Simulation with $\beta_0=0.15$ and $\beta_1=0.15$, 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 Mean I1 15000 Mean I2 Population Mean R1 10000 Mean R2 5000 0 Time (days) Secondary infections I12, I21, and recovered R1, R2 Mean I12 15000 Mean I21 Population Mean R1 10000 Mean R2 5000 0 Time (days) All infections I1, I2, I12, I21 to check overlap Mean I1 1000 Mean I2 Population Mean I12 Mean I21 500 0 Time (days) Secondary infections I12, I21 to check overlap Mean I12 300 Mean I21 Population 200 0 500 1000 2000 2500 3000 3500 1500 Time (days) $\beta(t)$ parameter over time 0.16 0.15 0.14 Ó 1500 500 1000 2000 2500 3000 3500 Time (days)