Objective: \$1, 100, 887, 661, 519; without intervention: \$1,003,571,304,682 (Desired optimality gap: 1%; actual: 25%. Lower Bound: \$826,865,000,000. Time to solve: 200s) $C^{\prime} = \$10,000,C^{D} = \$10,000,000$ One Period=7 days (costs scaled by 1,000,000 during optimization) Solved using solve_and_process_quadratic. Quadratic approximation objective: \$835, 133, 728, 054 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 \$600,000 150000 - \$400,000 100000 \$200,000 50000 60 62 64 66 68 70 100 Period
 60
 61
 62
 63
 64
 65
 66
 67
 68

 -60
 -61
 -62
 -63
 -64
 -65
 -66
 -67
 -69
70 -59 -99 2 1 1 1 1 1 1 1 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 2 2 3 3 3 3 3 2 3 3 3 2 |3 |1 |1 |1 |1 |1 |1 |1 |1

\$3.3e+ \$2.8e+ \$2.4e+ \$2.1e+ \$1.7e+ \$1.7e+ \$1.4e+ \$1.4e+ \$1.1e+ \$3.2e+ \$2.8e+ \$2.3e+ \$2e+09 \$1.7e+ \$1.7e+ \$1.4e+ \$1.4e+ \$1.4e+ \$1.1e+ \$1.8e+ \$1.4e+ \$1.2e+ \$9.7e+ \$8.1e+ \$6.8e+ \$5.8e+ \$4.9e+ \$3.9e+ 0.550 0.596 0.645 0.679 0.714 0.734 0.752 0.787 0.791

\$1e+09 \$1e+09 \$7.4e+05 0.813

Movement

A: $\$[5000,10000]\cdot10^2$

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

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

B: $\$[0, 0] \cdot 10^2$ C: \$[10 ,14] 10²

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

A: \$[2500 ,5000 ,10000] 10²

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

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

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]

P: [.95 ,.93]

P: [.99 ,.95]

4. Restaurants

5. Masking

6. Mega Events

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