

## **Firms, Trade, and Aggregate Fluctuations**

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### **Description**

The exponential growth of international trade over the last five decades has led the economies of the world to become more intertwined. This course studies how trade integration can lead to greater aggregate fluctuations of the domestic economy, such as increased GDP volatility, as well as leadings to the transmission of shocks across countries, resulting in more synchronized business cycles. The course will discuss empirical cross-country work, as well as focusing on recent research highlighting the importance of firm heterogeneity and input-output linkages across sectors, which can be used to help explain the observed aggregate relationships.

### **Reading List**

Lecture notes will also be provided.

#### **1. Trade and Macroeconomic Volatility: Empirical Evidence**

##### Required

di Giovanni, Julian, and Andrei A. Levchenko. 2009. "Trade Openness and Volatility." *Review of Economics and Statistics*, 91(3): 558–585.

\_\_\_, and \_\_\_. 2012. "The Risk Content of Exports: A Portfolio View of International Trade." In *2011 NBER International Seminar on Macroeconomics*, edited by Jeffrey Frankel and Christopher Pissarides, 97–151. Chicago: University of Chicago Press.

Kurz, Christopher J., and Mine Z. Senses. 2013. "Importing, Exporting and Firm Level Employment Volatility." Finance and Economics Discussion Series 2013-44. Board of Governors of the Federal Reserve System (U.S.).

Newbery, David M., and Joseph E. Stiglitz. 1984. "Pareto Inferior Trade." *Review of Economic Studies*, 51(1): 1–12.

## Recommended

Burgess, Robin, and Dave Donaldson. 2010. "Can Openness Mitigate the Effects of Weather Shocks? Evidence from India's Famine Era." *American Economic Review: Papers & Proceedings*, 100(2): 449–453.

Easterly, William, Roumeen Islam, and Joseph E. Stiglitz. 2001. "Shaken and Stirred: Explaining Growth Volatility." In *Annual World Bank Conference on Development Economics 2000*, edited by Boris Pleskovic and Nicholas Stern, 191–211. Washington DC: World Bank.

Koren, Miklós, and Silvana Tenreyro. 2007. "Volatility and Development." *Quarterly Journal of Economics*, 122(1): 243–287.

Kose, M. Ayhan, Eswar S. Prasad, and Marco E. Terrones. 2003. "Financial Integration and Macroeconomic Volatility." *IMF Staff Papers*, 50(Special Issue): 119–142.

Kraay, Aart, and Jaume Ventura. 2007. "Comparative Advantage and Cross-Section of Business Cycles." *Journal of the European Economic Association*, 5(6):1300–1333.

Rodrik, Dani. 1997. *Has Globalization Gone Too Far?* Washington, DC: Institute for International Economics.

\_\_\_\_\_. 1998. "Why Do More Open Economies Have Bigger Governments?" *Journal of Political Economy*, 106(5): 997–1032.

## **2. Firms, Trade, and Power Laws**

### Required

Axtell, Robert L., 2001. "Zipf Distribution of U.S. Firm Sizes." *Science*, 293(5536): 1818–1820.

Bernard, Andrew B., Stephen J. Redding, and Peter K. Schott. 2007. "Firms in International Trade." *Journal of Economic Perspectives*, 21(3): 105-130.

di Giovanni, Julian, and Andrei A. Levchenko. 2013. "Firm Entry, Trade, and Welfare in Zipf's World." *Journal of International Economics*, 89(2): 283–296.

\_\_\_\_\_, \_\_\_\_\_, and Romain Rancière. 2011. "Power Laws in Firm Size and Openness to Trade: Measurement and Implications." *Journal of International Economics*, 85(1): 42–52.

### Recommended

- Bernard, Andrew B., Stephen J. Redding, and Peter K. Schott. 2010. "Multiple-Product Firms and Product Switching." *American Economic Review*, 100(1): 70–97.
- Chaney, Thomas. 2008. Distorted Gravity: The Intensive and Extensive Margins of International Trade. *American Economic Review*, 98(4): 1707–1721.
- Easterly, William, Ariell Reshef, and Julia Schwenkenberg. 2009. "The Power of Exports." World Bank Policy Research Working Paper 5081.
- Eaton, Jonathan, Samuel Kortum, and Francis Kramarz. "An Anatomy of International Trade: Evidence From French Firms." *Econometrica*, 79(5): 1453–1498.
- Gabaix, Xavier, and Ibragimov, Rustam. 2011. "Rank-1/2: A Simple Way to Improve the OLS Estimation of Tail Exponents." *Journal of Business and Economic Statistics*, 29(1): 24–39.
- Hinloopen, Jeroen, and Charles van Marrewijk. 2006. "Comparative Advantage, the Rank-Size Rule, and Zipf's Law." Tinbergen Institute Discussion Paper 06-100/1.
- Luttmer, Erzo G.J. 2007. "Selection, Growth, and the Size Distribution of Firms." *Quarterly Journal of Economics*, 122(3): 1103–1144.
- Melitz, Marc J. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." *Econometrica*, 71(6): 1695–1725.
- Zipf, George K., 1949. *Human Behavior and the Principle of Least Effort*. Cambridge, Mass.: Addison-Wesley.

### **3. Granularity and Macroeconomic Volatility**

#### Required

- Carvalho, Vasco M., and Xavier Gabaix. 2013. "The Great Diversification and Its Undoing." *American Economic Review*, 103(5): 1697–1727.
- di Giovanni, Julian, Andrei A. Levchenko. 2012. "Country Size, International Trade and Aggregate Fluctuations in Granular Economies." *Journal of Political Economy*, 120(6): 1083–1132.
- \_\_\_, \_\_\_, and Isabelle Méjean. 2014. "Firms, Destinations, and Aggregate Fluctuations." *Econometrica*, 82(4): 1303–1340.

