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function [ b, se, tratio, rsq, aic, bic ] = olsregression(z,y,c)

% This function calculate OLS estimator, standard errors, t-ratios, R square, AIC and BIC
% y: dependent variable, z: regressor
% c=1 if z contains a unit vector
% c=0 if z does not contain a unit vector:

% check for input errors
[n, l] = size(z);          % n = # of obs., l = # of regressors
[m, p] = size(y);
if p > 1
    error('Y must be a vector.');
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end
if m~=n
    error('Y and X must have the same number of rows.');
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end
if l > n
    error('More parameters than observations.');
```

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end

% Add a unit vector to the regressor if needed.
if c == 1;
    x = z;
elseif c == 0;
    x=[ones(n,1) z];
    l = l +1; % # of regressors
else
    error('c is not correctly specified.')
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end;

% run ols
invx = inv(x'*x);
b = invx*x'*y;
resid = y - x*b;
sighat = resid'*resid/(n-l);
se = sqrt(sighat*diag(invx));
tratio = b./se;
ymb = y - mean(y)*ones(n,1);
rsq = 1 - (resid'*resid)/(ymb'*ymb);
aic = log(sighat)+2*l/n;
bic = log(sighat)+log(n)*l/n;
end
```