

Is Abenomics neoclassical or Keynesian?

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1 Introduction

We will examine Abenomics, which is a policy package in contemporary Japan. In general, macroeconomic policies are divided into neoclassical and Keynesian. So we will check whether this policy package is neoclassical or Keynesian.

Originally all macroeconomic policy used to be Keynesian. Lucas critique, however, changed the situation. Lucas (1976) pointed out the necessity of micro foundation of macroeconomics. After this, real business cycle theory, RBC, was proposed by Kydland & Prescott (1982).

Against this, new Keynesians opposed by raising rigidity of prices. They, however, shared rational expectation and optimization. So in 1990s, new neoclassical synthesis happened. Macroeconomist introduced new Keynesian characters into RBC and built dynamic stochastic general equilibrium model, DSGE.

2 RBC

RBC is an economic model including both of growth and business cycle. The model has only real variables and excluded all nominal variables.

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The model consists of seven equations.

$$\frac{C_{t+1}}{C_t} = \beta(r_{t+1} - \delta + 1) \quad (1)$$

$$\frac{w_t}{C_t} = (\gamma + 1)\mu L_t^\gamma \quad (2)$$

$$Y_t = A_t K_t^\alpha L_t^{1-\alpha} \quad (3)$$

$$w_t = (1 - \alpha) K_t^\alpha L_t^{-\alpha} \quad (4)$$

$$K_{t+1} = Y_t + (1 - \delta)K_t - C_t \quad (5)$$

$$r_t = \alpha A_t K_t^{\alpha-1} L_t^{1-\alpha} \quad (6)$$

$$\ln A_{t+1} = \rho \ln A_t + \varepsilon_{t+1} \quad (7)$$

Equation (1) is Euler equation and equation (2) shows the substitution between labor and consumption. Here equilibrium rate of interest is determined realistically. So the model does not refer to natural rate of interest.

3 DSGE

In DSGE, capital is abstracted. So national income equals to consumption. There is no investment. Instead of that, the model introduces prices. Prices has stickiness. This premise needs the assumption of monopolistic competition¹.

DSGE consists of nine equations.

$$(1 + \pi_{T+1}) \frac{C_{t+1}}{C_t} = \beta(1 + i_t) \quad (8)$$

$$\frac{1 + \tilde{\pi}_t}{1 + \pi_t} = \frac{\theta}{\theta - 1} \frac{F_t}{Z_t} \quad (9)$$

$$F_t = \varphi_t + \omega\beta(1 + \pi_{t+1})^\theta F_{t+1} \quad (10)$$

$$Z_t = 1 + \omega\beta(1 + \pi_{t+1})^{\theta-1} Z_{t+1} \quad (11)$$

¹ Monopolistic competition was combined with general equilibrium by Triffin (1940), Negishi (1961) and Blanchard & Kiyotaki (1987).

$$(1 + \pi_t)^{1-\theta} = (1 - \omega)(1 + \tilde{\pi}_t)^{1-\theta} + \omega \quad (12)$$

$$i_t = i^* + \phi_\pi \pi_t + \phi_y \ln \frac{C_t}{A_t C^*} + v_t \quad (13)$$

$$v_{t+1} = \rho_v v_t + u_{t+1} \quad (14)$$

$$\ln A_{t+1} = \rho \ln A_t + \varepsilon_{t+1} \quad (15)$$

$$\varphi_t = \mu(\gamma + 1) \left(\frac{C_t}{A_t} \right)^{\gamma+1} \quad (16)$$

Here

$$F_t = \sum_{i=0}^{\infty} \omega^i \beta^i \varphi_{t+i} \left(\frac{P_{t+i}}{P_t} \right)^\theta \quad (17)$$

$$Z_t = \sum_{i=0}^{\infty} \omega^i \beta^i \left(\frac{P_{t+i}}{P_t} \right)^{\theta-1} \quad (18)$$

Equation (8) is Euler equation. Equation (13) indicates Taylor rule².

4 Linear Logarithmic Form of DSGE

Because original DSGE is not linear, we take the logarithm of equations.

$$\pi_t = \beta \pi_{t+1} + \kappa \hat{x}_t \quad (19)$$

$$\hat{x}_t = \hat{x}_{t+1} - (\hat{i}_t - \pi_{t+1}) + v_t \quad (20)$$

$$\hat{i}_t = \phi_\pi \pi_t + \phi_y \hat{x}_t + v_t \quad (21)$$

$$v_{t+1} = \rho_v v_t + u_{t+1} \quad (22)$$

$$a_{t+1} = \rho a_t + \varepsilon_{t+1} \quad (23)$$

$$v_t = a_{t+1} - a_t \quad (24)$$

Here

$$\kappa = \frac{(1 - \omega)(1 - \omega\beta)(\gamma + 1)}{\omega} \quad (25)$$

Variables with hat indicate separation from steady state. Equation (19) is called

² We consider here inflation targeting as zero.

new Keynesian Phillips curve. Equation (20) is called new Keynesian IS curve. Equation (21) is Taylor rule.

Inflation rate of next period is inflation expectation. So if the central bank can raise this expectation by commitment, actual inflation rate will be accelerated through equation (19). And then, national income will increase through equation (20).

5 Conclusion

In Abenomics, Bank of Japan adopts qualitative quantitative easing policy, QQE. This is a policy through which they affect people's expectation of future inflation. So Abenomics is neither neoclassical nor Keynesian. It is a policy package of new neoclassical synthesis³.

Reference

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³ In the case of RBC, both financial policy and fiscal policy does not function. In DSGE, fiscal policy also has few effect because the model has neoclassical characters.