Exercise session #12

Problem 1 - Phillips curve; Holman 321/2   Inflation expectations are 4%, natural level of unemployment is 9% and real inflation is 8%. There are no production costs shocks (i.e. no cost-pushed inflation)

- Do we observe demand-pull inflation?

- Is the current unemployment rate lower or higher than its natural level?

- Using Phillips curve show where is this economy in the short run, under the assumption of adaptive inflation expectations.

- Show also how will it evolve in the long run.

Problem 2 - RBC; Holman 342/4 (questions)   The central bank is following the policy of inflation targeting with the inflation target of 2% for the next 5 years. We observe that during the expansion the money supply increases and in the recession decreases. Are these changes in the nominal money supply in accordance with real business cycle theory?

Problem 3 - Interest rate parity I, Holman 353/1   The exchange rate is 30 CZK/euro, interest rate on czech crown assets is 6% p.a., interest rate on euro assets is 5% and the currency market is in equilibrium. What are the expectations of investors regarding the movement of exchange rate in the future?

Problem 4 - Interest rate parity II, Holman 353/2   The exchange rate is 28 CZK/euro and investors expect it to rise to 32 CZK/euro next year.Imagine that tomorrow the Czech crown will depreciate by 5%, yet the expectations of investors will remain the same. What impact will the depreciation have on the interest rate on the czech crown assets?

Monetary and fiscal policy

Problem 1 - Sacrifice ratio; Holman 384/1   Economy is producing at the level of potential product. The natural rate of unemployment is 6%. Increase in unemployment by 1% would result in the drop of GDP by 2.5%. The relationship between inflation and unemployment (i.e. Phillips curve) is given by equation

$$\pi = 0.1 + 2(u_N - u)$$

where π is current inflation, and 0.1 is a 10% inflation inertia. What would be the sacrifice ration if the central bank wants to reduce inflation to 5%?

Problem 2 - Sacrifice ratio II; Holman 384/2   Economy has inflation inertia of 20% and natural rate of unemployment of 4%. Let's assume that people form **rational expectations** and that wages and prices are fully flexible in the short as well as long run. If the central bank wants to reduce inflation to 10%

- What is the sacrifice ratio?

- Graphically show how the disinflation affects unemployment.

- Graphically show how the disinflation affects output.

Problem 3 - Phillips curve and negative supply shock; Holman 384/2   As a consequence of negative supply shock, the real domestic product has decreased

- Describe and graphically depict (AS-AD model) reaction of a central bank that pursues active monetary policy **targeted on low unemployment**. What will be the consequences of this policy?
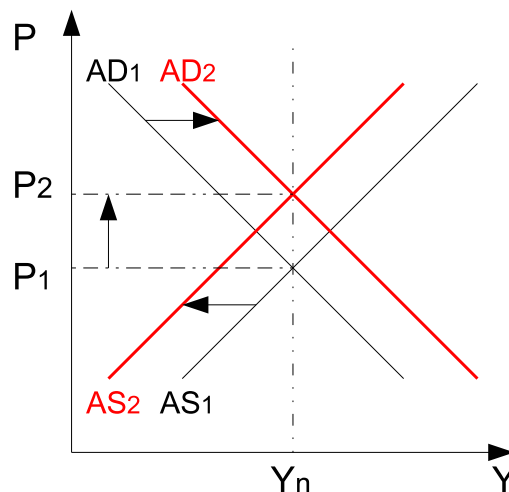

If the central banks targets low unemployment, it will try to boost the economy by increasing money supply and thus shifting AD curve to he right. The economy will suffer high inflation.

- Describe and graphically depict reaction of a central bank that pursues a policy of **stable money supply growth**

  Under this policy rule, central bank practically cannot immediately react on the negative supply shock, because it pursues the policy of constant (and low) money supply growth. In the medium run, the equilibrium will be restored due to lower interest rates and increasing investment.

- Describe and graphically depict reaction of a central bank that pursues a policy of **inflation targeting**
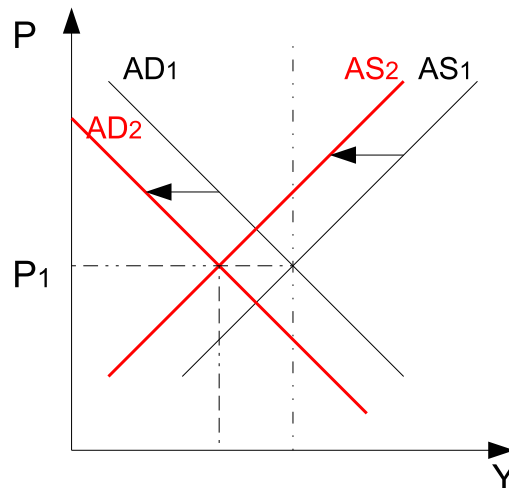
  Central bank that has an inflation target would rect to a negative supply shock by a decrease in the money supply (and shift of AD curve to the left). As this might lead economy further into recession, central bank usually determines a bandwidth around the inflation target and react only if inflation gets out of this bandwidth.

Problem 4 - Phillips curve; Holman 406/2   Let us assume small open economy. Government lowers the taxes without decreasing the government expenditures.

- What will be the effect on the consumption according to the classical and Ricardo-Barro theory?

- What will be the effect on the exchange rate according to the classical and Ricardo-Barro theory?

- What will be the effect on aggregate demand?

- What will be the effect on aggregate supply and economic growth?

Classical theory assumes that due to higher disponible income, households will **increase their consumption**. Through multiplication effect this would result in a higher income and **shift of AD curve to the right in the short run**. However, due to lower public savings there will be a decrease in the national savings and excess demand

on the market for loanable funds will push the interest rate up. Higher interest rates would attract foreign investors which will return the interest rate on its previous level, but their demand for local currency will cause exchange rate to appreciate. In the long run, this will lead to decrease in net exports and the economy will return **back to initial equilibrium**.

Ricardian theory assumes that households are forward-looking. They know that a tax-cut which is not compensated by a decrease in government expenditures will have to be financed by debt. Debt will have to be repaid sometime in the future, most probably by an increase in taxes. Thus, if they want to smooth the consumption, they **keep the same level of consumption** and save full amount of tax cut. These private savings offset the decrease in public savings, and both loanable-fund market and foreign exchange market remain unchanged. There is **no change of aggregate demand**.

Effect of a tax cut on **aggregate supply** depends on the form of tax cut. If this tax cut decreases marginal tax rates (i.e. the percentage that you have to pay from each additional unit of income), a tax cut might have positive effect on both short and long run level of aggregate supply, through improved incentives to work. If, however, tax cut is implemented as a lump sum rebate, this does not affect people's incentives to work and, thus, does not shift aggregate supply.