Introduction to Dynamic Models

Chahir Zaki

Cairo University and ERF

Chahir.zaki@feps.edu.eg

Dynamics

- This is a *recursive* dynamic model, which means that the underlying behavioral assumptions *do not* involve any intertemporal optimization, as opposed to *intertemporal* dynamic models, where they do.
- In this model, each period is solved as a static equilibrium, subject to the variables inherited from the preceding period.
- The dynamic equations define how the variables that link each period to the next evolve between periods

Balanced growth path

- Dynamic assignments constitute the link from one period to the next. They fall into two categories: one set of statements update variables that grow at a constant rate per period; the other equations control the accumulation of capital.
- The reason for assuming that constants and exogenous variables grow at the same rate as labor supply is to make it possible for the model to simulate a *balanced growth path (see graph)*.
- An economy is said to follow a balanced growth path if all quantities grow at a constant rate, while relative prices remain constant. Of course, a balanced growth path is by no means a realistic scenario. But it may be useful as a « business-as-usual » (BAU) scenario, or to test model consistency.

Equations

- Capital accumulation

$$KD_{k,j,t+1} = KD_{k,j,t}\left(1-\delta_{k,j}\right)+IND_{k,j,t}$$

- Population growth and other exogenous variables

References

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Thanks for your attention