```
 __    __   ___    __      ___ (R)
/ _/ / / /___/ / /___/
__/ / /__/ / /__/
        Statistics/Data analysis

              User: SC
```

---

fk_cycle —   Fiorito & Kollintzas (1994) version 1.0

Syntax

Fiorito & Kollintzas Cycle Decomposition

> **fk_cycle** {variables} [_if_] [_in_] , **fil**ter(type of filter) **out**come(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) 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.

This decomposition is applied through a cross-correlogram. 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 macroeconomic quarterly data from Argentina (1979-2019) to assess the timming, transimission channels and the relative importance of different shocks named: inflation, nominal interest rate, exchange rate, raw materials, oil an prices on output (Real GDP).
The direction and sign of variables that shape economic cycles may provide additional information for sound macroeconomic policies in developing countries with cronic inflation and output volatility.

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

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

Visual inspection

```
. twoway (line y hp_trend1 t), title("Real GDP vs trend: Hodrick-Prescott filter") 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)))
. twoway (spike y_bk t), title("Business cycle: Baxter-King") subtitle("Argentina: 1979-2019") ytitle("") legend(col(1) region(lstyle(none)))
. twoway (spike y_cf t), title("Business cycle: Christiano-Fitzgerald") subtitle("Argentina: 1979-2019") ytitle("") legend(col(1) region(lstyle(none)))
```

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

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

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

Acknowledgments

This command was written to asses the timming, transimission channels and the relative importance of different shocks during economic cycles using traditional filters.

Program has been tested to work under Stata 17.

Author

Santiago Caram
santiagocaram@gmail.com

References

Baxter, M and King, R.G. (1999). Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series. Review of Economics and Statistics, 81(4), 575-593. doi: https://doi.org/10.1162/003465399558454

Christiano, L.J and Fitzgerald, T.J. (2003). The Band Pass Filter. International Economic Review, 44(2), 435-465. doi: https://doi.org/10.1111/1468-2354.t01-1-00076

Fiorito, R., and Kollintzas, T. (1994). Stylized facts of business cycles in the G7 from a real business cycles perspective. European Economic Review, 38(2), 235-269. doi: https://doi.org/10.1016/0014-2921(94)90057-4

Hodrick, R. and Prescott, E. (1997). Post-war U.S. business cycles: An empirical investigation. Journal of Money, Credit and Banking, 29(1), 1-16. doi: https://doi.org/10.2307/2953682