Ec 565

Spring 2019

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Assignment 2 (due not later than Monday2/11, 8pm)

This assignment is made from questions in past mid-terms

*1. Assume that there is an economy with metallic money (coins). The country’s economy is such that the demand for the real quantity of money is constant. In the year 200 (fictitious), there is only one type of coin in circulation. That coin contains half silver and half copper. The quantity of coin in circulation is 100 million denarii (plural of denarius). Each coin has a face value of one pound. The intrinsinc value of a coin is half a pound. Assume that copper is cost-free, the manufacturing cost of any coin is zero and the mints that produce coins buy any needed silver on the market, at the market price, and turn all the profits to the ruler of the country.*

1. *In some year, say year 200, the ruler instructs the mints to produce new coins with a total face value of 100 million pounds and with the same degree of fineness as the coins in circulation. Is this a feasible policy? Describe the impact on the price level. The degree of finess is the fraction of silver (the percentage) in a coin.*

This is a feasible policy. The supply of coins is multiplied by two. Assuming a demand for the real quantity of money that is constant, the price level (including the price of silver) is multiplied by two. After the operation, the intrinsic value of silver is equal to the face value. We can suppose that the money supply is increased gradually. At the beginning of the operation, the profit per coin (nominal) is half the face value of the coin. It is only on the last coins, when the price level has doubled (or nearly doubled) that the profit per coin is zero.

*b. After implementing the first policy in the year 200 and the stabilization of the price at its new level, the ruler instructs the mints, say in the year 220, to produce new coins with a degree of fineness equal to 25 percent. What is the quantity of new coins that can be issued with no impact on the price level? What is the amount of revenues that the ruler can obtain from this policy?*

When the money supply is increased, under the same condition about the demand for the real quantity of money, the price level increases. If the price level (including that of silver) increased, the intrinsic value of “old” coins exceeds the face value and they are retired. But they cannot all be retired at the same time because the quantity of money would fall and the price level would not increase, a contradiction. What happens is that as new coins are introduced (with a positive profit because they have less silver), old coins are retired by the same (nominal) amount. This process can take place until all the old coins are retired and replaced by new coins. The nominal quantity of these new coins is the same as that of the old coins, 200 million.

*c. Assume that the price level has stabilized after the previous policy, by the year 225. Can the ruler get more revenues in the year 225 by instructing the mints to produce more of the same coins as in 220? Describe the likely events in this case?*

The case is the same as in question (a). The quantity of new coins that can be issued, with a profit, is equal to 200 million.

2. *The following table describes hypothetical coins that have been issued in the hypothetical years of the first column. F is the degree of fineness (in percentage of silver). N is the number of coins per pound of alloy. P is the price of silver (denarius per pound of silver). c is the brassage in percentage of the face value of the coin.*

*Coin of 1 denarius*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Date* | *F (%)* | *N* | *P* | *c (%)* |
| *220* | *50* | *80* | *10* | *3* |
| *221* | *40* | *80* | *12* | *3* |
| *222* | *5* | *100* | *90* | *20* |

1. *Consider the coin in the first line. Could this coin be put in circulation at a profit?*
2. *Could the coin described in the first line be in circulation at the end of 222 ? Explain.*
3. The profit per pound of silver is N/F-P-Nc= 160 – 10 – 2.4=147.6. The intrinsic value of the coin is 10/160=1/16<1.
4. The intrinsic value of the same coin in the year 222 is 9/16. The coin can circulate, (or be traded by tale).