

Econ G6306: Industrial Development

Eric Verhoogen

Spring 2022

1 COURSE DESCRIPTION

1.1 OVERVIEW

This is a PhD-level class in development economics, specifically in the area of “industrial development,” sometimes known as “firms and development” — applied microeconomic work on firms in developing countries, which has overlap with the fields of industrial organization, innovation, international trade, labor economics, and economic growth. Its goal is to get you up to speed on developments in the literature and prepare you to do your own independent research in the area. The course is primarily focused on empirical research, but we will also relate it to core theoretical models in the field. We will pay attention to institutional features that are particularly prevalent in developing countries, including weak contract enforcement and regulation. Some guiding questions are: Why is doing business in developing countries difficult? What mechanisms do firms use to overcome the difficulties? What are the barriers to adoption of advanced products and technologies? What roles do employment relationships, and organizational structures more generally, play in the process of learning and innovation by firms? How do international market forces shape the behavior of developing-country firms? What role (if any) can industrial policy play in stimulating economic growth?

1.2 PRE-REQUISITES

This course is normally taken in the second year of the Economics PhD sequence, and I will presume that you have taken a year of PhD-level microeconomic theory and a year of econometrics. (At Columbia, the relevant courses are ECON G6211, G6212, G6411, and G6412.) If you have not satisfied these requirements but you have a strong technical background, you will probably be fine in the course, but please speak to me to get my approval.

1.3 COURSEWORK

The coursework will consist of the following three components, with the indicated weight in the final grade:

- Problem sets (4): 10% each, 40% total.
- In-class presentation: 10%
- Paper proposal: 50%

The problem sets will involve fairly extensive analysis of datasets that I will provide. They have been developed with the idea that you will do them in Stata (still the most commonly used software among economists). I am open to having you complete them in R, but will be less useful to you as a resource in that case.

For the in-class presentation, I will ask you to present an empirical paper from the reading list to the rest of the class. The presentations will be short (approximately 15 minutes), and I will provide guidance later about how to organize your presentation.

For the paper proposal, the goal is to develop a detailed plan for a paper, involving datasets that exist but that you may not yet have access to. (Especially for firm-level datasets from developing countries, it can take time to access microdata.) I will explain in more detail later what criteria I will use in evaluating the proposal, but the two main questions I will ask are: (1) Is it feasible, given the data that are known to exist (or that are proposed to be collected)? and (2) How big a contribution to the literature is it likely to be, if all goes well?

1.4 OTHER STUFF

If you require special accommodations for disability-related reasons, please obtain an evaluation from the Office of Disability Services ([link](#)) and also speak to me about the issue as soon as possible.

I am happy to meet outside of class to discuss ideas. For students in this class, it is best to email me to set up an appointment.

2 READING LIST

The starred (*) readings are required. The non-starred are recommended but not required. Later I will assign students to present empirical papers, which may include some of the currently non-starred readings; if a reading is assigned for a student presentation, it will become required.

The readings that are available online are indicated below. The links should work if you are on a computer in the Columbia domain. If you are not on a computer in the Columbia domain and a link does not work, you should go to the [Columbia libraries site](#), search for the journal or book, and click through; you will be prompted for your UNI and password. If there are any broken links, please let me know.

2.0 BACKGROUND/GENERAL REFERENCES

- * Bardhan, P. and Udry, C. (1999). *Development Microeconomics*. Oxford University Press, Oxford. ([link](#)) A clear and concise graduate-level introduction to micro-economic theories in development. We will be reading several chapters.

Wooldridge, J. (2002). *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge, MA. ([link](#)) My own favorite econometrics reference.

Angrist, J. D. and Pischke, J. (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. Another useful, practical econometrics reference. ([link](#))

2.1 INTRODUCTION

- * Verhoogen, E. (2021). Firm-Level Upgrading in Developing Countries. NBER working paper no. 29461 ([link](#))
- * Krugman, P. (1995). The Fall and Rise of Development Economics. In *Development, Geography and Economic Theory*, chapter 1. Cambridge: MIT Press. ([link](#))

2.2 CREDIT CONSTRAINTS

- * Bardhan, P. and Udry, C. (1999). *Development Microeconomics*. Oxford University Press, Oxford. Chapter 7. ([link](#))
- * de Mel, S., McKenzie, D. J., and Woodruff, C. (2008). Returns to Capital in Microenterprises: Evidence from a Field Experiment. *Quarterly Journal of Economics*, 123(4):pp. 1329–1372. ([link](#))
- * Karlan, D. and Zinman, J. (2009). Observing Unobservables: Identifying Information Asymmetries with a Consumer Credit Field Experiment. *Econometrica*, 77(6):1993–2008. ([link](#))
- * Banerjee, A. and Duflo, E. (2014). Do Firms Want to Borrow More? Testing Credit Constraints Using a Directed Lending Program. *Review of Economic Studies*, 81:572–607. ([link](#))

