Botswana

The Sub-Saharan African country of Botswana has enjoyed strong relative growth since the 1960s. International Financial Statistics reflect a budget surplus each year for the period 1983-1996, with a surplus of 1.6 billion Pula in 1996. The economy is not well diversified as 1/3 of GDP is due to the Botswana diamond industry, which is the world leader. Also threatening the continued economic growth of the country is the rise of AIDS among the adult population. Currently 1/3 of the population is infected with the HIV virus. The epidemic stand to wipe out the productivity of the workforce as well as incur huge social welfare costs. A careful analysis of the current economic situation reveals that inflation and high interest rates remain crucial areas of concern for the country's financial ministries.

GDP

The World Bank has elevated Botswana to the status of Upper Middle Income due to the extraordinary rates of real GDP per capita growth experienced over the last three decades. The country experienced its lowest growth rates (2-4.7%) between 1992 and 1995, coinciding with extremely high inflation. GDP growth has averaged approximately 6.6% over the past ten years.

![Real GDP Growth Rate](image)

Exchange Rate

The South African Rand dominates the basket of currencies to which the Pula is pegged. The Pula/$ exchange rate has consistently depreciated over the period of 1993-1999. The Rand has also depreciated over this same time frame. Moreover, the Pula has depreciated between .2 and .4 Pula each year for the last two decades.

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3 Insert B-school Source.
Inflation
As reflected in both the Consumer Price Index and the Annual Rate of Inflation, the Botswana economy suffers high inflation rates. The CPI has increased by 140 points in the last ten years (base year 1990). Given the graph below, it is evident that the financial ministries and the government of Botswana have made a concerted effort to reduce inflation. Yet, in 1998 and 1999 inflation has leveled and even begun to rise. Control of the inflation rates will be the focus of much of our recommendation.

Interest Rate
The Botswana interest rate has consistently hovered above 12.5% with the exception of two quarters in 1997. As of October 2000 the interest rate has generally followed an upward trend since 1993 to its 1999 real level of 6.15% versus the nominal level of 13.25. The increasing trend in the real interest rate corresponds to the depreciation of the current account. This relationship illustrates the effect real interest rates have in the IS-LM model. Consequently, consumption and investment are expected to decrease accordingly.
Nominal vs. Real Interest Rate

Current Account
Botswana has a current account surplus of approximately $517 million (1999). This is the result of exporting $2.671 billion of goods and importing $1.996 billion of goods. Overall, this follows a trend of maintaining a trade surplus over the previous six years of data. In 1998, the country experienced a steep drop in the current account, yet, the Pula continued its steady depreciation. The current account recovered most of this loss in 1999. This drop may be explained by a downsizing mining sector (output dropped 4.4%) upon which the Botswana export economy is dependent. Diamonds account for 80% of export revenue. The European Union accounts for 80% of Botswana's exports. Thus, it is also important to retain a relative stable exchange rate to sustain trade with international partners. Due to the recent strength of mineral markets, the foreign exchange reserves of Botswana have grown to $6.23 billion U.S. dollars.

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**Policy 1: Modest to Mid-level Increase in Government Spending**

The threat of a homogeneous economy in combination with rising health concerns over AIDS lead to the recommendation of a two pronged government spending strategy that will also address the lingering issue of high inflation and nominal interest rates. It is recommended that the government invest in the tourism sector taking advantage of its natural resource endowment. Such spending may include worldwide advertising, the development of game parks, and improvements in transportation access for the country. The goal of this measure would be to further diversify the sources of national income. The second recommended spending area is in the area of HIV treatment and prevention, in order to maintain a healthy and productive workforce.

The Botswana government may use this fiscal spending to attack the high levels of inflation that have plagued the economy over the past 10 years. We assume that since $S = P/P^*$. Holding the foreign price level constant, an appreciation in the exchange rate should lead to a corresponding drop in the price level. The increase in government spending will lead to an increase in output ($Y_1$ to $Y_2$). The increase raises the volume of money transactions and $M^d$ increases as output increases. The increase in government spending will have the effect of shifting the $M^d/P$ curve downward. This will lead to an increase in the interest rate from $i_1$ to $i_2$. The exchange rate will appreciate from $S_1$ to $S_3$. The long run expectations of a price drop will cause a downward shift in $S^e$. This will cause the currency to appreciate further to $S_3$. The change in expectations will also effect the price level. We can then expect $M^d/P$ to shift down until we are returned to our original interest rate. This will depreciate $S$ to $S_4$—our long-run result.

