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%% Section 5: Defining x, xp, y, yp
% Define the vector of states, x and xp
x = [k_cu  c_bal  a_cu  d_cu];
xp = [k_cup  c_balp  a_cup  d_cup];
% Define the vector of controls, y and yp
y = [c_cu  iv_cu  y_cu  la_cu  n_cu  rk_cu  w_cu ];
yp = [c_cup  iv_cup  y_cup  la_cup  n_cup  rk_cup  w_cup];

% For the log-approximation
f = subs(f, [x,y,xp,yp], exp([x,y,xp,yp]));

% Phi: the expected value for the exogenous shocks, else use Phi =
[]
Phi = [RHOA*log(a_cu);RHOD*log(d_cu)];
% For the log-approximation
Phi = subs(Phi, [x,y,xp,yp], exp([x,y,xp,yp]));

```