14.04 INTERMEDIATE MICROECONOMIC THEORY

FALL 2020

READING LIST AND LECTURE CONTENT

A Brief Guide to this Reading List

Required readings are marked by an asterisk (*). Most readings can be found on the Stellar course website. We use the following acronyms and shorthand:

Kreps: Kreps, David M. 1990. *A Course in Microeconomic Theory.* Princeton: Princeton University Press

Medville: Townsend, Robert M. 1993. *The Medieval Village Economy: A Study of the Pareto Mapping in General Equilibrium Models*. Princeton: Princeton University Press.

MWG: Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). *Microeconomic theory.*

NS: Nicholson, W., and C.M. Snyder. 2016. *Microeconomic Theory: Basic Principles and Extensions.* Boston: Cengage Learning.

Varian: Varian, Hal. 1992. *Microeconomic Analysis.* Third Edition. New York: Norton.

DLT: Townsend, