	27906	29580	31355
Govt.	3680	3790	3904	4021	4142	4266	4394	4526	4662	4801	4945	5094	5247	5404	5566	5733	5905	6082	6265	6453
Total	21725	23610	24383	25198	26060	26969	27929	28943	30013	31144	32339	33601	34934	36342	37831	39404	41066	42823	44679	46642
Tax revenues, Pm	*(b)*																			
Mining	4401	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061
Private	2899	3073	3257	3452	3659	3879	4112	4358	4620	4897	5191	5503	5833	6183	6554	6947	7364	7805	8274	8770
Govt.	900	850	825	795	757	714	663	606	541	469	391	305	211	111	3	-112	-234	-362	-497	-639
Total	8200	8984	9143	9308	9478	9654	9836	10025	10222	10428	10643	10868	11105	11355	11618	11896	12191	12504	12838	13193
Tax revenues, as % of GDP																				
Mining	20.3%	21.4%	20.8%	20.1%	19.4%	18.8%	18.1%	17.5%	16.9%	16.3%	15.7%	15.1%	14.5%	13.9%	13.4%	12.8%	12.3%	11.8%	11.3%	10.9%
Private	13.3%	13.0%	13.4%	13.7%	14.0%	14.4%	14.7%	15.1%	15.4%	15.7%	16.1%	16.4%	16.7%	17.0%	17.3%	17.6%	17.9%	18.2%	18.5%	18.8%
Govt.	4.1%	3.6%	3.4%	3.2%	2.9%	2.6%	2.4%	2.1%	1.8%	1.5%	1.2%	0.9%	0.6%	0.3%	0.0%	-0.3%	-0.6%	-0.8%	-1.1%	-1.4%
Total	37.7%	38.1%	37.5%	36.9%	36.4%	35.8%	35.2%	34.6%	34.1%	33.5%	32.9%	32.3%	31.8%	31.2%	30.7%	30.2%	29.7%	29.2%	28.7%	28.3%
Government	*(b)*																			
Assets at BOB	18000	17000	16508	15892	15147	14271	13260	12111	10821	9390	7814	6093	4227	2216	61	-2237	-4674	-7245	-9947	-12771
Rate of return	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Earnings	900	850	825	795	757	714	663	606	541	469	391	305	211	111	3	-112	-234	-362	-497	-639
Spending	9200	9476	9760	10053	10354	10665	10985	11314	11654	12003	12364	12734	13117	13510	13915	14333	14763	15206	15662	16132
% GDP	42%	40%	40%	40%	40%	40%	39%	39%	39%	39%	38%	38%	38%	37%	37%	36%	36%	36%	35%	35%
Surp/(def)	-1000	-492	-616	-745	-876	-1011	-1149	-1289	-1432	-1576	-1721	-1866	-2011	-2155	-2298	-2437	-2572	-2701	-2824	-2939
% GDP	-4.6%	-2.1%	-2.5%	-3.0%	-3.4%	-3.7%	-4.1%	-4.5%	-4.8%	-5.1%	-5.3%	-5.6%	-5.8%	-5.9%	-6.1%	-6.2%	-6.3%	-6.3%	-6.3%	-6.3%

Notes: *(a) 1998 refers to 1998/99 financial year (April-March) and statistical year (July-June)*

Table A4
Scenario 3: Slow Private Sector Growth

Projected Real Growth Rates

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(a)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Mineral	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private	6.0%	4.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Govt.	10.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total	6.3%	7.6%	1.7%	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%
GDP (1997/98 prices)	*(b)*																			
Mining	7682	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835
Private	10363	10778	11101	11434	11777	12130	12494	12869	13255	13653	14062	14484	14919	15366	15827	16302	16791	17295	17814	18348
Govt.	3680	3753	3829	3905	3983	4063	4144	4227	4312	4398	4486	4575	4667	4760	4856	4953	5052	5153	5256	5361
Total	21725	23366	23764	24174	24595	25028	25473	25931	26401	26885	27383	27894	28420	28961	29517	30089	30678	31282	31904	32544
Tax revenues, Pm	*(b)*																			
Mining	4401	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061
Private	2899	3015	3105	3198	3294	3393	3495	3600	3708	3819	3933	4051	4173	4298	4427	4560	4697	4838	4983	5132
Govt.	900	850	827	798	763	721	672	615	551	478	396	305	204	92	-30	-164	-311	-470	-642	-829
Total	8200	8926	8993	9058	9118	9175	9228	9276	9319	9358	9390	9417	9438	9451	9458	9457	9447	9429	9401	9364
Tax revenues, as % of GDP																				
Mining	20.3%	21.7%	21.3%	20.9%	20.6%	20.2%	19.9%	19.5%	19.2%	18.8%	18.5%	18.1%	17.8%	17.5%	17.1%	16.8%	16.5%	16.2%	15.9%	15.6%
Private	13.3%	12.9%	13.1%	13.2%	13.4%	13.6%	13.7%	13.9%	14.0%	14.2%	14.4%	14.5%	14.7%	14.8%	15.0%	15.2%	15.3%	15.5%	15.6%	15.8%
Govt.	4.1%	3.6%	3.5%	3.3%	3.1%	2.9%	2.6%	2.4%	2.1%	1.8%	1.4%	1.1%	0.7%	0.3%	-0.1%	-0.5%	-1.0%	-1.5%	-2.0%	-2.5%
Total	37.7%	38.2%	37.8%	37.5%	37.1%	36.7%	36.2%	35.8%	35.3%	34.8%	34.3%	33.8%	33.2%	32.6%	32.0%	31.4%	30.8%	30.1%	29.5%	28.8%
Government	*(b)*																			
Assets at BOB	18000	17000	16542	15964	15259	14419	13437	12304	11013	9553	7917	6093	4071	1841	-608	-3289	-6214	-9396	-12849	-16587
Rate of return	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Earnings	900	850	827	798	763	721	672	615	551	478	396	305	204	92	-30	-164	-311	-470	-642	-829
Spending	9200	9384	9571	9763	9958	10157	10360	10568	10779	10994	11214	11439	11667	11901	12139	12382	12629	12882	13139	13402
% GDP	42%	40%	40%	40%	40%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
Surp/(def)	-1000	-458	-578	-705	-840	-982	-1133	-1292	-1459	-1637	-1824	-2021	-2230	-2449	-2681	-2925	-3182	-3453	-3738	-4038
% GDP	-4.6%	-2.0%	-2.4%	-2.9%	-3.4%	-3.9%	-4.4%	-5.0%	-5.5%	-6.1%	-6.7%	-7.2%	-7.8%	-8.5%	-9.1%	-9.7%	-10.4%	-11.0%	-11.7%	-12.4%

Notes: *(a) 1998 refers to 1998/99 financial year (April-March) and statistical year (July-June)*

