1. Consider a two-period OLG model, where each generation consists of n people. There is no production in this model and each person receives constant income Y. Young persons can buy government bonds when young and sell them when old. Let 1 denote the first period (young) and 2 the second period (old). For simplicity, assume constant interest rate. Each young person born in period t maximizes:

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subject to: *C1t + b1t+1 = Y1* -*T1t* and *C2t+1 = Y2 + (1+r)b1t+1 - T2t+1,* where *β= 1/(1+r)* and *Y1* -*T1t > Y2 – T2t+1*, while the old person (born in period t-1) in period t maximizes:

U2t = lnC2t

Subject to *C2t = Y2 + (1+r)b2t - T2t.*

Suppose that government lowers taxes imposed on the old in period t and issues one-period government bonds that are bought by the young. The bonds are bought out by the government using revenues from taxation imposed on the old in period t+1, hence dT2t = - db1t+1 = - θ and dT2t+1 = - (1+r)dT2t = (1+r)θ where θ > 0 is a measure of the change in taxation.

i) What would be the aggregate consumption in period t Ct = nC1t\*+ nC2t\*, if there is no change in taxation?

ii) What happens to the aggregate consumption in period t if taxes change in the beginning of the period t, dCt/dT2t?

iii) Using your answers to i) and ii) check whether the Ricardian equivalence holds in his model. Explain why.