Visaria, S. (2009). Legal Reform and Loan Repayment: The Microeconomic Impact of Debt Recovery Tribunals in India. *American Economic Journal: Applied Economics*, 1(3):59 – 81. ([link](#))

Ponticelli, J. and Alencar, S. L. (2016). Court Enforcement, Bank Loans and Firm Investment: Evidence from a Bankruptcy Reform in Brazil. *Quarterly Journal of Economics*, 131(3):1365–1413. ([link](#))

Karlan, D., Osei, R., Osei-Akoto, I., and Udry, C. (2014). Agricultural Decisions after Relaxing Credit and Risk Constraints. *Quarterly Journal of Economics*, 129(2):597–652 ([link](#))

Antràs, P. and Foley, C. F. (2015). Poultry in Motion: A Study of International Trade Finance Practices. *Journal of Political Economy*, 123(4):853–901 ([link](#))

Fisman, R., Paravisini, D., and Vig, V. (2017). Cultural Proximity and Loan Outcomes. *American Economic Review*, 107(2):457–92 ([link](#))

2.3 REPUTATIONS, RELATIONAL CONTRACTS, NETWORKS, CONTROL RIGHTS

- * Shapiro, C. (1983). Premiums for High Quality Products as Returns on Reputation. *Quarterly Journal of Economics*, 98:659–680. ([link](#))
- * Tirole, J. (1996). A Theory of Collective Reputations (with Applications to the Persistence of Corruption and to Firm Quality). *Review of Economic Studies*, 63(1):1–22. ([link](#))
- * McMillan, J. and Woodruff, C. (1999). Interfirm Relationships and Informal Credit in Vietnam. *Quarterly Journal of Economics*, 114(4):1285–1320. ([link](#))
- * Banerjee, A. and Duflo, E. (2000). Reputation Effects and the Limits of Contracting: A Study of the Indian Software Industry. *Quarterly Journal of Economics*, 115:989–1017. ([link](#))
- * Burchardi, K. B., Gulesci, S., Lerva, B., and Sulaiman, M. (2019). Moral Hazard: Experimental Evidence from Tenancy Contracts. *Quarterly Journal of Economics*, 134(1):281–347 ([link](#))
- * Banerjee, A. and Munshi, K. (2004). How Efficiently is Capital Allocated? Evidence from the Knitted Garment Industry in Tirupur. *Review of Economics Studies*, 71:19–42. ([link](#))

Macchiavello, R. and Morjaria, A. (2021). Competition and Relational Contracts in the Rwanda Coffee Chain. *Quarterly Journal of Economics*, 136(2):1089–1143. ([link](#))

Macchiavello, R. and Morjaria, A. (2015). The Value of Relationships: Evidence from a Supply Shock to Kenyan Rose Exports. *American Economic Review*, 105(9):2911–45. ([link](#))

Bai, J. (2021). Melons as Lemons: Asymmetric Information, Consumer Learning and Seller Reputation. Unpub. paper, Harvard Kennedy School. ([link](#))

Bai, J., Gazze, L., and Wang, Y. (forthcoming). Collective Reputation in Trade: Evidence from the Chinese Dairy Industry. *Review of Economics and Statistics* ([link](#))

Bai, J., Chen, M. X., Liu, J., Mu, X., and Xu, D. Y. (2021). Search and Information Frictions on Global E-Commerce Platforms: Evidence from AliExpress. NBER Working Paper no. 28100, revised Sept. 2021 ([link](#))

Banerjee, A., Gertler, P., and Ghatak, M. (2002). Empowerment and Efficiency: Tenancy Reform in West Bengal. *Journal of Political Economy*, 110:239–280. ([link](#))

Bardhan, P. and Mookherjee, D. (2011). Subsidized Farm Input Programs and Agricultural Performance: A Farm-level Analysis of West Bengal’s Green Revolution, 1982-1995. *American Economic Journal: Applied Economics*, 3(4):186–214. ([link](#))

Goldstein, M. and Udry, C. (2008). The Profits of Power: Land Rights and Agricultural Investment in Ghana. *Journal of Political Economy*, 116(6):pp. 981–1022. ([link](#))

