Title: Epidemiological Models with Endogenous Behavioural Response

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Abstract:
The properties of the models of epidemiology are well known. Here, we consider the standard SIR model of epidemiology extended to incorporate behavioural responses by agents.

Introducing such endogenous behaviour by Susceptibles into a standard SIR model is known to influence the solution paths of the models in ways which are highly relevant to current policy debates over the release of lockdown.

Here, we examine two variants of this approach. In one, agents modify their behaviour homogenously as the proportion of Infecteds rise. This reduces the proportion of the population which over time experience the disease. In addition, the peak infection rate is reduced very substantially.

In the second, there are two groups with different death rates to the disease, one of which is very low. We assume that the agents extend the set of information to which they respond. In addition to the infection rate, they take into account the death rates of their respective groups. These assumptions give an outcome which is much closer to the basic SIR model results.


Data: the model(s) are theoretical

JEL codes: I10; I12; I18

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