

**Lectures:** M 5-7pm GE 100

**Instructor:** Professor Diego Restuccia

**Office:** Max Gluskin House (150 St. George Street), Room 201

**Office hours:** M 7-8pm (right after class) by appointment

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**Overview:**

The purpose of this course is to introduce students to a selected set of frontier research on growth and (the macro aspects of) development. Lectures will provide empirical motivations for the selected topics and introduce/discuss key papers/model frameworks in the literature. The main objective of this course is to apply economic theory to understand and interpret empirical observations on economic development and growth. In this course, we will study in detail the ability of theoretical models to account for the empirical facts characterizing economic development and growth over time and across countries. Students are expected to read all the papers that will be presented in class and participate actively in class discussions.

**Course Work and Grading:**

The final grade will be determined as follows: final exam (50%), research proposal (20%), and presentations/discussions/reports (30%). No other work will count towards your final grade. More details on paper presentations, discussions, reports as well as the research proposal will be discussed in class.

**E-mail Policy:**

In my experience, e-mail is not the most effective tool for discussing economics, office hours are more appropriate. I will only respond to e-mails from utoronto accounts and that are clearly identified as ECO2120 in the subject line.

Academic integrity will be strictly enforced.

**Tentative outline (subject to change):**

1. Lecture 1 and 2: Development facts and the neoclassical growth model
  - Lecture slides
2. Lecture 3: Structural transformation
  - Lecture slides

### 3. Lecture 4: Presentations:

- (P1) Rogerson (2008) “Structural Transformation and the deterioration of European labor market outcomes,” *Journal of Political Economy* 116, no. 2: 235-259.
- Structural transformation in developing countries:
  - (M1) Timmer et al (2015) “Patterns of Structural Change in Developing Countries,” In J. Weiss, & M. Tribe (Eds.), Routledge. *Routledge Handbook of Industry and Development* (pp. 79-97).
  - (M2) Rodrik (2016) “Premature deindustrialization,” *Journal of Economic Growth*, 21(1), pp.1-33.
  - (M3) Diao, McMillan, and Rodrik (2021) “Africa’s Manufacturing Puzzle: Evidence from Tanzanian and Ethiopian Firms,” NBER working paper 28344.

### 4. Lecture 5: Presentations

- (P2) Huneeus and Rogerson (2023) “Heterogeneous Paths of Industrialization,” *Review of Economic Studies*, forthcoming.
- (P3) Comin, Diego, Danial Lashkari, and Mart Mestieri (2021) “Structural change with long-run income and price effects,” *Econometrica* 89.1: 311-374.

### 5. Lecture 6: Agriculture and cross-country income differences

- Lecture slides
- Presentations:
  - (M4) Gollin, Douglas, David Lagakos and Michael E Waugh (2014), “The Agricultural Productivity Gap in Developing Countries,” *Quarterly Journal of Economics*.
  - (M5) Rodrik (2013) “Unconditional convergence in manufacturing,” *The Quarterly Journal of Economics*, 128(1), pp. 165-204.
  - (M6) Herrendorf, Rogerson, and Valentinyi (2022) “New Evidence on Sectoral Labor Productivity: Implications for Industrialization and Development,” manuscript Princeton University.

### 6. Lecture 7: Misallocation and aggregate productivity

- Lecture slides

### 7. Lecture 8: Presentations

- (P4) Chen, Habib, and Zhu (2023) “Finance, Managerial Inputs, and Misallocation,” *American Economic Review: Insights* 5(3): 409-426.
- (P5) Alvarez, Cravino, and Ramondo (2023) “Firm-Embedded Productivity and Cross-Country Income Differences,” *Journal of Political Economy* 131(9): 2289-2327.

### 8. Lecture 9: Misallocation in agriculture

- Lecture slides
- Presentations:
  - (M7) Chen, Chaoran, Diego Restuccia, and Raul Santaeulalia-Llopis (2023) “Land misallocation and productivity,” *American Economic Journal: Macroeconomics* 15.2: 441-465.
  - (M8) Adamopoulos, Tasso and Diego Restuccia (2020), “Land Reform and Productivity: A Quantitative Analysis with Micro Data,” *American Economic Journal: Macroeconomics*, 12 (3), July, pp. 1-39.
  - (M9) Ayerst, Brandt, and Restuccia (2023) “Distortions, Producer Dynamics, and Aggregate Productivity: A General Equilibrium Analysis,” NBER working paper.

