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function F = rootGT1(x0,param)
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tau_k=param(1): % Capital income tax rate  
tau_w=param(2): % Labor income tax rate  
tau_c=param(3): % Consumption tax rate  
g_I=param(4): % Ratio of government investment to output  
g_C=param(5): % Ratio of government consumption to output  
g_W=param(6): % Ratio of wastful government expenditure to output  
beta=param(7): % Weight of leisure in utility  
etha=param(8): % Weight of real balances in utility  
phai=param(9): % Weight of government consumption in utility  
share=param(10): % Labor share in output  
effic=param(11): % TFP  
rho=param(12): % Time preference  
ganmma=param(13): % Elasticity of intertemporal substitution in consumption  
epsilon=param(14): % Geometric weight of average externalities derived from private capital
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x(1)=x0(1);  
x(2)=x0(2);
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```
F(1) = (1/(1-ganmma-etha*ganmma-phai*ganmma))*(1-tau_k)*(1-share)*effic*exp((share*(1-epsilon))*log(x(1)))-effic*g_I*exp((share*(1-epsilon)-1)*log(x(1)))-rho*exp(-share*log(1-x(2)))/(1-ganmma-etha*ganmma-phai*ganmma);  
F(2) = -x(1)+g_I*(1-x(2))/(((1-g_I-g_C-g_W)+((1-tau_w)/(1+tau_c))*share/beta)*(1-x(2))-((1-tau_w)/(1+tau_c))*share/beta);
```