

## Appendix D - Using R package 'pdfetch' to download data from Eurostat and create series

A) Flow variables: create household disposable income time series

1) Download and install necessary packages, for instance:

```
library(plotrix)
library(pdfetch)
library(networkD3)
library(knitr)
```

2) Select the flows to calculate the disposable income of households:

```
names<-c("D21", "D31", "D1", "D2", "D3", "D42", "D41", "D43", "D44", "D45", "D5", "D6", "D61", "D62", "D7", "D8",
"D9", "P1", "P2")
```

Note: codes above are those used in *Eurostat* classification. They can be derived from Figure 1.

3) Download and name the data:

```
HCons_raw = pdfetch_EUROSTAT("nasa_10_nf_tr", UNIT="CP_MNAC", NA_ITEM=names,
                             GEO="IT", SECTOR=c("S14_S15"))
```

Note: 'nasa\_10\_nf\_tr' stands for non-financial transactions; 'CP\_MNAC' means that the unit used is millions of national currency, current prices; 'IT' means that the country chosen is Italy; 'S14\_S15' defines households and NPISH sectors.

4) Transform the data into a dataframe named 'HIncome':

```
HIncome<-as.data.frame(HIncome_raw)
```

5) Create the time series for disposable income:

```
YD_H<-(HIncome_raw [ , "A.CP_MNAC.RECV.D1.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D1.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D2.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D3.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D42.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D41.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D41.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D43.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D43.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D44.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D44.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D45.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D45.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D5.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D61.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D61.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D62.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D62.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.D7.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.D7.S14_S15.IT " ]  
+HIncome_raw [ , "A.CP_MNAC.RECV.P1.S14_S15.IT " ]  
-HIncome_raw [ , "A.CP_MNAC.PAID.P2.S14_S15.IT " ] )
```

Note: the code above sums up different components of household disposable income. Alternatively, just download B6G.

6) Create a 'csv' file with household disposable income data:

```
write.csv(YD_H, file = "YD_H.csv")
```

B) Stock variables: create household net financial assets time series

1) Download household net financial assets:

```
HNFA_raw = pdfetch_EUROSTAT("nasa_10_f_bs", UNIT="MIO_NAC", CO_NCO="CO", NA_ITEM="BF90",  
SECTOR="S14_S15", GEO="IT")
```

Note: 'nasa\_10\_f\_bs' stands for 'financial balance sheets'; 'MIO\_NAC' stands for millions of national currency; 'CO' means 'consolidated'; 'BF90' is the item we are downloading, i.e. 'financial net worth'.

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2) Use and organise household financial assets as a data frame named HNFA:

```
HNFA<-as.data.frame(HNFA_raw)
```

3) Download housing investment (dwellings):

```
dwel_raw = pdfetch_EUROSTAT("nama_10_nfa_bs", UNIT="CP_MNAC", SECTOR="S14_S15", GEO="IT",  
ASSET10=c("N111N", "N2N"))
```

Note: 'nama\_10\_nfa\_bs' stands for 'balance sheets for non-financial assets'.

4) Use and organise dwellings as a data frame named 'dwel':

```
dwel<-as.data.frame(dwel_raw)
```

5) Create the time series for household net worth by summing up its components:

```
NW_H ← (HNFA_raw [ , "A.MIO_NAC.CO.S14_S15.LIAB.BF90.IT " ]  
        +dwel_raw [ , "A.CP_MNAC.S14_S15.N111N.IT " ])
```

6) Create a 'csv' file with household net wealth data:

```
write.csv(NW_H, file = "NW_H.csv")
```