Greif, A. (1993). Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders’ Coalition. *American Economic Review*, 83(3):525–48. ([link](#))

Besley, T. (1995). Property Rights and Investment Incentives: Theory and Evidence from Ghana. *Journal of Political Economy*, 103(5):903–37. ([link](#))

2.4 LABOR MARKETS

- * Bardhan, P. and Udry, C. (1999). *Development Microeconomics*. Oxford University Press, Oxford. Chapters 4, 5. ([link](#))
- * Shapiro, C. and Stiglitz, J. (1984). Equilibrium Unemployment as a Worker Discipline Device. *American Economic Review*, 74(3):433–44. ([link](#))
- * Kremer, M. (1993). The O-Ring Theory of Economic Development. *Quarterly Journal of Economics*, 108(3):551–575. ([link](#))

Imbert, C., Seror, M., Zhang, Y., and Zylberberg, Y. (2020). Migrants and Firms: Evidence from China. Unpub. paper. ([link](#))

Hau, H., Huang, Y., and Wang, G. (2020). Firm Response to Competitive Shocks: Evidence from China's Minimum Wage Policy. *Review of Economic Studies*, 87(6):2639–2671. ([link](#))

Breza, E., Kaur, S., and Shamdasani, Y. (2018). The Morale Effects of Pay Inequality. *Quarterly Journal of Economics*, 133(2):611–663 ([link](#))

Heath, R. (2018). Why Do Firms Hire Using Referrals? Evidence from Bangladeshi Garment Factories. *Journal of Political Economy*, 126(4):1691–1746 ([link](#))

Beaman, L. and Magruder, J. (2012). Who Gets the Job Referral? Evidence from a Social Networks Experiment. *American Economic Review*, 102(7):3574–93 ([link](#))

Foster, A. D. and Rosenzweig, M. R. (1994). A Test for Moral Hazard in the Labor Market: Contractual Arrangements, Effort and Health. *Review of Economics and Statistics*, 76:213–227. ([link](#))

Kelley, E. M., Lane, G., and Schönholzer, D. (2021). Monitoring in Target Contracts: Theory and Experiment in Kenyan Public Transit. Unpub. paper. ([link](#))

de Rochambeau, G. (2020). Monitoring and Intrinsic Motivation: Evidence from Liberia's Trucking Firms. Unpub. paper, Sciences Po. ([link](#))

2.5 LEARNING AND TECHNOLOGY ADOPTION

* Bardhan, P. and Udry, C. (1999). *Development Microeconomics*. Oxford University Press, Oxford. Chapter 12. ([link](#))

* Foster, A. D. and Rosenzweig, M. R. (1995). Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture. *Journal of Political Economy*, 103:1176–1209. ([link](#))

* Manski, C. F. (1993). Identification of Endogenous Social Effects: The Reflection Problem. *Review of Economic Studies*, 60(3):531–42. ([link](#))

* Conley, T. and Udry, C. (2010). Learning about a New Technology: Pineapple in Ghana. *American Economic Review*, 100(1):pp. 35–69. ([link](#))

* Cai, J. and Szeidl, A. (2018). Interfirm Relationships and Business Performance. *Quarterly Journal of Economics*, 133(3):1229–1282 ([link](#))

* Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., and Roberts, J. (2013). Does Management Matter? Evidence from India. *Quarterly Journal of Economics*, 128(1):1–51. ([link](#))

* Atkin, D., Chaudhry, A., Chaudry, S., Khandelwal, A. K., and Verhoogen, E. (2017a). Organizational Barriers to Technology Adoption: Evidence from Soccer-Ball Producers in Pakistan. *Quarterly Journal of Economics*, 132(3):1101–1164 ([link](#))

* Bruhn, M., Karlan, D., and Schoar, A. (2018). The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico. *Journal of Political Economy*, 126(2):635–687 ([link](#))

Duflo, E., Kremer, M., and Robinson, J. (2011). Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya. *American Economic Review*, 101(6):2350–2390. ([link](#))

Suri, T. (2011). Selection and Comparative Advantage in Technology Adoption. *Econometrica*, 79(1):159–209. ([link](#))

Giorcelli, M. (2019). The Long-Term Effects of Management and Technology Transfers. *American Economic Review*, 109(1):121–52 ([link](#))

Munshi, K. (2004). Social Learning in a Heterogeneous Population: Technology Adoption in the Indian Green Revolution. *Journal of Development Economics*, 73:185–213. ([link](#))