#### 9. Lecture 10: Poverty and inequality

- Lecture slides
- Presentations:
  - (M10) Dollar, David, and Aart Kraay (2002) “Growth is Good for the Poor,” *Journal of Economic Growth* 7: 195-225.
  - (M11) Milanovic, Branko (2015) “Global inequality of opportunity: How much of our income is determined by where we live?” *Review of Economics and Statistics* 97.2: 452-460.
  - (M12) Hendricks and Schoellman (2018) “Human Capital and Development Accounting: New Evidence from Wage Gains at Migration,” *Quarterly Journal of Economics*.

#### 10. Lecture 11: Presentations on technology adoption and diffusion

- (P6) Chen, Chaoran. 2020. “Technology Adoption, Capital Deepening, and International Productivity Differences,” *Journal of Development Economics*, Volume 143, March 2020, 102388.
- (P7) Acemoglu et al (2023) “Climate Change, Directed Innovation, and Energy Transition,” MIT working paper.
- Wrap up

### Selected readings:

#### 1. Development facts and the neoclassical growth model

- Peter Klenow and Andres Rodriguez-Clare (1997), “The Neoclassical Revival in Growth Economics: Has It Gone Too Far?”, NBER Macroeconomics Annual, Cambridge MA.
- Francesco Caselli (2005), “Accounting for Cross-Country Income Differences,” *Handbook of Economic Growth*.

- Margarida Duarte and Diego Restuccia (2006), “The Productivity of Nations,” Federal Reserve Bank of Richmond Economic Quarterly, Volume 92 (3), Summer, pp. 195-223.
- Chang-Tai Hsieh and Peter Klenow (2010), “Development Accounting”, American Economic Journal: Macroeconomics, vol. 2(1), pages 207-23.
- Restuccia, Diego (2011), “Recent Developments in Economic Growth,” Federal Reserve Bank of Richmond Economic Quarterly, Volume 97 (3), Third Quarter, pp. 329-357.
- Mankiw, N. Gregory, David Romer, and David N. Weil (1992), “A contribution to the empirics of economic growth.” The quarterly journal of economics 107, no. 2: 407-437.
- Erosa, Andres, Tatyana Koreshkova, and Diego Restuccia. “How important is human capital? A quantitative theory assessment of world income inequality.” The Review of Economic Studies 77, no. 4 (2010): 1421-1449.
- Manuelli, Rodolfo E., and Ananth Seshadri (2014). “Human capital and the wealth of nations.” American Economic Review 104, no. 9: 2736-62.
- Restuccia, Diego and Guillaume Vandenbroucke (2014), “Explaining Educational Attainment across Countries and over Time,” Review of Economic Dynamics, Volume 17 (4), October, pp. 824-841.
- Chad Jones (2016), “The Facts of Economic Growth,” Handbook of Macroeconomics, Volume 2A, pp. 3-69.
- Hendricks, Lutz, and Todd Schoellman (2017), “Human capital and development accounting: New evidence from wage gains at migration.” The Quarterly Journal of Economics 133 (2): 665-700.
- Alviarez, Vanessa, Javier Cravino, and Natalia Ramondo (2019), “Accounting for Cross-Country Productivity Differences: New Evidence from Multinational Firms,” manuscript, UBC.

## 2. Structural transformation and growth

- Berthold Herrendorf, Richard Rogerson and Akos Valentinyi (2014), “Growth and Structural Transformation,” Handbook of Economic Growth.
- Kongsamult, Rebelo and Xie (2001), “Beyond Balanced Growth,” Review of Economic Studies October.
- L. Rachel Ngai and Christophe Pissarides (2007), “Structural Change in a Multi-Sector Model of Growth,” American Economic Review, 97, 429-443.
- Ngai and Petrongolo (2017) “Gender gaps and the rise of the service economy,” American Economic Journal: Macroeconomics.
- Daron Acemoglu and Veronica Guerrieri (2008), “Capital Deepening and Nonbalanced Economic Growth,” Journal of Political Economy, vol.116, no.3.