Table A5
Scenario 4: Slow Private Sector and Government Growth

Projected Real Growth Rates

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(a)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Mineral	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private	6.0%	4.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Govt.	10.0%	2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Total	6.3%	7.6%	1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.9%
GDP (1997/98 prices)	*(b)*																			
Mining	7682	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835	8835
Private	10363	10778	11101	11434	11777	12130	12494	12869	13255	13653	14062	14484	14919	15366	15827	16302	16791	17295	17814	18348
Govt.	3680	3753	3791	3829	3867	3906	3945	3984	4024	4064	4105	4146	4188	4229	4272	4315	4358	4401	4445	4490
Total	21725	23366	23727	24098	24479	24871	25274	25688	26114	26552	27002	27465	27941	28430	28934	29451	29984	30531	31094	31673
Tax revenues, Pm	*(b)*																			
Mining	4401	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061	5061
Private	2899	3015	3105	3198	3294	3393	3495	3600	3708	3819	3933	4051	4173	4298	4427	4560	4697	4838	4983	5132
Govt.	900	850	827	803	777	751	723	693	663	632	599	566	531	496	460	424	387	349	311	274
Total	8200	8926	8993	9062	9133	9205	9279	9354	9432	9512	9594	9678	9765	9855	9949	10045	10144	10248	10355	10467
Tax revenues, as % of GDP																				
Mining	20.3%	21.7%	21.3%	21.0%	20.7%	20.3%	20.0%	19.7%	19.4%	19.1%	18.7%	18.4%	18.1%	17.8%	17.5%	17.2%	16.9%	16.6%	16.3%	16.0%
Private	13.3%	12.9%	13.1%	13.3%	13.5%	13.6%	13.8%	14.0%	14.2%	14.4%	14.6%	14.8%	14.9%	15.1%	15.3%	15.5%	15.7%	15.8%	16.0%	16.2%
Govt.	4.1%	3.6%	3.5%	3.3%	3.2%	3.0%	2.9%	2.7%	2.5%	2.4%	2.2%	2.1%	1.9%	1.7%	1.6%	1.4%	1.3%	1.1%	1.0%	0.9%
Total	37.7%	38.2%	37.9%	37.6%	37.3%	37.0%	36.7%	36.4%	36.1%	35.8%	35.5%	35.2%	35.0%	34.7%	34.4%	34.1%	33.8%	33.6%	33.3%	33.0%
Government	*(b)*																			
Assets at BOB	18000	17000	16542	16058	15548	15013	14453	13869	13262	12633	11984	11315	10628	9924	9206	8475	7733	6984	6229	5471
Rate of return	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Earnings	900	850	827	803	777	751	723	693	663	632	599	566	531	496	460	424	387	349	311	274
Spending	9200	9384	9477	9572	9668	9765	9862	9961	10061	10161	10263	10365	10469	10574	10679	10786	10894	11003	11113	11224
% GDP	42%	40%	40%	40%	39%	39%	39%	39%	39%	38%	38%	38%	37%	37%	37%	37%	36%	36%	36%	35%
Surp/(def)	-1000	-458	-484	-510	-535	-560	-584	-607	-629	-650	-669	-687	-704	-718	-731	-742	-750	-755	-758	-757
% GDP	-4.6%	-2.0%	-2.0%	-2.1%	-2.2%	-2.3%	-2.3%	-2.4%	-2.4%	-2.4%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.4%	-2.4%

Notes: *(a) 1998 refers to 1998/99 financial year (April-March) and statistical year (July-June)*

