Statistics/Data analysis

fk_cycle — Fiorito & Kollintzas (1994) version 1.0

Syntax

fk_cycle {variables} [*if*] [*in*] , **filter**(type of filter) **outcome**(outcome variable) **lag**(lag)

options	Description
filter(Filter**)** *beta*	specifies the type of filter for business cycles: Baxter-King (BK), Christiano-Fitzgerald (CF) and Hodrick-Prescott (HP). Hodrick-Prescott is the default.
outcome(Outcome**)**	specifies the reference variable, e.g., the (detrended) Real GDP.
lag(Lag**)**	specifies the number of lags. The default is to use min{floor(n/2) - 2, 20}.

Description

fk_cycle implements the Fiorito & Kollintzas Cycle Decomposition (1994) for time series.

In its current version, all variables must be previously detrended. The *beta* version (available upon request) will include more options for panel data such as winsorsing.

Examples

We use GVAR quarterly data from Argentina (1979-2019) to assess the timming, transimission channels and the relative importance of several shocks; inflation rate, interest rates, real exchange rate and commodity prices over output.
The direction and sign of these shocks on the outcome of interest may provide additional information for the design of sound macroeconomic policies in both developed and developing countries.

Data must be tsset. Time can be monthly, quarterly, yearly.

```
. use fk_example1.dta, clear
. tsset t
```

Hodrick-Prescott (default)

```
. twoway (line y hp_trend1 t), title("Real GDP vs trend: Hodrick-Prescott") subtitle("Argentina: 1979-2019") legend(col(2) region(lstyle(none))) legend(on order(1 "GDP" 2 "Trend"))

. twoway (spike y_hp t), title("Business cycle: Hodrick-Prescott") subtitle("Argentina: 1979-2019") ytitle("") legend(col(1) region(lstyle(none)))

. fk_cycle Dp_hp ep_hp r_hp poil_hp pmat_hp pmetal_hp, outcome(y_hp) lag(12)
```

Baxter-King

```
. twoway (line y bw_trend1 t), title("Real GDP vs trend: Baxter-King") subtitle("Argentina: 1979-2019") legend(col(2) region(lstyle(none))) legend(on order(1 "GDP" 2 "Trend"))

. twoway (spike y_bk t), title("Business cycle: Baxter-King") subtitle("Argentina: 1979-2019") ytitle("") legend(col(1) region(lstyle(none)))

. fk_cycle Dp_bk ep_bk r_cf poil_bk pmat_bk pmetal_bk, outcome(y_bk) lag(12)
```

Christiano-Fitzgerald

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. twoway (line y cf_trend1 t), title("Real GDP vs trend: Christiano-Fitzgerald") subtitle("Argentina: 1979-2019") legend(col(2) region(lstyle(none))) legend(on order(1 "GDP" 2 "Trend"))

. twoway (spike y_cf t), title("Business cycle: Christiano-Fitzgerald") subtitle("Argentina: 1979-2019") ytitle("") legend(col(1) region(lstyle(none)))

. fk_cycle Dp_cf ep_cf r_cf poil_cf pmat_cf pmetal_cf, outcome(y_cf) lag(12)
```

Acknowledgments

This command was written as a first stage to asses the timming and the relative importance of different shocks (channels) during economic cycles using traditional filters. A second stage, involves the estimation of a structural equation (panel).

Program has been tested to work under Stata 17.

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References

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