- Doug Gollin, Stephen Parente, and Richard Rogerson (2002), “The Role of Agriculture in Development,” *American Economic Review*, P&P.
- Margarida Duarte and Diego Restuccia (2010), “The Role of the Structural Transformation in Aggregate Productivity,” *Quarterly Journal of Economics* 125 (1), 129-173.
- Margarida Duarte and Diego Restuccia (2020), “Relative Prices and Sectoral Productivity,” *Journal of the European Economic Association*, 18 (3), 1400-1443.
- Berthold Herrendorf and Akos Valentinyi (2013), “Which Sectors Make the Poor Countries so Unproductive?” *Journal of the European Economic Association*, (10), pp. 323-41.
- Rogerson, Richard (2008). “Structural transformation and the deterioration of European labor market outcomes,” *Journal of Political Economy* 116, no. 2: 235-259.
- Timo Boppart (2014), “Structural Change and the Kaldor Facts in a Growth Model with Relative Price Effects and Non-Gorman Preferences,” *Econometrica*, 82(6), November: 2167-96.
- Diego Comin, Danial Lashkari, and Marti Mestieri (2015), “Structural Change with Long-Run Income and Price Effects,” NBER working paper 21595, September.
- Boppart and Krusell (2020) “Labor Supply in the Past, Present, and Future: A Balanced-Growth Perspective,” *Journal of Political Economy* 128(1), 118-157.
- Alder, Boppart, Muller (2021) “A Theory of Structural Change That Can Fit the Data,” *American Economic Journal: Macroeconomics*.
- Tomasz Swiecki (2017), “Determinants of Structural Change,” *Review of Economic Dynamics* 24: 95-131.
- Uy, Timothy, Kei-Mu Yi, and Jing Zhang (2013). “Structural change in an open economy.” *Journal of Monetary Economics* 60, no. 6: 667-682.
- Duarte, Margarida (2019). “A Sectoral Perspective on the Slowdown of U.S. Employment,” manuscript, University of Toronto.
- Rodrik, Dani (2019). “Premature deindustrialization.” *Journal of Economic Growth* 21, no. 1 (2016): 1-33.
- Sposi, Mike, Kei Mu Yi, and Jing Zhang (2019). “Structural Change and Deindustrialization,” manuscript, University of Houston.

### 3. Agriculture and cross-country income differences

- Diego Restuccia, Dennis Tao Yang and Xiaodong Zhu (2008), “Agriculture and Aggregate Productivity: A Quantitative Cross-Country Analysis,” *Journal of Monetary Economics* 55(2), 234-250.
- David Lagakos and Michael Waugh (2013), “Selection, Agriculture and Cross-Country Productivity Differences,” *American Economic Review* 103(2): 948-980.

- Adamopoulos and Restuccia (2021) “Geography and Agricultural Productivity: Cross-Country Evidence from Micro Plot-Level Data,” *The Review of Economic Studies*.
- Donovan, Kevin (2018), “Agricultural Risk, Intermediate Inputs, and Cross-Country Productivity Differences,” manuscript, Yale University.
- Gollin, Douglas, David Lagakos and Michael E Waugh (2014), “The Agricultural Productivity Gap in Developing Countries,” *Quarterly Journal of Economics*.
- Herrendorf, Berthold, and Todd Schoellman (2018). “Wages, human capital, and barriers to structural transformation.” *American Economic Journal: Macroeconomics* 10, no. 2: 1-23.
- Caunedo, Julieta, and Elisa Keller. 2020. “Capital Obsolescence and Agricultural Productivity,” *Quarterly Journal of Economics*, forthcoming.
- Chen, Chaoran. 2020. “Technology Adoption, Capital Deepening, and International Productivity Differences,” *Journal of Development Economics*, Volume 143, March 2020, 102388.

