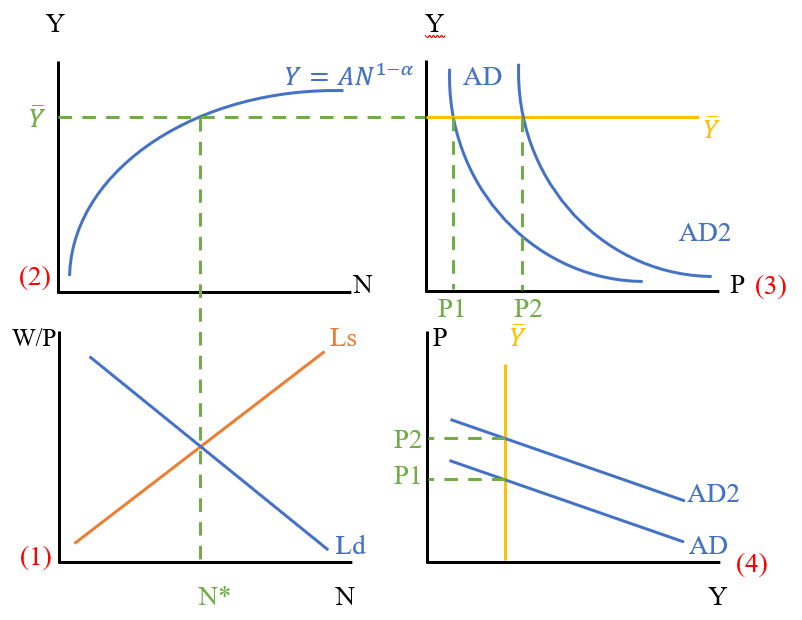
Assume an economy that starts with 𝑌 = 𝑌𝑛. Illustrate graphically, explain, and critically discuss the impact of an expansionary monetary policy shock (e.g., arise in the money supply or a fall in the interest rate) depending on whether we use a Simple Classical Model, the Blanchard IS-LM-PC model with anchored expectations and endogenous money, or the Anti-Blanchard IS-LM-PC model with anchored expectations and endogenous money where firms have the power to adjust the economy after a shock. You can assume that nominal interest rates will not reach the zero lower bound. Considering empirical evidence and the model’s theoretical assumptions, provide a full and broad critical discussion of the strengths and limitations of the Blanchard IS-LM-PC model.

Plan:

* Introduction
* What is the impact of the shock?
  + Simple classical model
    - No effect – monetary policy can only have effects on aggregate demand, whereas output is only determined by the labour market equilibrium. Since output is equal to M/P, this means that whenever the money supply increases, the price level must also increase.
  + Blanchard IS-LM-PC with anchored expectations and endogenous money
    - A fall in the interest rate causes the LM curve to shift downward, which causes *Y* to rise and we consequently find ourselves in an inflationary period due to the Phillips curve relation. This will affect the income distribution in the labour market.
  + Anti-Blanchard IS-LM-PC
    - Same as Blanchard, but when it comes to the labour market, firms and workers will adjust their habits to lower inflation. If workers have more controls, wages will rise – if firms have more control, mark-up will rise.
  + Criticisms of Blanchard IS-LM-PC
    - Empirical evidence for hysteresis?
    - Wildauer et al. paper emphasising importance of factoring in wage changes into the IS curve,
  + Strengths of Blanchard IS-LM-PC
    - Endogenous money
    - The anti-Blanchard model assumes that workers and firms will work to combat inflation, however that may not fit neatly with the behavioural equations which are supposed to govern their behaviour.

The Simple Classical Model (SCM) of the economy takes the position of monetary neutrality, which means that monetary policy has no impact on the output level in an economy. Instead, monetary policy only impacts the price level in an economy.



*Figure 1*

In figure 1.1, we find that the equilibrium between labour supply, *Ls*, and labour demand, *Ld,* determines the amount of labour currently being employed, *N\**. In figure 1.2, the equilibrium between N\* and our production function determines current output ; this determination is possible because we are assuming that .

Output in the economy isdetermined by labour supply and demand, which, in the SCM, have no relationship with the money supply or the interest rate. Instead, changes in monetary policy only affect aggregate demand, which is defined by the relationship between money supply and the price level, , where we assume . In figure 1.3, AD is defined by the equation , however this relationship is often approximated to the straight line seen in figure 1.4. In the SCM, *Y* is always fixed where , so we substitute in . This equation implies that, to maintain output fixed at , a rise in the money supply requires an equal rise in the price level and vice versa. We see this in figures 1.3 and 1.4: the expansionary monetary policy leads to an increase in aggregate demand and a rise from P1 to P2. To summarise, the SCM predicts that an economy experiencing an expansionary monetary shock will face an increased price level, while their level of output will stay the same.

