

Realme file for the construction of the data set (Furlanetto-Groshenny, 2015 JAE)

The estimation uses quarterly data on eight key macro variables. X_t is the vector of observables at time t . X_t is expressed in logarithmic deviations from sample mean. X_t contains eight variables: the quarterly growth rate of output, the quarterly growth rate of consumption, the quarterly growth rate of investment, the quarterly growth rate of real wages, the vacancy rate, the unemployment rate, the quarterly inflation rate and the quarterly gross nominal interest rate

$$X_t = \begin{bmatrix} \ln(Y_t) - \ln(Y_{t-1}) - \ln(g_y) \\ \ln(C_t) - \ln(C_{t-1}) - \ln(g_c) \\ \ln(I_t) - \ln(I_{t-1}) - \ln(g_i) \\ \ln(W_t) - \ln(W_{t-1}) - \ln(g_w) \\ \ln(V_t) - \ln(V) \\ \ln(U_t) - \ln(U) \\ \ln(P_t) - \ln(P_{t-1}) - \ln(g_p) \\ \ln(R_t) - \ln(R) \end{bmatrix}.$$

Y_t is the level of real GDP per capita, C_t is the level of real consumption per capita, I_t is the level of real investment per-capita, W_t is the real wage, U_t is the unemployment rate, V_t is the vacancy rate, P_t is the level of the GDP deflator and R_t is the gross effective federal funds rate, expressed on a quarterly basis.

Except for the vacancy rate, we construct all other series using data downloadable from the FREDII database. In particular, we measure nominal consumption using data on nominal personal consumption expenditures of non-durables and services. Nominal investment corresponds to the sum of personal consumption expenditures of durables and gross private domestic investment. Nominal output is measured by nominal GDP. Per capita real GDP, consumption, and investment are obtained by dividing the nominal series by the GDP deflator and population. Real wages correspond to nominal compensation per hour in the nonfarm business sector, divided by the GDP deflator. Consistently with the model, we measure population by the labor force. The unemployment rate is the number of unemployed persons (16 years of age and older) divided by the labor force. Inflation is the first difference of the log of the GDP deflator. The nominal interest rate is measured by the effective federal funds rate.

We measure vacancies using the series constructed by Barnichon (2010). We then construct the vacancy rate as the ratio of vacancies to the sum of vacancies and the number of employed people (cf. Justiniano and Michelacci, 2011). Following the arguments in Shimer (2005), we detrend the vacancy rate using the HP filter with a smoothing weight equal to 10^6 to remove the secular trend in the series (cf. also Justiniano and Michelacci 2011 and Davis, Faberman and Haltiwanger 2013).

References

Barnichon, R., 2010. Building a composite Help-Wanted index. *Economic Letters* 109, 175-178.

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Justiniano, A., Michelacci, C., 2011. The cyclical behavior of equilibrium unemployment and vacancies in the US and Europe. *NBER-ISOM Macro Annual 2011*, vol. 8.

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