The DD curve will shift down and to the right. The long-run implication of increased spending will cause a shift of the AA curve to the left and down. Overall, output will remain at approximately the same level.

Note: Bold indicates final outcome of curves.
Economic Indicators

Inflation: As this is the main area of concern for the economic official in Botswana, Policy 1 tackles the inflation problem head on, while minimizing any effects in other areas. The change in inflation is expected to be proportional to the appreciation of the exchange rate.

Interest Rate: The resulting interest rate stemming from implementation of Policy 1 should remain unchanged from its original level. This is very important for Botswana, as the high level of interest rate have had a stifling effect on the level spending in the country. The country would certainly need to be wary of a policy that would drive the rate up further. More importantly, although the nominal rate would be maintained, the country would actually experience a drop in the real interest rate due to the drop in inflation.

GDP: Although GDP temporarily rises when government spending increases, the change in exchange rates and price level will offset the GDP gain. This offsetting will most directly be the influence of the depreciating current account. Equilibrium output remains unchanged. In the long run GDP should grow as the tourism sector expands. We would expect GDP to be higher than if no HIV treatment were being offered.

Current Account: The current account will deteriorate at a level consistent with the rise in government spending. The appreciated Pula will make exports less competitive on world markets, while those holding Pula will experience an increase in purchasing power, increasing the level of imports.

Exchange Rate: The exchange rate appreciates in the long run from the increase in government spending and appreciates further when expectations of a price-drop are formed. In the long-run the exchange rate will depreciate from the expectation's undershoot, but, remain more appreciated from the original position.

The proposed policy presumes the Central Bank of Botswana is not intent on maintaining a steady exchange rate. The bank also may not want a short-term change in interest rates. The bank could offset the government's plan with an increase in the money supply. This would have
the effect of depreciating the currency and bringing the interest rate down. However, this may make inflation worse as prices would once again rise.

**Policy Option 2: Permanent Contraction of the Money Supply**

In analyzing the most recent macroeconomic data for Botswana, it becomes clear that the government’s effort to expand expenditure has failed in the last two years. 1997 and 1998 saw increases in government expenditure over 20%. 1999 and 2000, although budgeted for much greater (37%), have only seen government expenditures increase by about 14%. Meanwhile, the downward trend in inflation rates has begun to rise again. The astute policy advisor might suggest another option for reducing inflation. And so shall we.

A contraction of the money supply would cause an appreciation of the exchange rate for Botswana. Consider the following graphs.

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**Monetary Shift: Decrease Money Supply**

![Graph showing monetary shift](image)

Note: Bolded lines letters and arrows indicates final shifts

**Undershooting due to Expectations During a Monetary Contraction**

![Graph showing undershooting](image)

Output, Y
As the money supply curve contracts (shifting up) the domestic interest rate would initially raise (shift up) forcing an appreciation of the exchange rate to maintain interest parity. Market expectations would cause the foreign interest rate expectation curve to expect a far greater appreciation. As prices adjust in the market, the Money supply curve would return to its previous position, as would the interest rate. The expectations curve would remain in its new position, but the returning interest rate will create a new exchange rate of $4. This exchange rate will be appreciated more than the original $, but less than the undershoot rate of $3. In considering the second graph, we see the undershoot reflected again in the AA curve and a consequent appreciation in the exchange rate.

**Economic Indicators**

**Inflation:** This policy option’s sole purpose is to encourage a restart of the previous downward trend of inflation. Lowering the exchange rate, and thereby the prices, a rise in inflation should be abated.

**Interest Rate:** The nominal interest rate will remain the same in the long run. This is an important aspect of this model. By sacrificing our present exceptional current account, it is necessary not to increase our interest rates. Hovering in the 15% range is high, but acceptable for a quickly expanding country. Again real interest rates will be lowered due to a cap on inflation.

**Current Account:** As eluded to above, the current account will deteriorate given the appreciation of the Pula in international markets. Similar to policy option1 Pula holders will have an increase in their purchasing power. Botswana exports will become equally more expensive and less competitive in the world market.

Botswana’s economy depends greatly on their exports and, therefore, the current account. Either proposed policy, or more effectively, a combination of the two policies, would provide a buffer for a worsening of Botswana’s Current Account. Their exports are becoming more diverse with the increase in the tourism and other non-mineral export sectors. Further, as their economy ages and education levels increase, their markets will continue to draw greater amounts of direct investments from abroad. At this level of expansion, Botswana can only benefit from lower inflation despite the worsening of the current account.