Blanchard’s IS-LM-PC model models expansionary monetary shocks as influential with respect to current levels of output, inflation and wages and profit.

A diagram of a mathematical equation

Description automatically generated with medium confidence

*Figure 2*

In figure 2.1, an expansionary monetary shock is modelled as the central bank decreasing the interest rate from to . In endogenous money theory, the LM curve is perfectly elastic at the real interest rate, so the LM curve also shifts downwards. The IS-LM relationship, previously determining output at Yn, now determines output at level Y. When , the Phillips curve relationship models an inflationary period in the economy, exemplified in figure 2.4. In figure 2.5, we model the impacts of inflationary interest rates on workers and firms in the economy. Before the monetary shock, the total product in the economy is represented by the blue and yellow areas. The yellow portion is given to workers in the form of wages, and the blue portion earned by firms in the form of profit. After output increases, the total product of the economy is represented by blue, green, yellow, and orange areas, with workers and firms gaining the orange and green areas, respectively. The distribution of the total product of the economy, then, is dependent on the price setting curve, as this curve delineates the workers’ section from the firms’ section. To summarise, Blanchard’s IS-LM-PC model posits that an expansionary monetary shock will lead to inflation and an increase in the total output of the economy. The benefits of this extra output will be distributed to workers and firms depending on the price-setting relation, and thus the mark-up.

The anti-Blanchard IS-LM-PC agrees with the Blanchard model, insofar as it concerns the process I have already explained. However, the anti-Blanchard model argues that following this process, the potential output Yn in figure 2.5 will adjust to the output Y, because of a desire among workers and firms to lower inflation. This adjustment can happen in two different ways, and will be determined by whether firms or workers have the most power in a given economy.

A diagram of a graph

Description automatically generated with medium confidence

*Figure 3*

In figure 3.5, we see what happens when *workers* dominate the economy: they force firms to lower their mark-up, from m to m2, shifting PS to PS2 and aligning potential and real output. By lowering mark-up, firms lose the purple area to the workers. After Yn(t-1) shifts to Yn, PC shifts to PC2 and, because of anchored inflation expectations, we end the inflationary period, demonstrated in figure 3.4.

A diagram of a mathematical equation

Description automatically generated with medium confidence

*Figure 4*

In figure 4, we see what happens when *firms* dominate the economy. Rather than reduce mark-up, firms force workers to accept lower wages, which is modelled as a fall in their bargaining power. This shifts WS to WS2, causing Yn(t-1) to shift to Yn and PC to shift to PC2, ending the inflationary period as seen in figure 4.4.

In general, Blanchard’s IS-LM-PC model has a few key strengths over other models, when realistically modelling economies. First, considering the assumptions of all models, both IS-LM-PC models share a strength over the SCM, since the formers’ implicit time dynamics and assumption of imperfectly competitive markets are more realistic than the latter’s completely static model and assumption of perfect competition. Second, considering empirical data, the consensus on monetary neutrality seems to be that it is false, i.e., contrary to what the SCM predicts, monetary shocks do affect output. This is supported by Romer and Romer (1989), Christiano et al. (1999, 2005) and Coibon (2012).

The Blanchard IS-LM-PC model also has some weaknesses. First, Blanchard’s IS-LM-PC differs from the classical IS-LM-PC model in an important way, that it is also based on the theory of hysteresis. Essentially, the theory suggests that a shock in the economy may continue to have an effect, even after the shock has been dealt with, e.g., unemployment may bounce back *lower* after a recovery from a recession. However, this theory lacks strong evidential support: Liew et al. (2009) found that an analysis of 14 different OECD countries rejects the hysteresis hypothesis.

Use the three-panel internal economies of scale diagram to show the overall impact of trade integration between two identical economies. Now, assume the UK was at 𝑌 = 𝑌𝑛 when the UK left the European Union. Given the change in the average mark-up in the UK due to Brexit implied by your analysis in the first part of your answer, use the Blanchard IS-LM-PC model alongside a graph of inflation over time to explain the impact of this change in the mark-upon the UK economy under two scenarios: i) if the central bank responds by raising interest rates versus ii) if there is higher immigration to the UK. Discuss the overall macroeconomic impact of Brexit on the UK economy between 2016 and 2022.

* Introduction