

PART I. (35 marks, 7 each) Multiple choices. Please choose the correct answer by **circling one** letter only.

- The short-run expectation-augmented Phillips curve.
 - is vertical at the natural unemployment rate and its position is independent of monetary policy.
 - will shift to the right as a result of an unexpected expansionary monetary policy.
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- Consider Modified Phillips Curve. Assume that $\theta = 0$, $\pi_t^e = 0$. What inflation level is consistent with the government maintaining output below the natural level?
 - Positive inflation
 - Negative inflation
 - Zero inflation
 - All are possible levels of inflation
- Which of the following could explain the situation during 1970s, where there was high persistent inflation?
 - $\pi_t = -\beta(u_t - u^n)$
 - $\pi_t = \pi_{t-1} - \beta(u_t - u^n)$
 - $\pi_t = \pi_t^e - \beta(u^n - u_t)$
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- Which of the following could explain the situation during 1960s, where there was a trade-off between inflation and unemployment?
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PART II. (65 marks) Initially, $\pi_{t-1} = 0.01$. The economy has the short run Phillips Curve defined by $\pi_t = \pi_t^e - 2(u_t - 0.08)$ and $\pi_t^e = \pi_{t-1}$. Show your steps and explain clearly. $\theta = 1$

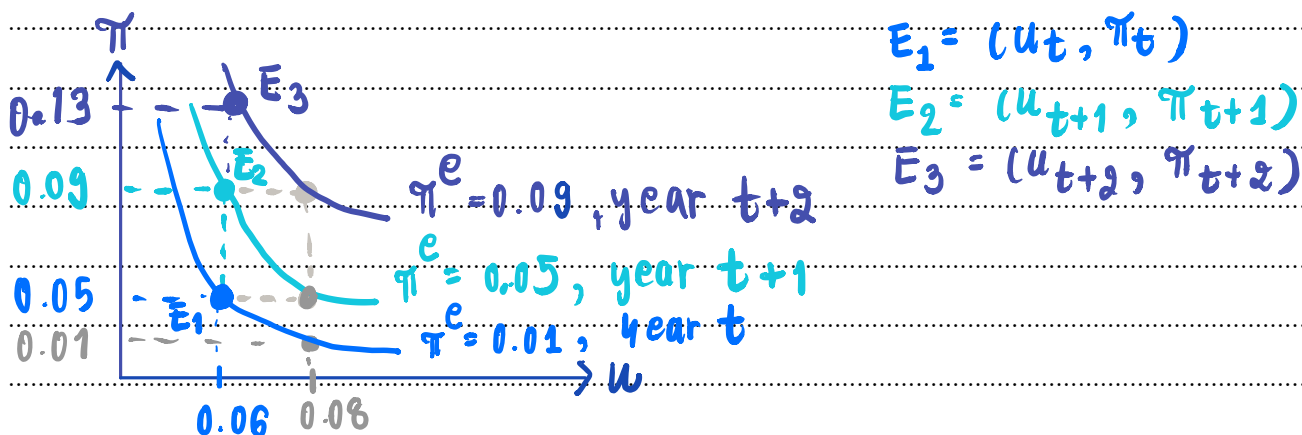
- (6 marks) According to the given Phillips curve equation, what is the value of the natural rate of unemployment?

[Modified Phillips Curve : $\pi_t = \pi_{t-1} - \beta(u_t - u^n)$] $u^n = 0.08$

- (24 marks) At time t , the policymakers keep $u_t = 0.06$ forever. What are π_t , π_{t+1} and π_{t+2} ?

$\pi_t = \pi_{t-1} - \beta(u_t - u^n)$	$\pi_{t+1} = \pi_t - \beta(u_t - u^n)$	$\pi_{t+2} = \pi_{t+1} - \beta(u_t - u^n)$
$= 0.01 - 2(0.06 - 0.08)$	$= 0.05 - 2(0.06 - 0.08)$	$= 0.09 - 2(0.06 - 0.08)$
$= 0.05$	$= 0.09$	$= 0.13$

- (35 marks) From 2, graphically illustrate Phillips Curves in the years t , $t+1$ and $t+2$. Show the actual inflation and unemployment in the years t , $t+1$ and $t+2$ on each curve.



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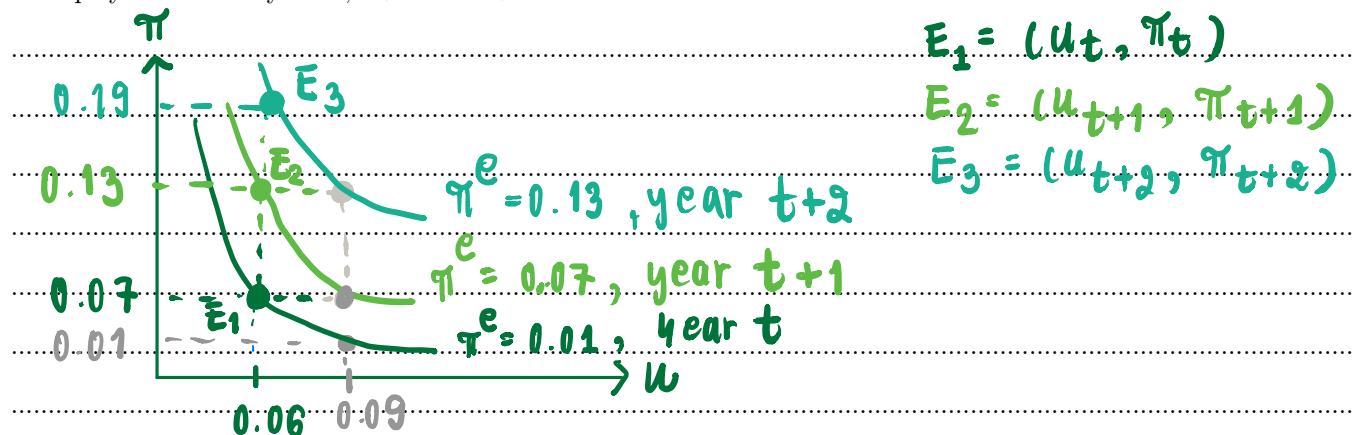
- (6 marks) According to the given Phillips curve equation, what is the value of the natural rate of unemployment?