#### 4. Misallocation and productivity

- Diego Restuccia and Richard Rogerson (2008), “Policy Distortions and Aggregate Productivity with Heterogeneous Establishments,” *Review of Economic Dynamics*, vol. 11(4), pages 707-720, October.
- Chang-Tai Hsieh and Peter J. Klenow (2009), “Misallocation and Manufacturing TFP in China and India,” *Quarterly Journal of Economics* 124, November 1403-1448.
- Bartelsman, Eric, John Haltiwanger, and Stefano Scarpetta (2013). “Cross-country differences in productivity: The role of allocation and selection,” *American Economic Review* 103, no. 1: 305-34.
- Diego Restuccia and Richard Rogerson (2013), “Misallocation and Productivity,” *Review of Economic Dynamics* 16(1): pp. 1-10.
- Diego Restuccia (2013), “Factor Misallocation and Development,” *The New Palgrave Dictionary in Economics*, Online edition.
- Hugo Hopenhayn (2014), “Firms, Misallocation, and Aggregate Productivity: A Review,” *The Annual Review of Economics*.
- Diego Restuccia and Richard Rogerson (2017), “The Causes and Costs of Misallocation,” *Journal of Economic Perspectives*, 31(3), 151-74.
- Restuccia, Diego (2019). “Misallocation and Aggregate Productivity across Time and Space,” *Canadian Journal of Economics*, 52(1): 5-32.
- Gorodnichenko, Yuriy, Debora Revoltella, Jan Svejnar, and Christoph T. Weiss. “Resource Misallocation In European Firms: The Role Of Constraints, Firm Characteristics And Managerial Decisions,” Working Paper 24444, National Bureau Of Economic Research, March 2018.

## 5. Specific Policies and Dynamic Implications of Misallocation

- Nezh Guner, Gustavo Ventura, and Daniel Xu (2008), “Macroeconomic Implications of Size Dependent Policies,” *Review of Economic Dynamics*, 11(4): pp. 721-44.
- Chang-Tai Hsieh, Erik Hurst, Chad Jones and Peter J. Klenow (2019), “The Allocation of Talent and U.S Economic Growth,” *Econometrica*, 87(5) September: 1439-74.
- Fajgelbaum, Pablo D., Eduardo Morales, Juan Carlos Suarez Serrato, and Owen Zidar (2018). “State taxes and spatial misallocation,” *The Review of Economic Studies* 86, no. 1: 333-376.
- Chang-Tai Hsieh and Peter J. Klenow (2014), “The Life Cycle of Plants in India and Mexico,” *Quarterly Journal of Economics*.
- Pedro Bento and Diego Restuccia (2017), “Misallocation, Establishment Size, and Productivity,” *American Economic Journal: Macroeconomics*, Volume 9 (3), July, pp. 267-303.
- Bento, Pedro, and Diego Restuccia (2020). “On Average Establishment Size across Sectors and Countries,” *Journal of Monetary Economics*, forthcoming.
- Hopenhayn, Hugo. “Firm Size and Development,” *Economía*, 2016, 17 (1), 27-49.
- Ezra Oberfield (2013), “Productivity and misallocation during a crisis: Evidence from the Chilean crisis of 1982,” *Review of Economic Dynamics* 16 (1): 100-119.
- Ufuk Akcigit, Harun Alp, and Michael Peters (2015), “Lack of Selection and Limits to Delegation: Firm Dynamics in Developing Countries,” manuscript, Yale University.
- David, Joel and Venky Venkateswaran (2019), “The Sources of Capital Misallocation,” *American Economic Review*.
- Ulyssea, Gabriel. “Firms, Informality, and Development: Theory and Evidence from Brazil,” *American Economic Review*, 108(8), August (2018), 2015-2047.

## 6. Misallocation in Agriculture

- Tasso Adamopoulos and Diego Restuccia (2014), “The Size Distribution of Farms and International Productivity Differences,” *American Economic Review*, 104(6): pp. 1667-97.
- Tasso Adamopoulos and Diego Restuccia (2020), “Land Reform and Productivity: A Quantitative Analysis with Micro Data,” *American Economic Journal: Macroeconomics*, Volume 12, Issue 3, July 2020, pp. 1-39.
- Chaoran Chen, Diego Restuccia, and Raul Santaaulalia-Llopis (2022), “Land Misallocation and Productivity,” manuscript, University of Toronto.
- Tasso Adamopoulos, Loren Brandt, Jessica Leight, and Diego Restuccia (2022), “Misallocation, Selection and Productivity: A Quantitative Analysis with Panel Data from China,” *Econometrica*.

