Objective: \$1, 100, 827, 478, 254; without intervention: \$1,003,571,304,682 (Desired optimality gap: 1%; actual: 0%. Lower Bound: \$1,099,727,000,000. Time to solve: 228s) $C' = \$10,000, C^D = \$10,000,000$ One Period=7 days (costs scaled by 1,000,000 during optimization) Solved using solve_and_process_quadratic. Quadratic approximation objective: \$835, 133, 745, 636 Infected - No intervention 300000 Infected Cumulative Deaths - No intervention Cumulative Deaths Recovered - No intervention Recovered Susceptible - No intervention 250000 Susceptible Cumulative Costs of Interventions Cumulative Cost Total • • Cumulative Cost Total - No intervention - \$800,000 200000 150000 - \$400,000 100000 \$200,000 50000 60 62 64 66 68 70 100 Period
 60
 61
 62
 63
 64
 65
 66
 68

 -60
 -61
 -62
 -63
 -64
 -65
 -67
 -69
70 99 -59 -98 -99 2 2 2 2 Education (University level) 2 2. Social Gatherings (in a house) A: $\$[0 , 0 , 0 , 0] \cdot 10^2$ B: $\$[0 , 0 , 0 , 0] \cdot 10^2$ C: $\$[8 , 10 , 12 , 14] \cdot 10^2$ 3. Non-Food Service (bank, retail, etc) 2 2 1 1 3 3 3 3 3 2 3 3 2 3 3 |1 |1 |1 |1 |1 |1 |1

\$3.3e+ \$3e+09 \$2.6e+ \$2.4e+ \$1.7e+ \$1.7e+ \$1.4e+ \$1.1e+ \$3.2e+ \$3e+09 \$2.6e+ \$2.4e+ \$1.7e+ \$1.7e+ \$1.4e+ \$1.1e+ \$1.8e+ \$1.4e+ \$1.2e+ \$9.7e+ \$8e+06 \$6.8e+ \$5.4e+ \$3.9e+ 0.550 0.581 0.628 0.675 0.748 0.734 0.787 0.791

\$1e+09 \$1e+09 \$7.7e+05 0.813

Movement

A: $\$[5000, 10000] \cdot 10^2$

B: \$[10000,20000] 10² C: $\$[10 , 14] \cdot 10^2$ P: [.95 ,.93]

A: $\$[0, 0] \cdot 10^2$

B: $\$[0, 0] \cdot 10^2$ C: $\$[10 , 14] \cdot 10^2$ P: [.99 ,.95]

P: [.99 ,.99 ,.97 ,.93]

A: \$[2500 ,5000 ,10000] 10²

B: \$[5000 ,10000,20000] 10² C: \$[8] , 10 , 14] $\cdot 10^2$ P: [.99 ,.95 ,.93]

A: $\$[0, 0, 0] \cdot 10^2$

B: $\$[0 , 0 , 0] \cdot 10^2$ C: \$[8 ,10 ,14] 10² P: [.99 ,.95 ,.93]

A: \$[2500 ,5000 ,10000] 10²

B: \$[5000 ,10000,20000] 10² C: $\$[8 , 10 , 14] \cdot 10^2$

P: [.99 ,.95 ,.93]

8. Physical Distancing

Cost Per Period: TOTAL

Probability Factor

Cost Per Period: POLICY Cost Per Period: DISEASE \$1.8e+10 \$3.7e+09 \$1.4e+10 0.509

7. Border Control A: $[5000, 10000] \cdot 10^2$ **B:** \$[10000,20000] 10² C: \$[10 ,14] 10² P: [.95 ,.93]

A: $\$[0] \quad]\cdot 10^2$

B: \$[0] 1.10^2 C: $\$[10] \cdot 10^2$

P: [.93]

4. Restaurants

5. Masking

6. Mega Events

A: \$[5000 ,10000] 10² B: $\$[10000,20000]\cdot10^2$ C: \$[10 ,14] 10² P: [.95 ,.93]