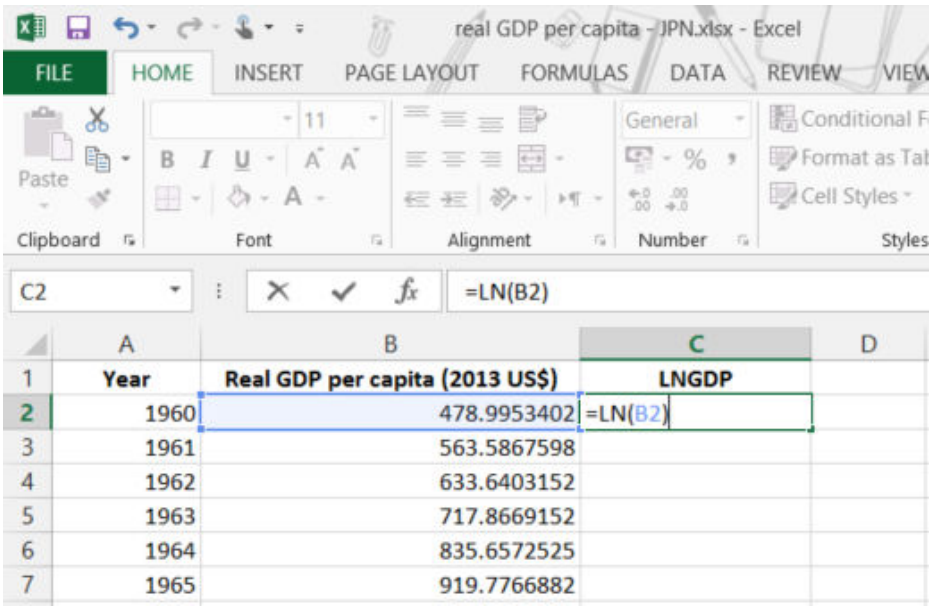
## Instructions and guide for installing and using the `HPFilter.xla` file

First download the Hodrick-Prescott filter from www.algarhi.com by saving it on your computer.

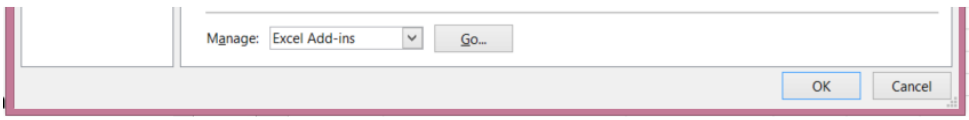
Open the dataset with Excel. To create a column of the natural logarithms of the real GDP per capital (LNGDP). Click on the cell `C2` and type the following function `=LN(B2)`, then click **Entre**. Copy the same function all the way to the cell `C55`.



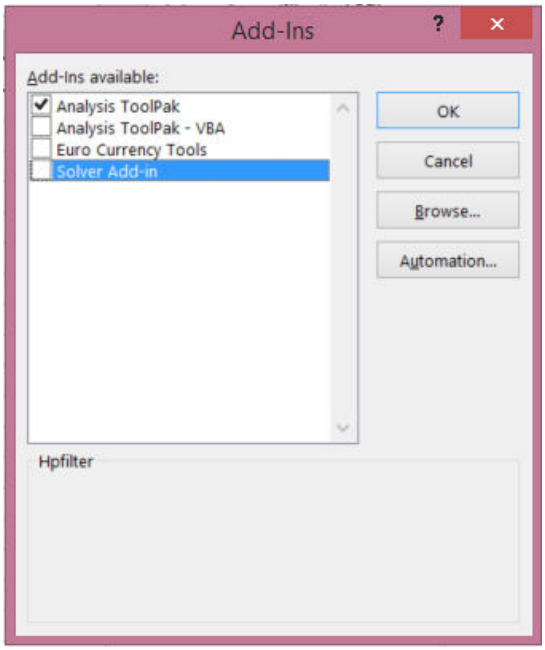

To load and install the Hodrick-Prescott filter HP-filter function `=HP()`, you need to perform the following steps:

1. In Excel, click on **File / Options / Add-Ins**.

2. At the bottom of the 'Excel options' window you will find '**Manage: Excel Add-ins**', then click on **GO**.




3. The 'Add-Ins' window will appear, then click on **Browse…**. Select the file `HPFilter.xla`. After pressing **Ok**, the HP-filter has been installed and can now be used in Excel.




Now, to create a HP-filtered trend column (HPf trend), select the cells where the filter should write the trend component in. Note that it is important that you select as many cells as the original time series consists of (see the figure below).

