Simulation with $\beta_0=0.15$ and $\beta_1=0.2$, seed: I1 = 20, I2 = 10 Mean I_cum with Mean R 200000 150000 Population Mean I_cum 100000 Mean R Mean S 50000 0 Primary infections I1, I2, and recovered R1, R2 20000 Mean I1 Mean I2 15000 Population Mean R1 10000 Mean R2 5000 0 Time (days) Secondary infections I12, I21, and recovered R1, R2 20000 Mean I12 Mean I21 15000 Population Mean R1 10000 Mean R2 5000 0 Time (days) All infections I1, I2, I12, I21 to check overlap Mean I1 1500 Mean I2 Population 2000 Mean I12 Mean I21 0 Time (days) Secondary infections I12, I21 to check overlap Mean I12 400 Mean I21 Population 200 100 0 500 1000 2000 2500 3000 1500 3500 Time (days) $\beta(t)$ parameter over time 0.18 0.16 0.14 0.12 -0 500 1000 1500 2000 2500 3000 3500 Time (days)