

Simulated RW: GDP00RW = GDP00RW(-1) + 4\*(normal rv: 0,1)

Initial Value = 100



GDP Constant Trend & HP Filtered Trend (lamda=1600)

(GDP in 2000 Constant $)



GDP HP Filtered with lamdda =16, 1600, 160000

HP Filter: Select smoothed series (s) to minimize

Σ[y(t) – s(t)]2 + λΣ[(s(t+1) – s(t)) – (s(t) – s(t-1))]2

“2-Sided Filter”

Intuition:

In the left hand term allowing the “smoothed” series (s) to track y(t) closer by allowing it to move as y(t) moves reduces the sum; in the right hand term, allowing the smoothed series to change more increases the sum

Seasonality and GDP

(GDP in $2000 not seasonally adjusted)

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| --- | --- | --- | --- | --- |
| Dependent Variable: DLOG(GDPSU2000) | | | |  |
| Method: Least Squares | | |  |  |
| Date: 09/17/15 Time: 11:46 | | |  |  |
| Sample (adjusted): 1951Q1 2003Q4 | | | |  |
| Included observations: 212 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.040877 | 0.002276 | 17.96072 | 0.0000 |
| @QUARTER=1 | -0.103456 | 0.003219 | -32.14261 | 0.0000 |
| @QUARTER=2 | 0.001100 | 0.003219 | 0.341806 | 0.7328 |
| @QUARTER=3 | -0.029213 | 0.003219 | -9.076254 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.870310 | Mean dependent var | | 0.007985 |
| Adjusted R-squared | 0.868439 | S.D. dependent var | | 0.045681 |
| S.E. of regression | 0.016569 | Akaike info criterion | | -5.343881 |
| Sum squared resid | 0.057102 | Schwarz criterion | | -5.280549 |
| Log likelihood | 570.4514 | Hannan-Quinn criter. | | -5.318284 |
| F-statistic | 465.2729 | Durbin-Watson stat | | 2.703868 |
| Prob(F-statistic) | 0.000000 |  |  |  |
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