CC-8 ,Module -5,

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Adaptive Expectation Hypothesis:

Introduction

The Adaptive Expectation is first put forward by Cagan (1956) and Neriove (1958), where they explained that individual will change the expectation of any variable if there is a difference between what he was expecting the value of variable to be in the last period and what it actually was in the last period . This change of expectation will be a fraction of the difference between the last period actual value and the expected value. Thus an individual makes his expectation about the value that a variable will be in the future using the historical data. In other words,

Adaptive Expectation means that people will form their expectation about what will happen in the future based upon actually what happened in the past and they will ignore any available information.

Mathematical expression:

To represent Adaptive Expectation mathematically , consider a simple example of price level or inflation in the economy given as—

$P^e_t = P^e_{t-1} + \text{lemda} (P_{t-1} - P^e_{t-1})$ -----(A)

Where, P^e_t = expected price level for the current period

P^e_{t-1} = expected price level for the last year

P_{t-1} = actual price level in the last year

lemda= Parameter with which expectations are revised and

The value of lemda ranges between 0 and 1 i.e. 0<lemda<1.

The equation says that a current expectation of future price level is a reflection of the past expectation and error adjustment term. The current expectation is raised or lower according to the gap between the actual price level and the expectation about the price level in the previous period. This error adjustment parameter lemeda is also called the partial adjustment factor.

Example :

Suppose an individual expect that current (2010) rate of inflation would be 10% but he faced actually 12% inflation rate , so there is a difference of 2% between the expected rate and the actual rate.

Now as per AEH, next time while making his expectation , individual will add a fixed proportion of this difference. Suppose he add 0.5 as the fixed proportion of this difference between actual and expected rate, so in the next period (2011) instead of 12% he will expect inflation between 10% to 12 % due to the adaptive nature..further assume that the actual rate of inflation in each year is 12 % for simplicity. So on the basis of equation –(A)

$$P^e_{2011} = 10\% + 0.5\,(12-10)\%$$

$$= 10\% + \frac{0.5^1 \times 2}{10_{\cancel{x}}}\%$$

$$= 10\% + 1\%$$

$$= 11\%$$

$$P^e_{2012} = P^e_{2011} + \lambda\,(P_{2011} - P^e_{2011})$$

$$= 11\% + 0.5\,(12\% - 11\%)$$

$$= 11\% + 0.5\%$$

$$= 11.5\%$$

$$P^e_{2013} = P^e_{2012} + \lambda\,(P_{2012} - P^e_{2012})$$

$$= 11.5\% + 0.5\,(12 - 11.5)\%$$

$$= 11.5\% + 0.25\%$$

$$= 11.75\%$$

<u>Features **of** Adaptive expectation</u>**:**

1. People can be fooled in the short –run but they cannot be fooled in the long –run i.e. they may deviate in the short –run but in they will eventually catch the actual value , as seen from example, in the subsequent year the expected rate of inflation is close to actual rate of inflation
2. This approach is quite general in nature i.e. it can be used for several variables like inflation , unemployment ,growth etc.
3. It allows to relates the unobservable variable with actual observable variable

From above equation :-

$$P_t^e = P_{t-1}^e + \lambda (P_{t-1} - P_{t-1}^e)$$

It can be written as –

$$P_t^e = P_{t-1}^e + \lambda (P_{t-1}) - \lambda (P_{t-1}^e)$$

Or, $$\boxed{P_t^e = \lambda P_{t-1} + (1-\lambda) P_{t-1}^e} \quad - \text{①}$$

● Suppose, Price expectation in period $t-1$.

$$P_{t-1}^e = \lambda P_{t-2} + (1-\lambda) P_{t-2}^e$$

$$P_{t-2}^e = \lambda P_{t-3} + (1-\lambda) P_{t-3}^e$$

$$P_{t-3}^e = \lambda P_{t-4} + (1-\lambda) P_{t-4}^e$$

$$P_{t-4}^e = \lambda P_{t-5} + (1-\lambda) P_{t-5}^e \quad \text{and so on} \dots$$

● on putting the value of P_{t-1}^e in eqn ① we get eqn in terms of P_{t-2}^e. Again putting the value of eqn P_{t-2}^e and so on the value of P_{t-3}^e, P_{t-4}^e and other, we get the original equation in the form of –

$$\boxed{P_t^e = \lambda P_{t-1} + \lambda (1-\lambda) P_{t-2} + \lambda (1-\lambda)^2 P_{t-3} \cdots}$$

So, it follows –

Expected value of variable in this period = simple mathematical function of past period actual value of that variable

e.

4. AEH puts more weight to the near past period than the period which is far distant.

Drawbacks of Adaptive Expectation Hypothesis:

Adaptive Expectation Hypothesis can be implausible in several situation because the hypothesis assumes that the agent ignores the available information, and predict the system of change in inflation and keep on making systematic error.

NOTE: To avoid this situation shifting Year has been suggested by Fleming .Shifting years mean that instead of expecting the inflation , the expectation are formed about change in inflation.

Conclusion:

Thus from above we conclude that Adaptive expectation Hypothesis ignores information which would help them for better expectations.this hypothesis is simple as people base their expectation on what happened in the past so,the behaviour of the agent is sub-optimal.

Thank you.