- Chen, Chaoran. “Untitled Land, Occupational Choice and Agricultural Productivity,” *American Economic Journal: Macroeconomics*, 9.4 (2017): 91-121.
- Alain de Janvry, Kyle Emerick, Marco Gonzalez-Navarro, and Elizabeth Sadoulet (2015), “Delinking Land Rights from Land Use: Certification and Migration in Mexico,” *American Economic Review* 105 (10): 3125-49.
- Aragon, Fernando, Diego Restuccia, and Juan Pablo Rud (2022). “Are Small Farms Really more Productive than Large Farms?” *Food Policy*.
- Aragon, Restuccia, and Rud (2022) “Assessing Misallocation in Agriculture: Plots versus Farms,” manuscript University of Toronto.

## 7. Innovation and Macroeconomics

- Jones, Chad. “Sources of US Economic Growth in a World of Ideas,” *American Economic Review*, March 2002, 92(1), 220-239.
- Acemoglu, Daron, Ufuk Akcigit, Harun Alp, Nicholas Bloom, and William Kerr. “Innovation, Reallocation, and Growth,” *American Economic Review*, forthcoming.
- Garcia-Macia, Daniel, Pete Klenow, and Chang-Tai Hsieh (2019). “How Destructive is Innovation?” *Econometrica*.
- Klette, Tor and Sam Kortum. “Innovating Firms and Aggregate Innovation,” *Journal of Political Economy*, October 2004, 112(5), 986-1018.
- Atkeson, Andrew and Ariel Burstein. “Aggregate Implications of Innovation Policy,” manuscript, UCLA, 2018.
- Aghion, Philippe, Antonin Bergeaud, Timo Boppart, Pete Klenow, and Huiyu Li. “Missing Growth from Creative Destruction,” *American Economic Review*, 2019
- Aghion, Philippe, Antonin Bergeaud, Timo Boppart, Pete Klenow, and Huiyu Li. “A Theory of Falling Growth and Rising Rents,” Federal Reserve Bank of San Francisco, 2019

## 8. Technological Progress and Diffusion

- Jovanovic, Boyan, and Peter Rousseau. “General Purpose Technologies,” *Handbook of Economic Growth*, Volume 1B, Chapter 18, 1182-1224.
- Acemoglu, Daron, and Pascual Restrepo. “Artificial Intelligence, Automation, and Work,” manuscript, 2018.
- Acemoglu, Daron, and Pascual Restrepo (2019). “Robots and jobs: Evidence from US labor markets,” *Journal of Political Economy*.
- Greenwood, Jeremy, and Ananth Seshadri. “Technological Progress and Economic Transformation,” *Handbook of Economic Growth*, Volume 1B, Chapter 19, 1225-1273.
- Aghion, Philippe, Benjamin Jones, and Chad Jones. “Artificial Intelligence and Economic Growth,” NBER, 2019.



- Caselli, Francesco, and Alan Manning (2019). “Robot arithmetic: new technology and wages.” *American Economic Review: Insights* 1, no. 1: 1-12.
- Stokey (2020) “Technology diffusion,” *Review of Economic Dynamics*, forthcoming

## 9. Technology Adoption: Facts and Theory

- Comin, Diego, and Bart Hobijn. ”Cross-country technology adoption: making the theories face the facts.” *Journal of Monetary Economics* 51.1 (2004): 39-83.
- Parente, Stephen L., and Edward C. Prescott. ”Barriers to technology adoption and development.” *Journal of Political Economy* (1994): 298-321.
- Comin, Diego, and Bart Hobijn. ”An exploration of technology diffusion.” *The American Economic Review* 100.5 (2010): 2031-2059.
- Comin, Diego, and Marti Mestieri (2018). “If technology has arrived everywhere, why has income diverged?” *American Economic Journal: Macroeconomics* 10, no. 3: 137-78.
- Ayrest, Stephen (2020), ”Distorted Technology Adoption,” manuscript, University of Toronto.

## 10. Productivity Slowdown in Advanced Economies

- Jones, Chad (2017). “The Productivity Growth Slowdown in Advanced Economies,” *ECB Forum on Central Banking*, June.
- Bloom, Nick, et al (2019) “Are Ideas Getting Harder to Find?” manuscript.
- Crafts, Nicholas (2018). “The productivity slowdown: is it the ‘new normal’?” *Oxford Review of Economic Policy*, Volume 34, Number 3, pp. 443-460.
- Gordon, Robert J. *The rise and fall of American growth: The US standard of living since the civil war*. Vol. 70. Princeton University Press, 2017.