



(-)ansa



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%HPF Apply "Hodrick-Prescott" filter to time series.
%
% hpf_hansa(matrixName, lamda)
% Apply HP filter on the specified matrixName using the specified lamda
% value
%
% Example:
%
% hpf_hansa('A', 500)
%
% It returns a structure that contains a returnMessage and returnValue(which is
% 0 if the call is successful or a negative number)
%
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function hpf_hansa(y, lam)

r = rows(y);
c = cols(y);

%ny = max(r,c).. This is returning some weird value

if(r > c)
    ny=r;
else
    ny=c;
end

if (r < c)
    trans('y')
end

disp('Computing Hodrick-Prescott Filtered Time Series with Matrix Inversion
using HANSA')
disp('Growth Component is available in HANSA as g')

% Strategy: Structure difference equation as a matrix equation:
% M g = y
% and then invert M

zeros(ny,ny, 'M');

ones(ny-2,1, 'd1');
multiply('d1', lam, 'd1');

ones(ny-1,1, 'd2');
multiply('d2', (-4*lam), 'd2');

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```
setElement('d2',2,1,1,1,(-2*lam));
setElement('d2',2,1,(ny-1),(ny-1),(-2*lam));

ones(ny,1,'d3');
multiply('d3',(1+6*lam),'d3');
setElement('d3',2,1,1,1,(1+lam));
setElement('d3',2,1,2,2,(1+5*lam));
setElement('d3',2,1,(ny-1),(ny-1),(1+5*lam));
setElement('d3',2,1,ny,ny,(1+lam));

diag('d1','c1',2);
diag('d2','c2',1);
diag('d3','c3',0);
diag('d2','c4',-1);
diag('d1','c5',-2);

add('c1','c2');
add('c2','c3');
add('c3','c4');
add('c4','c5');

inv('c5');

r1=rows('c5');
zeros(r1,c,'g');

multiply('c5',y,'g');

if (r < c)
    trans('g')
end

end
```