Table A6
Scenario 5: More rapid mineral growth

Projected Real Growth Rates

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(a)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Mineral	0.0%	15.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Private	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Govt.	10.0%	3.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total	6.3%	8.7%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
GDP (1997/98 prices)	*(b)*																			
Mining	7682	8835	9188	9555	9938	10335	10749	11178	11626	12091	12574	13077	13600	14144	14710	15299	15910	16547	17209	17897
Private	10363	10985	11644	12343	13083	13868	14700	15582	16517	17508	18559	19672	20853	22104	23430	24836	26326	27906	29580	31355
Govt.	3680	3790	3980	4179	4388	4607	4837	5079	5333	5600	5880	6174	6483	6807	7147	7504	7880	8274	8687	9122
Total	21725	23610	24812	26077	27409	28811	30286	31840	33476	35199	37013	38924	40936	43055	45287	47639	50116	52726	55476	58374
Tax revenues, Pm	*(b)*																			
Mining	4401	5061	5264	5474	5693	5921	6158	6404	6660	6927	7204	7492	7791	8103	8427	8764	9115	9479	9859	10253
Private	2899	3073	3257	3452	3659	3879	4112	4358	4620	4897	5191	5503	5833	6183	6554	6947	7364	7805	8274	8770
Govt.	900	850	825	795	759	716	666	608	542	466	381	284	177	56	-77	-226	-389	-570	-768	-986
Total	8200	8984	9346	9722	10112	10516	10935	11371	11822	12290	12775	13279	13801	14342	14903	15485	16089	16715	17364	18037
Tax revenues, as % of GDP																				
Mining	20.3%	21.4%	21.2%	21.0%	20.8%	20.6%	20.3%	20.1%	19.9%	19.7%	19.5%	19.2%	19.0%	18.8%	18.6%	18.4%	18.2%	18.0%	17.8%	17.6%
Private	13.3%	13.0%	13.1%	13.2%	13.4%	13.5%	13.6%	13.7%	13.8%	13.9%	14.0%	14.1%	14.2%	14.4%	14.5%	14.6%	14.7%	14.8%	14.9%	15.0%
Govt.	4.1%	3.6%	3.3%	3.0%	2.8%	2.5%	2.2%	1.9%	1.6%	1.3%	1.0%	0.7%	0.4%	0.1%	-0.2%	-0.5%	-0.8%	-1.1%	-1.4%	-1.7%
Total	37.7%	38.1%	37.7%	37.3%	36.9%	36.5%	36.1%	35.7%	35.3%	34.9%	34.5%	34.1%	33.7%	33.3%	32.9%	32.5%	32.1%	31.7%	31.3%	30.9%
Government	*(b)*																			
Assets at BOB	18000	17000	16508	15905	15179	14322	13320	12162	10834	9323	7613	5688	3532	1126	-1549	-4513	-7789	-11399	-15368	-19723
Rate of return	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Earnings	900	850	825	795	759	716	666	608	542	466	381	284	177	56	-77	-226	-389	-570	-768	-986
Spending	9200	9476	9949	10447	10969	11518	12094	12698	13333	14000	14700	15435	16207	17017	17868	18761	19699	20684	21718	22804
% GDP	42%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	39%	39%	39%	39%	39%	39%
Surp/(def)	-1000	-492	-603	-725	-858	-1002	-1158	-1328	-1511	-1710	-1925	-2156	-2406	-2675	-2964	-3276	-3610	-3969	-4354	-4767
% GDP	-4.6%	-2.1%	-2.4%	-2.8%	-3.1%	-3.5%	-3.8%	-4.2%	-4.5%	-4.9%	-5.2%	-5.5%	-5.9%	-6.2%	-6.5%	-6.9%	-7.2%	-7.5%	-7.8%	-8.2%

Notes: *(a) 1998 refers to 1998/99 financial year (April-March) and statistical year (July-June)*

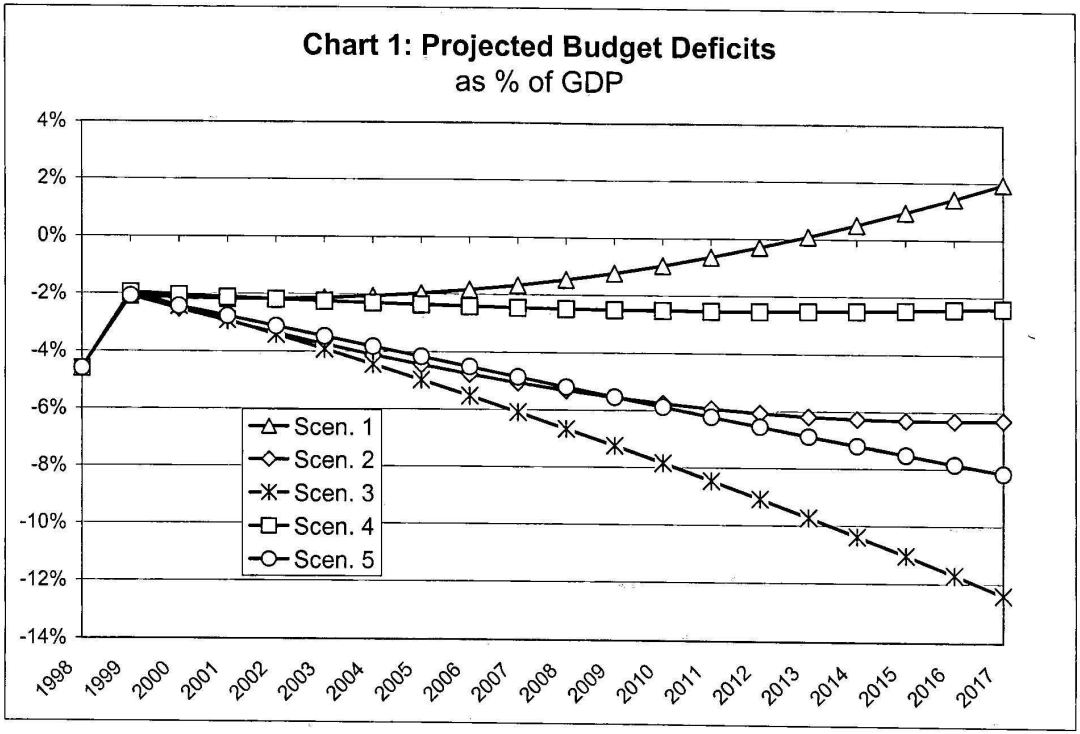
Chart 1: Projected Budget Deficits
as % of GDP
4%
2%
0%
-2%
-4%
-6%
-8%
-10%
-12%
-14%
Scen. 1
Scen. 2
Scen. 3
Scen. 4
Scen. 5
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

