

**Due Thursday November 3 in Section**

End of Chapter Exercises: 6.2; 6.5

Additional Exercises:

(1) Consider a country in which there are two sectors, called Sector 1 and Sector 2. The production functions in two sectors are:

$$Y_1 = L_1^{\frac{1}{2}}$$

$$Y_2 = L_2^{\frac{1}{2}}$$

Where  $L_1$  is the number of worker in employed in Sector 1 and  $L_2$  is the number of workers employed in Sector 2. The total number of workers in the economy is  $L$ .

- i) Calculate the number of workers in each sector if workers are paid their marginal products in each sector, assuming no unemployment.  
(*hint: answer is given in terms of  $L$* )
- ii) Calculate the prevailing wage rate in each sector of the economy.
- iii) Suppose that a minimum wage is set by the government at  $(L/2)^{\frac{-1}{2}}$ . What are the number of workers employed in each sector, and what is the total unemployment rate in the economy?
- iv) Suppose the same as in (iii) but that the minimum wage is set at  $(L)^{\frac{-1}{2}}$ . What are the number of workers employed in each sector and what is the total unemployment rate in the economy?

**Ignore Assumptions Given in (i)-(iv)**

- v) Calculate the number of workers (where the number of workers is given by  $L$ ) in each sector if workers are paid their marginal products in Sector 1 but are paid their average product in Sector 2.
- vi) Suppose that a minimum wage is set by the government. What must be the value of this minimum wage such that there is some unemployment in the economy? What must be the value of this minimum wage such that there is no unemployment in the economy?

(2) Define your usual variables as provided in Mankiw for deriving the steady state level of unemployment. Now, suppose that some technological innovation leads to better monitoring of workers, such that the job separation rate,  $s$ , increases to a higher level  $s^*$ . Furthermore, this innovation increases the communication channels between employers and potential employees such that  $f$  rises to a higher level,  $f^*$ . Graphically depict the new possible steady state levels of unemployment.