[Modified Phillips Curve: $\pi_t = \pi_{t-1} - \beta(u_t - u^n)$] $u^n = 0.09$

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$\pi_t = \pi_{t-1} - \beta(u_t - u^n)$ $= 0.01 - 2(0.06 - 0.09)$ $= 0.07$	$\pi_{t+1} = \pi_t - \beta(u_t - u^n)$ $= 0.07 - 2(0.06 - 0.09)$ $= 0.13$	$\pi_{t+2} = \pi_{t+1} - \beta(u_t - u^n)$ $= 0.13 - 2(0.06 - 0.09)$ $= 0.19$
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- (35 marks) From 2, graphically illustrate Phillips Curves in the years t , $t+1$ and $t+2$. Show the actual inflation and unemployment in the years t , $t+1$ and $t+2$ on each curve..



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PART II. (65 marks) Initially, $\pi_{t-1} = 0.01$. The economy has the short run Phillips Curve defined by $\pi_t = \pi_t^e - 2(u_t - 0.12)$ and $\pi_t^e = \pi_{t-1}$. θ = 1

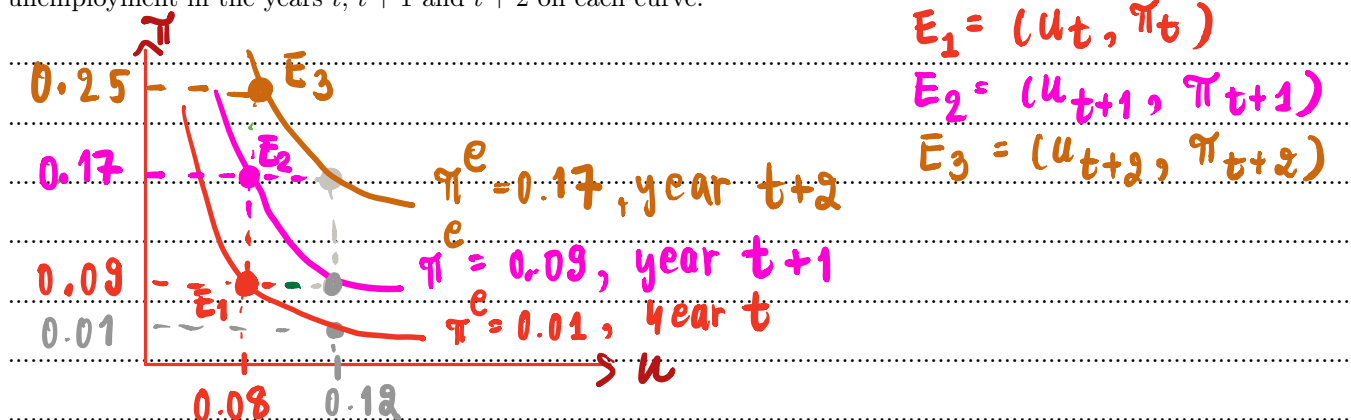
- (6 marks) According to the given Phillips curve equation, what is the value of the natural rate of unemployment?

[Modified Phillips Curve : $\pi_t = \pi_{t-1} - \beta(u_t - u^n)$] $u^n = 0.12$

- (24 marks) At time t , the policymakers keep $u_t = 0.08$ forever. What are π_t, π_{t+1} and π_{t+2} ?

$\begin{aligned} \pi_t &= \pi_{t-1} - \beta(u_t - u^n) \\ &= 0.01 - 2(0.08 - 0.12) \\ &= 0.09 \end{aligned}$	$\begin{aligned} \pi_{t+1} &= \pi_t - \beta(u_t - u^n) \\ &= 0.09 - 2(0.08 - 0.12) \\ &= 0.17 \end{aligned}$	$\begin{aligned} \pi_{t+2} &= \pi_{t+1} - \beta(u_t - u^n) \\ &= 0.17 - 2(0.08 - 0.12) \\ &= 0.25 \end{aligned}$
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- (35 marks) From 2, graphically illustrate Phillips Curves in the years $t, t+1$ and $t+2$. Show the actual inflation and unemployment in the years $t, t+1$ and $t+2$ on each curve.



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- (24 marks) At time t , the policymakers keep $u_t = 0.04$ forever. What are π_t , π_{t+1} and π_{t+2} ?

$\begin{aligned}\pi_t &= \pi_{t-1} - \beta(u_t - u^n) \\ &= 0.01 - 2(0.04 - 0.09) \\ &= 0.11\end{aligned}$	$\begin{aligned}\pi_{t+1} &= \pi_t - \beta(u_t - u^n) \\ &= 0.11 - 2(0.04 - 0.09) \\ &= 0.21\end{aligned}$	$\begin{aligned}\pi_{t+2} &= \pi_{t+1} - \beta(u_t - u^n) \\ &= 0.21 - 2(0.04 - 0.09) \\ &= 0.31\end{aligned}$
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