Gabaix, Xavier. 2011. "The Granular Origins of Aggregate Fluctuations." *Econometrica*, 79(3): 733–772.

### Recommended

Canals, Claudia, Xavier Gabaix, Josep M. Vilarrubia, and David E. Weinstein. 2007. "Trade Patterns, Trade Balances, and Idiosyncratic Shocks." La Caixa Working Paper 02/2007.

Carvalho, Vasco M, and Basile Grassi. "Firm Dynamics and the Granular Hypothesis." Mimeo. University of Cambridge and Paris School of Economics.

Comín, Diego, and Thomas Philippon., 2006. "The Rise in Firm-Level Volatility: Causes and Consequences." In *NBER Macroeconomics Annual 2005*, edited by Mark Gertler and Kenneth S. Rogoff, 167–201. Cambridge, Mass.: The MIT Press.

Davis, Steven J., John Haltiwanger, Ron Jarmin, and Javier Miranda. 2006. "Volatility and Dispersion in Business Growth Rates Publicly Traded versus Privately Held Firms." In *NBER Macroeconomics Annual 2005*, edited by Daron Acemoglu and Kenneth S. Rogoff, 107–180. Cambridge, Mass.: The MIT Press.

Stanley, Michael H.R., Luis A.N. Amaral, Sergey V. Buldyrev, Shlomo Havlin, Heiko Leschhorn, Philipp Maass, Michael A. Salinger, and H. Eugene Stanley. 1996. "Scaling Behaviour in the Growth of Companies." *Nature*, 379: 804–806.

Sutton, John. 2002. "The Variance of Firm Growth Rates: The 'Scaling' Puzzle." *Physica A*, 312(3-4): 577–590.

## **4. Sectoral Input-Output Linkages and the Transmission of Shocks**

### Required

Acemoglu, Daron, Vasco M. Carvalho, Asuman Ozdaglar, and Alireza Tahbaz-Salehi. 2012. "The Network Origins of Aggregate Fluctuations." *Econometrica*, 80(5): 1977–2016.

Foerster, Andrew, Pierre-Daniel Sarte, and Mark Watson. 2011. "Sectoral vs. Aggregate Shocks: A Structural Factor Analysis of Industrial Production." *Journal of Political Economy*, 119(1): 1–38.

Long, John, and Charles Plosser. 1983. "Real Business Cycles." *Journal of Political Economy*, 91(1): 39–69.

## Recommended

Atalay, Englin. 2014. "How Important are Sectoral Shocks?" Mimeo. University of Chicago.

Dupor, Bill. 1999. "Aggregation and Irrelevance in Multi-Sector Models." *Journal of Monetary Economics*, 43(2): 391–409.

Horvath, Michael. 1998. "Cyclicalities and Sectoral Linkages: Aggregate Fluctuations from Independent Sectoral Shocks." *Review of Economic Dynamics*, 1(4): 781–808.

Horvath, Michael. 2000. "Sectoral Shocks and Aggregate Fluctuations." *Journal of Monetary Economics*, 45(1): 69–106.

Jones, Charles. 2011. "Intermediate Goods and Weak Links in the Theory of Economic Development." *American Economic Journal: Macroeconomics*, 3(2): 1–28.

Shea, John. 2002. "Complementarities and Comovements." *Journal of Money, Credit, and Banking*, 34(2): 412–433.

## **5. Trade and Comovement**

### Required

Backus, David K., Patrick J. Kehoe, and Finn E. Kydland. 1995. "International Business Cycles: Theory and Evidence." In *Frontiers of Business Cycle Research*, edited by Thomas F. Cooley, 331–356. Princeton: Princeton University Press.

di Giovanni, Julian, and Andrei A. Levchenko. 2010. "Putting the Parts Together: Trade, Vertical Linkages, and Business Cycle Comovement." *American Economic Journal: Macroeconomics*, 2(2): 95–124.

Frankel, Jeffrey A., and Andrew K. Rose. 1998. "The Endogeneity of the Optimum Currency Area Criteria." *Economic Journal*, 108(449): 1009–1025.

Kose, M. Ayhan, and Kei-Mu Yi. 2006. "Can the Standard International Business Cycle Model Explain the Relation between Trade and Comovement?" *Journal of International Economics*, 68(2): 267–295.

### Recommended

Baxter, Marianne. 1995. "International Trade and Business Cycles." In *Handbook of International Economics*. Vol. 3. Edited by Gene Grossman and Kenneth Rogoff, Chapter 35, 1801–1864. New York: Elsevier.

\_\_\_, and Michael A. Kouparitsas. 2005. "Determinants of Business Cycle Comovement: A Robust Analysis." *Journal of Monetary Economics*, 52(1): 113–157.

Burstein, Ariel, Christopher Kurz, and Linda Tesar. 2008. "Trade, Production Sharing, and the International Transmission of Business Cycles." *Journal of Monetary Economics*, 55(4): 775–795.

Calderon, Cesar, Alberto Chong, and Ernesto Stein. 2007. "Trade Intensity and Business Cycle Synchronization: Are Developing Countries Any Different?" *Journal of International Economics*, 71(1): 2–21.

Imbs, Jean. 2004. "Trade, Finance, Specialization, and Synchronization." *Review of Economics and Statistics*, 86(3): 723–734.

Johnson, Robert C. 2013. "Trade in Intermediate Inputs and Business Cycle Comovement." Forthcoming, *American Economic Journal: Macroeconomics*.