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Year | Real GDP per capita (2013 US$) | LNGDP | HPf Trend | | |
| 2 | 1960 | 478.9953402 | 6.171690869 | | | |
| 3 | 1961 | 563.5867598 | 6.334321288 | | | |
| 4 | 1962 | 633.6403152 | 6.451481467 | | | |
| 5 | 1963 | 717.8669152 | 6.576284197 | | | |
| 6 | 1964 | 835.6572525 | 6.728218544 | | | |
| 7 | 1965 | 919.7766882 | 6.82413091 | | | |
| 8 | 1966 | 1058.503561 | 6.964611455 | | | |
| 9 | 1967 | 1228.90321 | 7.113882234 | | | |
| 10 | 1968 | 1450.619652 | 7.279746091 | | | |
| 11 | 1969 | 1663.0382 | 7.42003876 | | | |
| 12 | 1970 | 2003.647047 | 7.602724323 | | | |
| 13 | 1971 | 2234.261666 | 7.711666102 | | | |
| 14 | 1972 | 2917.658976 | 7.978536853 | | | |
| 15 | 1973 | 3931.301627 | 8.276725853 | | | |
| 16 | 1974 | 4281.359328 | 8.362025978 | | | |
| 17 | 1975 | 4581.574389 | 8.429797971 | | | |
| 18 | 1976 | 5111.295143 | 8.539208105 | | | |
| 19 | 1977 | 6230.335688 | 8.737185493 | | | |
| 20 | 1978 | 8675.013997 | 9.068202218 | | | |
| 21 | 1979 | 8953.59152 | 9.099810018 | | | |
| 22 | 1980 | 9307.839295 | 9.138612259 | | | |
| 23 | 1981 | 10212.37814 | 9.231355806 | | | |
| 24 | 1982 | 9428.87465 | 9.151532031 | | | |
| 25 | 1983 | 10213.95828 | 9.231510523 | | | |
| 26 | 1984 | 10786.78618 | 9.286077162 | | | |
| 27 | 1985 | 11465.72578 | 9.347117497 | | | |
| 28 | 1986 | 16882.27395 | 9.734019472 | | | |
| 29 | 1987 | 20355.60522 | 9.921111594 | | | |
| 30 | 1988 | 24592.77201 | 10.11020786 | | | |
| 31 | 1989 | 24505.7673 | 10.10666377 | | | |
| 32 | 1990 | 25123.63179 | 10.13156419 | | | |
| 33 | 1991 | 28540.77148 | 10.25908832 | | | |
| 34 | 1992 | 31013.64715 | 10.34218262 | | | |
| 35 | 1993 | 35451.23751 | 10.47591513 | | | |
| 36 | 1994 | 38614.89438 | 10.56655933 | | | |
| 37 | 1995 | 42522.06659 | 10.65777843 | | | |
| 38 | 1996 | 37421.67386 | 10.53000533 | | | |
| 39 | 1997 | 34294.89898 | 10.4427519 | | | |
| 40 | 1998 | 30967.28809 | 10.3406867 | | | |
| 41 | 1999 | 34398.80397 | 10.46306934 | | | |
| 42 | 2000 | 37291.70616 | 10.52652623 | | | |
| 43 | 2001 | 32716.41867 | 10.39563233 | | | |
| 44 | 2002 | 31235.58618 | 10.34931337 | | | |
| 45 | 2003 | 33690.93773 | 10.42498417 | | | |
| 46 | 2004 | 36441.50449 | 10.50346364 | | | |
| 47 | 2005 | 35781.16627 | 10.48517635 | | | |
| 48 | 2006 | 34102.11478 | 10.43711468 | | | |
| 49 | 2007 | 34095.02343 | 10.43690671 | | | |
| 50 | 2008 | 37972.05574 | 10.54460573 | | | |
| 51 | 2009 | 39473.36751 | 10.58338148 | | | |
| 52 | 2010 | 43117.82967 | 10.67163187 | | | |
| 53 | 2011 | 46203.69804 | 10.74081512 | | | |
| 54 | 2012 | 46679.26543 | 10.75105535 | | | |
| 55 | 2013 | 38633.70806 | 10.56188044 | | | |
| 56 | | | | | | |
| 57 | | | | | | |

In the 'Insert function taskbar', type `=HP(C2:C55,100)`, where `C2:C55` are the cells that contain the `LN(GDP)` time series, then press **Shift**, **Ctrl** and **Entre** simultaneously (Note: do not press **Enter**).