Bandiera, O. and Rasul, I. (2006). Social Networks and Technology Adoption in Northern Mozambique. *Economic Journal*, 116(514):pp. 869 – 902. ([link](#))

Adhvaryu, A., Kala, N., and Nyshadham, A. (2019). Management and Shocks to Worker Productivity. NBER working paper no. 25865 ([link](#))

Menzel, A. (2019). Knowledge Exchange and Productivity Spill-overs in Bangladeshi Garment Factories. Unpub. paper ([link](#))

Foster, A. D. and Rosenzweig, M. R. (2010). Microeconomics of Technology Adoption. *Annual Review of Economics*, 2(1):395–424 ([link](#))

Verhoogen, E. (2021). Firm-Level Upgrading in Developing Countries. NBER working paper no. 29461. Section 3.3. ([link](#))

2.6 INDUSTRY DYNAMICS AND PRODUCTION-FUNCTION ESTIMATION

* Olley, G. S. and Pakes, A. (1996). The Dynamics of Productivity in the Telecommunications Industry. *Econometrica*, 64(6):1263–1297. ([link](#))

* Levinsohn, J. and Petrin, A. (2003). Estimating Production Functions Using Inputs to Control for Unobservables. *Review of Economic Studies*, 70:317–341. ([link](#))

* Akerberg, D. A., Caves, K., and Frazer, G. (2015). Identification Properties of Recent Production Function Estimators. *Econometrica*, 83(6):2411–2451. ([link](#))

* de Roux, N., Eslava, M., Franco, S., and Verhoogen, E. (2021). Estimating Production Functions in Differentiated-Product Industries with Quantity Information and External Instruments. NBER working paper no. 28323 ([link](#))

Jovanovic, B. (1982). Selection and the Evolution of Industry. *Econometrica*, 50:649–670. ([link](#))

Gandhi, A., Navarro, S., and Rivers, D. (2020). On the Identification of Gross Output Production Functions. *Journal of Political Economy*, 128(8):2973–3016 ([link](#))

Foster, L., Haltiwanger, J., and Syverson, C. (2008). Reallocation, Firm Turnover and Efficiency: Selection on Productivity or Profitability? *American Economic Review*, 98(1):394–425. ([link](#))

Katayama, H., Lu, S., and Tybout, J. R. (2009). Firm-level Productivity Studies: Illusions and a Solution. *International Journal of Industrial Organization*, 27(3):403–413. ([link](#))

Syverson, C. (2011). What Determines Productivity? *Journal of Economic Literature*, 49(2):326–65. ([link](#))

Verhoogen, E. (2021). Firm-Level Upgrading in Developing Countries. NBER working paper no. 29461. Section 2. ([link](#))

2.7 TRADE AND PRODUCTIVITY

* Melitz, M. J. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*, 71(6):1695–1725. ([link](#))

* De Loecker, J., Goldberg, P. K., Khandelwal, A. K., and Pavcnik, N. (2016). Prices, Markups and Trade Reform. *Econometrica*, 84(2):445–510 ([link](#))

* Atkin, D., Khandelwal, A. K., and Osman, A. (2017b). Exporting and Firm Performance: Evidence from a Randomized Trial. *Quarterly Journal of Economics*, 132(2):551–615 ([link](#))

* Bustos, P. (2011). Trade Liberalization, Exports and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms. *American Economic Review*, 101(1):304–340. ([link](#))

Clerides, S., Lach, S., and Tybout, J. (1998). Is Learning by Exporting Important? Micro-Dynamic Evidence from Colombia, Mexico and Morocco. *Quarterly Journal of Economics*, 113:903–947. ([link](#))

Amiti, M. and Konings, J. (2007). Trade Liberalization, Intermediate Inputs, and Productivity: Evidence from Indonesia. *American Economic Review*, 97(5):1611 – 1638 ([link](#))

Pavcnik, N. (2002). Trade Liberalization, Exit and Productivity Improvements: Evidence from Chilean Plants. *Review of Economic Studies*, 69:245–276. ([link](#))

De Loecker, J. and Goldberg, P. K. (2014). Firm Performance in a Global Market. *Annual Review of Economics*, 6(1):201–227. ([link](#))

Garcia-Marin, A. and Voigtländer, N. (2019). Exporting and Plant-Level Efficiency Gains: It's in the Measure. *Journal of Political Economy*, 127(4):1777–1825. ([link](#))

Verhoogen, E. (2021). Firm-Level Upgrading in Developing Countries. NBER working paper no. 29461. Sections 3.1, 3.2. ([link](#))

