Assessment of Economic Impact of Covid-19: DSGE Model

Why in News

The **Reserve Bank of India (RBI)** is using **Dynamic Stochastic General Equilibrium (DSGE) model** to provide a **tentative and proximate assessment** of the likely impact of **Covid-19** and the **subsequent lockdown** on the Indian economy.

Key Points

- **DSGE Model:**
  - DSGE modelling is a method in macroeconomics that attempts to explain economic phenomena, such as economic growth and business cycles, and the effects of economic policy, through **econometric models** based on applied **general equilibrium theory** and economic principles.
    - **Econometrics** is the application of statistical methods to economic data in order to give empirical content to economic relationships.
    - **General Equilibrium Theory** is a macroeconomic theory that explains how supply and demand in an economy with many markets interact dynamically and eventually culminate in an equilibrium of prices.
  - RBI has considered three main economic agents, viz., **households, firms and the government.**
    - Because of lockdown, households have to stay at home and therefore, reduced labour supply to firms and consumption and income fall due to non-availability of non-essential items.
- **Possible Scenarios under the DSGE Model:**
  - **First scenario i.e lockdown I** which impacts the supply side of the economy by decreasing the labour supply and its productivity.
  - **Second scenario i.e lockdown II,** which additionally considers the increase in marginal cost i.e. the additional cost incurred in the production of one more unit of a good or service.
    - Inflation is expected to decline under both the first and second scenario.
    - Under the **first scenario production cut is less severe,** but **demand contraction is more pronounced** due to a rise in infections.
    - In the **second scenario firms will curtail production** as profits take a hit, wages see a lower rise and the economy goes through a large contraction.
    - However, the **recovery from the pandemic is faster in the lockdown scenario** on account of fewer opportunities for people-to-people interactions.
  - RBI has calibrated the DSGE model for the above two scenarios by **assuming** that:
    - Covid-19 infections peak around the second half of August 2020.
    - The output gap (difference between the actual and the potential output) reduces to about 12% of potential output when the economy is worst hit.
  - In both the scenarios of two lockdowns, the decline in economic activity reaches its bottom

in April-June quarter of 2020-21 and recovers thereafter, with growth turning gradually positive from January-March quarter 2020-21.

- **Third scenario** i.e the **government does not impose a lockdown,** the pandemic is more widespread and peaks in the second half of January 2021 with a very slow recovery.
    - This will cause a persistent labour shortage and the supply shock will increase the inflation and reduce the output.

Source: IE