

Second Midterm Exam

Each part of each question (a, b, c, etc.) is worth 5 points. Make sure to allot your time accordingly. Total of 30 points, -1 for messiness, -2 for extreme messiness.

1. *Botswana*. In his book *Globalization and its Discontents*, pg. 38, Joseph Stiglitz criticized the IMF's policy toward Botswana in 1981. He uses this as one example of a larger critique of the so-called "Washington Consensus" policy toward developing nations. This problem uses approximately accurate data to analyze the situation. First, let's normalize Botswana's working population to $\mathcal{L} = 100$. Let Botswana have an economy-wide production function

$$Y = f(L) = 117.5L^{1/2}$$

and assume the firms represented by this function are owned by the workers. Set the price of Y equal to 1, and note that with the given production function, GDP at full employment is 1,175 million US dollars.

- (a) Find the equilibrium real wage in Botswana's labor market and graph the labor market. Graph the production function.
- (b) Now let's examine the capital market in 1980. Private Botswanans were saving 5% of GDP (assume perfectly inelastic with respect to the real interest rate). The government was spending 33% of GDP and collecting taxes of 34% of GDP. Firms' investment demand function was $I = 728 - 3520r$. Graph the domestic capital market and show the equilibrium real interest rate.

- (c) Actually, Botswana's real interest rate in 1980 was 10%, lower than what you found above. This was because Botswana could borrow in the world capital market. Redraw your capital market graph to show this lower real interest rate. How much investment took place in Botswana? How large were foreign capital inflows?
- (d) Recall that total income from wages plus dividends has to equal consumption plus savings plus taxes. Find this for Botswana in 1980. Then recall that total output has to equal consumption plus investment plus government plus net exports. Find this for Botswana in 1980. Note: you just found consumption; investment and government were given in part (b) and (c); net exports is the residual that makes total income equal to total output.
- (e) Botswana faced two negative shocks in 1981 due to drought and problems in the diamond industry. We'll model this by saying that the production function changed for the worse to $Y = f(L) = 103.8L^{1/2}$. Show the new real wage.
- (f) The IMF advised Botswana to cut government spending, but it did not. Stiglitz agreed with Botswana's decision not to cut government spending. There are lots of reasons, but let's focus on just one: suppose some government spending is for healthcare, and that this spending creates a positive externality because it reduces disease throughout the population. Draw a graph of the healthcare market, and show that the private market would provide less than the socially optimal amount of healthcare.