Alfaro-Urena, A., Manelici, I., and Vasquez, J. P. (forthcoming). The Effects of Joining Multinational Supply Chains: New Evidence from Firm-to-Firm Linkages. *Quarterly Journal of Economics*. ([link](#))

2.8 TRADE, QUALITY, INPUTS, WAGES

* Kugler, M. and Verhoogen, E. (2012). Prices, Plant Size and Product Quality. *Review of Economic Studies*, 79(1):307–339. ([link](#))

* Verhoogen, E. (2008). Trade, Quality Upgrading, and Wage Inequality in the Mexican Manufacturing Sector. *Quarterly Journal of Economics*, 123(2):489–530. ([link](#))

* Hansman, C., Hjort, J., León-Ciliotta, G., and Teachout, M. (2020). Vertical Integration, Supplier Behavior, and Quality Upgrading among Exporters. *Journal of Political Economy*, 128(9):3570–3625 ([link](#))

Bastos, P., Silva, J., and Verhoogen, E. (2018). Export Destinations and Input Prices: Evidence from Portugal. *American Economic Review*, 108(2):353–392. ([link](#))

Bastos, P. and Silva, J. (2010). The Quality of a Firm's Exports: Where You Export to Matters. *Journal of International Economics*, 82(2):99–111. ([link](#))

Manova, K. and Zhang, Z. (2012). Export Prices Across Firms and Destinations. *Quarterly Journal of Economics*, 127(1):379–436. ([link](#))

Brambilla, I., Lederman, D., and Porto, G. (2012). Exports, Export Destinations and Skills. *American Economic Review*, 102(7):3406–3488. ([link](#))

Goldberg, P. K. and Pavcnik, N. (2007). Distributional Effects of Globalization in Developing Countries. *Journal of Economic Literature*, 45(1). ([link](#))

Frías, J. A., Kaplan, D. S., Verhoogen, E., and Alfaro-Serrano, D. (forthcoming). Exports and Wage Premia: Evidence from Mexican Employer-Employee Data. *Review of Economics and Statistics* ([link](#))

2.9 MISALLOCATION

* Banerjee, A. and Duflo, E. (2005). Growth Theory Through the Lens of Development Economics. In Aghion, P. and Durlauf, S., editors, *Handbook of Economic Growth*, pages 473–552. Elsevier, Amsterdam. ([link](#))

* Hsieh, C.-T. and Klenow, P. J. (2009). Misallocation and Manufacturing TFP in China and India. *Quarterly Journal of Economics*, 124(4):pp. 1403–1448. ([link](#))

* Rotemberg, M. and White, T. K. (2019). Measuring Cross-Country Differences in Misallocation. Unpub. paper, NYU ([link](#))

* Gollin, D. and Udry, C. (2021). Heterogeneity, Measurement Error and Misallocation: Evidence from African Agriculture. *Journal of Political Economy*, 129(1):1–80 ([link](#))

Bils, M., Klenow, P. J., and Ruane, C. (2021). Misallocation or Mismeasurement? *Journal of Monetary Economics*, 124S:S39–S56. ([link](#))

Hsieh, C.-T. and Olken, B. A. (2014). The Missing ‘Missing Middle’. *Journal of Economic Perspectives*, 28(3):89–108 ([link](#))

Hsieh, C.-T. and Klenow, P. J. (2014). The Life Cycle of Plants in India and Mexico. *Quarterly Journal of Economics*, 129(3):1035–1084. ([link](#))

Peters, M. (2020). Heterogeneous Mark-Ups, Growth and Endogenous Misallocation. *Econometrica*, 88(5):2037–2073. ([link](#))

2.10 INDUSTRIAL POLICY AND ITS DISCONTENTS

* Crespi, G., Fernández-Arias, E., and Stein, E., editors (2014). *Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation*. Inter-American Development Bank, Washington DC. Read English synopsis. ([link](#))

* Rodrik, D. (2004). Industrial Policy for the 21st Century. Unpub paper, Harvard University. ([link](#))

Harrison, A. and Rodríguez-Clare, A. (2010). Trade, Foreign Investment, and Industrial Policy in Developing Countries. In Rodrik, D. and Rosenzweig, M., editors, *Handbook of Development Economics*, vol. 5, pages 4039–4214. North-Holland. ([link](#))

Lane, N. (2020). The New Empirics of Industrial Policy. *Journal of Industry, Competition and Trade*, 20 ([link](#))