## 4. The Demand for Money

***Problem 4.1.***

Suppose the consumer's Money Demand is

$$\phi(R,c,\gamma/P) = \left(\frac{1}{2}\right)cT^* = \left(\frac{1}{2}\right)c\sqrt{\frac{2\gamma}{PRc}} = \sqrt{\frac{\gamma \cdot c}{2PR}}$$

a) Derive this Formula for Money Demand.

b) Determine the effect of an increase in the interest Rate R on the consumer's Money Demand.

c) Determine the effect of an increase in the consumption c on the consumer's Money Demand

d) Determine the effect of an increase in the real transaction costs $\gamma / P$ on the consumer's Money Demand.

***Problem 4.2.*** (Barro 4.9: Effect of an Payment Interval on the Demand for Money)

Think of a worker with an annual income of $12.000. Suppose that he or she receives wage payments once a month. Consumption spending is constant at $ 12.000 per year. Assume that the worker holds no bonds; that is he or she holds all financial assets in the form of money.

a) What is the workers average Money Balance?

b) What should the average money balance be if the worker were paid twice a month instead once a month?

c) What is the general relation between the average money balance and the interval between wage payments?

***Problem 4.3.*** (Barro 4.11: Expenditures and the Demand for Money)

a) Consider an increase in the aggregate of real spending, C. What is the effect on the aggregate Demand for real cash balances, M/P? Notice that aggregate real spending can arise for two reasons. First there could be an increase in everyone's real spending, with no change in the number of people. Second there could be an increase in the number of people, with no change in each person's level of real spending. How does the response of aggregate real Money, M / P, depend on which case applies

b) What should happen to the velocity of money as an economy develops? What happens to interest Rate R, and the real cost of transacting between money and interest bearing assets $\gamma / P$