Good Jobs and Unemployment

Sometimes very simple behavior can lead to surprising results in macroeconomics. Consider an economy with N people looking at 2 types of jobs. If people apply for job 1, they get income Y_1; if people apply for job 2, they get income $Y_2 < Y_1$. Suppose that there are a fixed number N_1 of good jobs, but that anyone who applies for job 2 will get a job. If an individual applies for job 1 and does not get accepted, he has no income. Assume that individuals want to maximize the income they will make.

(a) What fraction of people will apply for job 1?

(b) Is the solution above absolutely stable – i.e., will the market always tend towards this solution (by people changing their behavior until this solution is reached)?

(c) What is the unemployment rate u – i.e., the fraction of people that do not have either job 1 or job 2? Sketch the curve $u(N_1)$ and comment.

(d) We can assume that people's income is directly related to the output Z of the economy: i.e.,

$$Z = \sum_{i=1}^{N} Y(i)$$

where $Y(i)$ is the income of person i. Find the equilibrium value of Z and sketch $Z(N_1)$ – comment on what you find.

Suppose the government introduces unemployment benefits, which pay an income Y_u to people who are unemployed.

(e) Find the new unemployment rate $u(N_1)$, and sketch it along with the curve in the case of $Y_\mathrm{u} = 0$ – are the results intuitive?

(f) Now, determine $Z(N_1)$, but noting that people on unemployment benefits do *not* contribute to Z. Comment on what you find.

This model is, of course, not entirely realistic, because people can apply for job 2 if they don't get job 1. But this model should suggest something to you about how improving the output of the economy and reducing the unemployment rate – things which politicians dearly like to do – might be tricker than you'd think.