$$g_t^e = E(\gamma_g \bar{g}_t) + E(\theta_t) = \gamma_g \bar{g}_t$$
$$m_t^e = E(\gamma_m \bar{m}_t) + E(\vartheta_t) = \gamma_m \bar{m}_t$$

since the expected value of a value known with certainty is the value itself, so:

$$E(\gamma_g \bar{g}_t) = \gamma_g \bar{g}_t$$
$$E(\gamma_m \bar{m}_t) = \gamma_m \bar{m}_t$$

and from the properties of the stochastic variables:

$$E(\theta_t) = 0$$
$$E(\vartheta_t) = 0$$

The agents know this model and they use this model to create their expectations.

Therefore, the expectations of the policy variables are:

$$g_t^e = \gamma_g \bar{g}_t$$
$$m_t^e = \gamma_m \bar{m}_t$$

The Forecasting errors are given by:

$$g_t - g_t^e = \theta_t$$
$$m_t - m_t^e = \vartheta_t$$

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Consider the equilibrium implied by our AD-AS model (where AD=AS):

$$\beta_0 + \beta_1(m_t - p_t) + \beta_2 g_t + \upsilon_t = \bar{y} + \alpha(p_t - p_t^e) + \mu_t$$

Solve for the equilibrium value of p_t:

$$p_t(\beta_1 + \alpha) = \beta_0 + \beta_1 m_t + \beta_2 g_t - \bar{y} + \upsilon_t - \mu_t + \alpha p_t^e$$

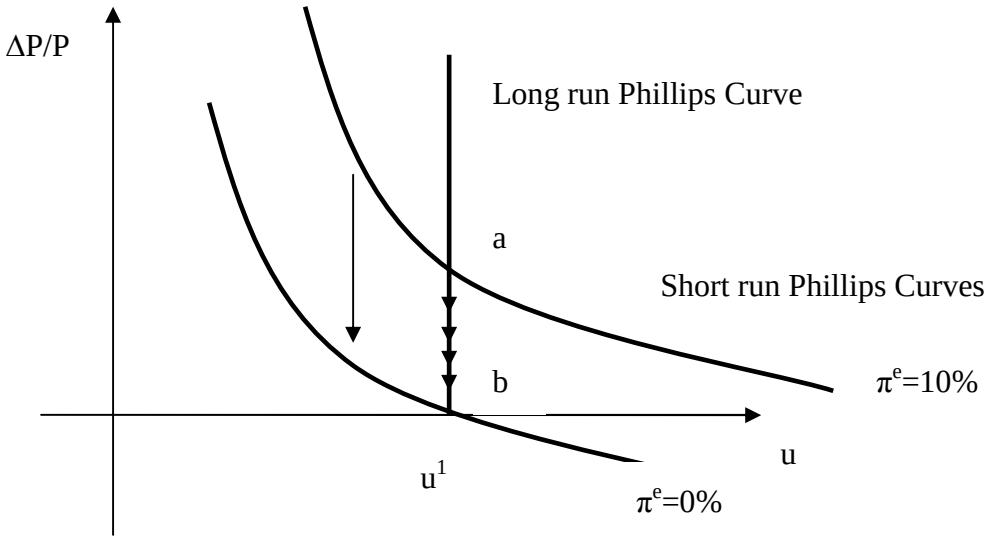
Therefore:

$$p_t = \frac{\beta_0}{\beta_1 + \alpha} + \frac{\beta_1}{\beta_1 + \alpha} m_t + \frac{\beta_2}{\beta_1 + \alpha} g_t - \frac{\bar{y}}{\beta_1 + \alpha} + \frac{(\upsilon_t - \mu_t)}{\beta_1 + \alpha} + \frac{\alpha}{\beta_1 + \alpha} p_t^e$$ The

equilibrium value for y_t is found for example, by substituting the above expression

for p_t into the aggregate demand function:

$$y_t = \frac{\beta_0 \alpha + \beta_1 \bar{y} + \alpha\beta_1 m_t + \alpha\beta_2 g_t}{\beta_1 + \alpha} - \frac{\beta_1 \alpha}{\beta_1 + \alpha} p_t^e + \varphi_t$$



Suppose we are at point *a* where we are on the short-run Phillips curve for a given inflation expectation of 10% (We suppose that inflation is equal to the money growth rate) intersects the long-run Phillips curve. Suppose that agents believe that the announcement of the central bank is **credible** (central banks that are politically independent are typically more credible than those that are "puppets" to elected officials. Hence, in countries with central banks that are NOT politically independent, it is usually far costlier to reduce inflation. A very worthwhile reform, therefore, would be for governments to give their central banks independence).

Agents will adjust their expectations and so the short-run Phillips curve will shift down to the curve associated with an expected inflation of 0%.

The movement will be from *a* to *b* after the policy is implemented and so in theory there will not be effects on unemployment. Obviously this result depends on the fact that we assume that we are always very close to the natural rate of unemployment (or in terms of the AD-AS model, very close to the natural level of employment).

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Lucas' Critique

The Lucas' critique (R.E. Lucas, 1976) referred to a critique to the way macroeconometric models were used to analyse and forecast the effects of economic policies. Now it is referred more generally to a critique to economic policy in general.

The idea is the following: according to new classical macroeconomists, when a government changes a policy or implements a new policy it should take into account that also the behaviour of the agents will change.

When we have analysed the effects of fiscal policy in the IS-LM model, we have done that by assuming that all the other parameters of the model would remain constant.