Objective: \$1,028,057,219,556; without intervention: \$1,003,571,304,682 (Desired optimality gap: 1%; actual: 9%. Lower Bound: \$933,834,000,000. Time to solve: 110s)

 $C' = \$10,000, C^D = \$10,000,000$. Zero switching costs. One Period=7 days (costs scaled by 1, 000, 000 during optimization)
Solved using solve_and_process_lagrangian_threshold_0.1_use_smart_stepsize_True_L1_optGap_0.025_L2_optGap_0.1_L2_max_time_200 Infected - No intervention Infected Cumulative Deaths - No intervention Cumulative Deaths Recovered - No intervention Recovered Susceptible - No intervention 250000 Susceptible Cumulative Costs of Interventions \$800,000 Cumulative Cost Total Cumulative Cost Total - No intervention 200000 \$600,000 <u>은</u> 150000 - \$400,000 100000 \$200,000 Period -99 Education (University level) 2. Social Gatherings (in a house) A: $\$[0, 0, 0, 0] \cdot 10^2$ B: $\$[0 , 0 , 0 , 0] \cdot 10^2$ C: $\$[8 , 10 , 12 , 14] \cdot 10^2$ P: [.99 ,.99 ,.97 ,.93] 3. Non-Food Service (bank, retail, etc) 1

Movement

A: $\$[5000,10000]\cdot10^2$ B: $\$[0 , 0] \cdot 10^2$ C: $\$[10 , 14] \cdot 10^2$ P: [.95 ,.93]

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

A: \$[2500 ,5000 ,10000] 10² B: $\$[0 , 0 , 0] \cdot 10^2$ C: $\$[8 , 10 , 14] \cdot 10^2$ P: [.99 ,.95 ,.93]

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

A: \$[2500 ,5000 ,10000] 10² B: $\$[0 , 0 , 0] 10^2$ C: $\$[8 , 10 , 14] \cdot 10^2$ P: [.99 ,.95 ,.93]

4. Restaurants

5. Masking

6. Mega Events

7. Border Control A: $\$[5000,10000]\cdot10^2$ B: $\$[0 , 0] \cdot 10^2$ C: $\$[10 , 14] \cdot 10^2$ P: [.95 ,.93]

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

B: \$[0] 1.10^2 C: $\$[10] \cdot 10^2$ P: [.93]

8. Physical Distancing

Cost Per Period: TOTAL

Probability Factor

Cost Per Period: POLICY Cost Per Period: DISEASE \$1e+10 \$3e+08 \$1e+10 0.925

A: $\$[5000,10000]\cdot10^2$ **B**: $\$[0 , 0] 10^2$ C: $\$[10 , 14] 10^2$ P: [.95 ,.93]