

# Mathematical Models of Infectious Diseases and Social Issues

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# Chapter 12

## Mathematical Model to Analyze Effect of Demonetization

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### ABSTRACT

*Demonetization is a fundamental regulatory act of stripping in which a currency unit's status as an exchange is professed worthless. Generally, it is done whenever there is a change of national currency, often to be replaced of the old notes or coins with a new one. Sometimes, a country totally replaces the old currency with new currency. For example, in India recently the government demonetized RS. 500 and 1000 notes. So, one has to deposit their cash within limited time in the banks. The demonetization affects individuals mildly or potentially, which in turn affects banking sector. So, SMPB-model is proposed and analyzed for demonetization. The SMP-model is formulated with the system of nonlinear differential equations. The effect of demonetization is studied by calculating threshold using next generation matrix. The local and global stability for demonetization free equilibrium and demonetization equilibrium is worked out. The existence of the equilibrium is investigated. The model is validated with numerical simulation.*

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