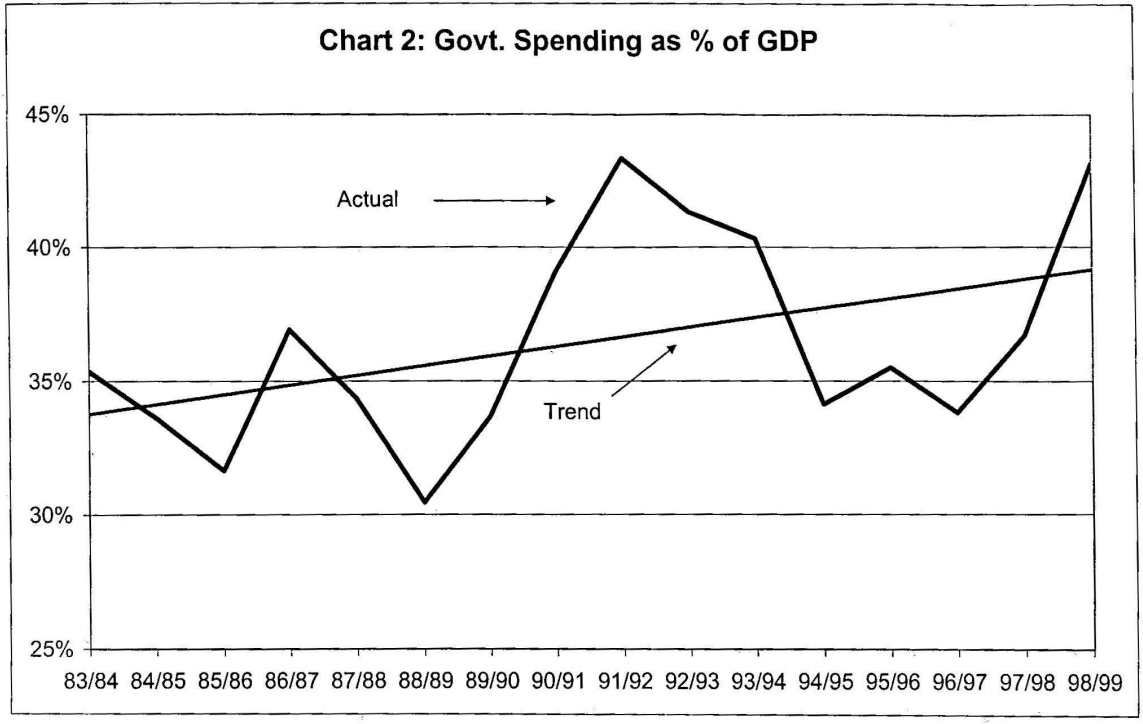
Chart 2: Govt. Spending as % of GDP
45%
40%
35%
30%
25%
Actual
Trend
83/84
84/85
85/86
86/87
87/88
88/89
89/90
90/91
91/92
92/93
93/94
94/95
95/96
96/97
97/98
98/99