Time inconsistency problem is the situation in when the agent making decision cannot commit to the first-best policy. In the context of central banking, time inconsistency problem exists when the central bank cannot commit to price stability. Time inconsistency problem implies that agents have rational expectations, i.e. agents change expectations about future inflation following a monetary expansion even when the central bank says it is a temporary policy. This makes monetary policy become ineffective.

Figure 1: Time Inconsistency Problem and Phillips Curve
Figure 2: Time Inconsistency Problem in AD-AS Model