A Suplemental Material

A.1 Physical Distance Mechanism

Let's look at Figure A1 to explain the mechanism of the physical distance modulation. In this graph we vary the time length and the ratio of the infection to simulate the effect of alternating physical distancing measures. The top panel on Figure A1 is the dynamic of the symptomatic cases **I**, where the black plot represents the scenario where no measures are applied. Hence, there is no physical distancing $f(t) = 1$ for all t to account for 100% contact rate. The gray graph is the one applying physical distancing as shown in the bottom graph that represents our piece-wise function $f(t)$.

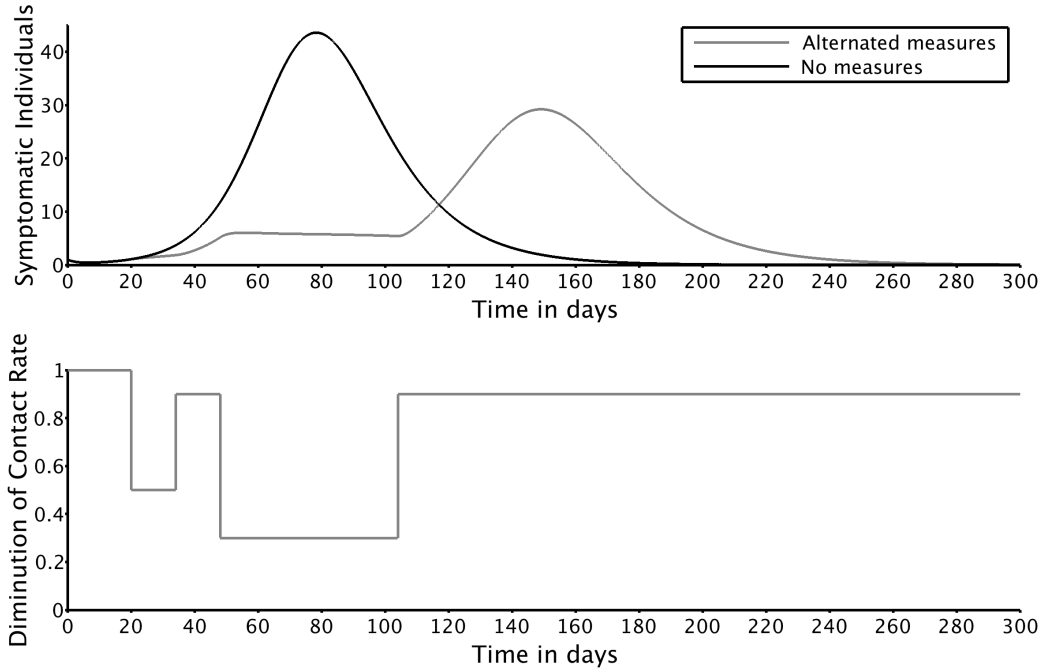

Figure A1: The effect of alternate physical distancing measures on the epidemic curve.

In this example we start physical distancing measures on day 20 (i.e. $t_{pdOn} = 20$ after the start of the epidemic) and lower the transmission rate 50% for two weeks (i.e. $t_{pdOff} = 34$ two weeks after implemented + $t_{pdOn} = 20$). Then, measures are relaxed for two weeks. At this time the infection rate is decreased by 10%, assuming people are a little bit more careful by washing their hands or using cloth masks. After these two weeks, when cases start to increase again, the physical distancing measures are taken more strictly, thereby decreasing the infection rate by 70% for six weeks. Thus, we found the famous "flatten the curve" scenario. If a vaccine or effective treatment is not implemented before the physical measures are lifted, the epidemic will raise again.

A.2 Other Physical Distance Scenarios

In Figure A2 we show the case where just one restrictive policy that declines the infection rate by 80% is applied for 250 days. The probability of infection is then kept by a permanent reduction of 25% to account for people being more careful and taking measures to avoid being infected. In this case the peak of the distancing curve arrives much later than before at approximately day 400. Fewer lives (9,558 persons) are lost and the federal budget decreases by $501 billion relative to the alternated cycles of Figure 2 in our article, because the pandemic ends later and the economy declines more under this scenario. Note that in any of these scenarios, a race towards herd immunity does not minimizes neither the human nor the fiscal cost.

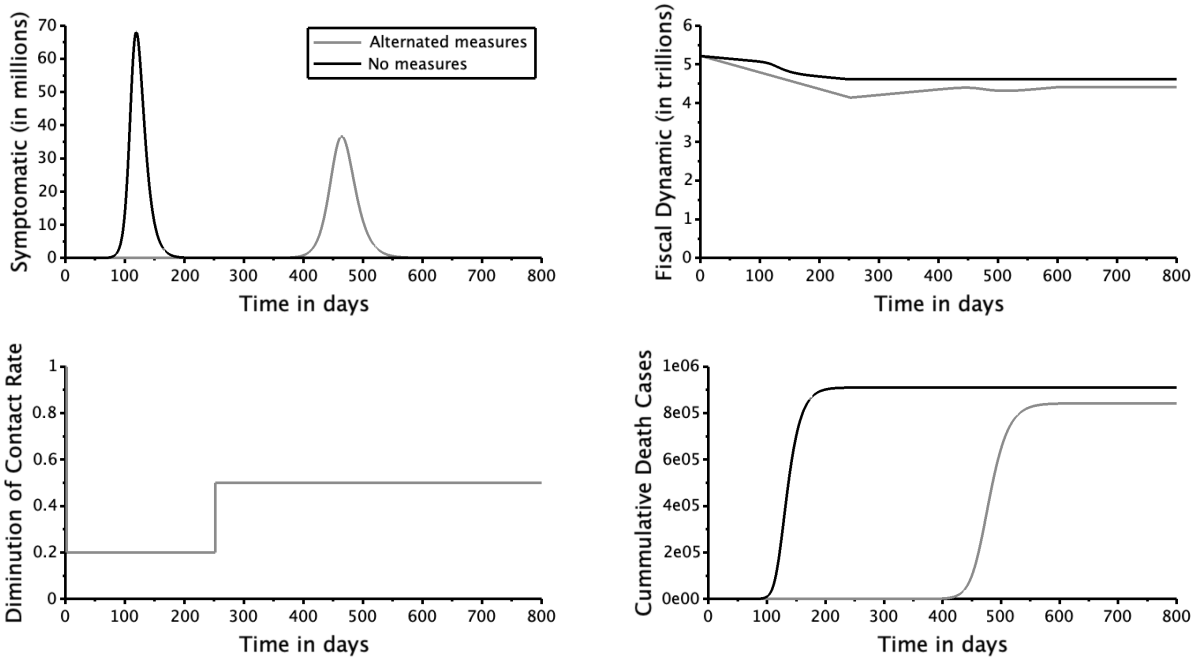

Figure A2: Distancing of 20% for 250 days after the pandemic, followed by 75% distancing.

Table 1: Cumulative death cases and fiscal impact of the regime in Figure A2

Reduction in probability of infection	Cumulative Death cases	Budget after 800 days
No measures	910,071	$4,613,075,068,251
20% for 250 days then 75%	841,948	$4,411,368,646,502