Readme file for data and codes accompanying:
"**The Network Origins of Aggregate Fluctuations**"
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1. Data Files

1.1. Description

The MATLAB codes described below source data from the following three files:

```
CC_allyears_new.mat
CC_2d_allyears_new.mat
NBER_Manuf_TFP_source_data.mat
```

The first two data files contain Commodity-by-Commodity Direct Requirements Tables from 1972 to 2002 (at 5 year intervals). Data file `CC_allyears_new.mat` contains the Detailed-level tables used in Tables 1 and 2 and Figures 6–9. Data file `CC_2d_allyears_new.mat` contains the Summary-level tables used in Table 2. The data is in the form of square matrices where the typical (i,j) entry gives the input share of (row) commodity i used in the production of commodity j. Taking column sums gives the total share of intermediate inputs in each commodity.

The last data file contains industry-level annual data from the NBER-CES Manufacturing Industry Database.

1.2 Data Source and Basic Manipulation

All input-output data is sourced from the Bureau of Economic Analysis' Benchmark Input-Output Data available at:

`http://www.bea.gov/industry/io_benchmark.htm`

Note that the B.E.A. does not provide Commodity-by-Commodity Direct Requirements tables. We have derived them from the Commodity-by-Commodity Total Requirements Tables (available from the B.E.A. at the Summary and Detailed levels) by applying the formula:

$$CC = (TOT\text{-}I) \times (TOT)^{-1}$$

Finally, note that we drop all lines and columns for which direct input requirements sum to zero.

The NBER-CES Manufacturing Industry Database is sourced from the NBER website at:

`http://www.nber.org/data/nbprod2005.html`

From this source, we obtain the annual 5-factor total factor productivity growth (between 1958 and 2005) for each of the 459 SIC manufacturing industries. See Barterlsman and Gray (1996) for more details on how this is computed.

2. Codes

`weighted_indegrees_final.m` : reads the Detailed Commodity-by-Commodity matrices and computes – for each year – the weighted indegrees statistics and graphs. Uses the `w_ind.m` function and the data file `CC_allyears_new.mat.`

`weighted_outdegrees_final.m` : reads the Detailed Commodity-by-Commodity matrices and computes – for each year – the weighted outdegrees statistics and graphs. Uses the `w_out.m` function and the data file `CC_allyears_new.mat.`

`weighted_outdegrees_2ndorder_final.m` : reads the Detailed Commodity-by-Commodity matrices and computes – for each year – the second order weighted outdegrees statistics and graphs. Uses the `w_out_2ord.m` function and the data file `CC_allyears_new.mat.`

`w_ind.m` : computes indegree statistics given a weighted indegree sequence.

`w_out.m` : computes outdegree statistics given a weighted outdegree sequence. Uses `ksr.m` function.

`w_out_2ord.m` : computes second order outdegree statistics given a weighted second order outdegree sequence. Uses `ksr.m` function

`ksr.m` : performs kernel smoothing regression; copyright by Y. Cao, 2009. See `ksr_Y_Cao_license.txt` for full license text.

`norm_v2_vector_summaryIO.m` : computes norm of v2 vector from summary-level Commodity–by-Commodity matrices. Uses the data file `CC_2d_allyears_new.mat.`

`norm_v2_vector_detailedIO.m` : computes norm of v2 vector from detailed-level Commodity-by-Commodity matrices. Uses the data file `CC_allyears_new.mat.`

`std_TFP_NBER_Manuf.m` : computes average standard deviation of TFP growth at the 4-digit SIC industry level, with and without controlling for linear time trends. Uses the data file `NBER_Manuf_TFP_source_data.mat.`

Note: The functions `weighted_outdegrees_final.m` and `weighted_outdegrees_2ndorder_final.m` also contain code calling the MLE routines of Clauset, Shalizi and Newman (2009). To implement this code you will first need to download Clauset, Shalizi and Newman's MATLAB routines from:

`http://tuvalu.santafe.edu/~aaronc/powerlaws/`

to your working directory and then uncomment the relevant code in the two weighted outdegrees functions.

3. References

Barterlsman, E.J. and W. Gray (1996), "The NBER Manufacturing Productivity Database." NBER Technical Working Paper 205.

Clauset, A., C. R. Shalizi, and M. E. J. Newman (2009), "Power-law distributions in empirical data." SIAM Review, 51, 661–703.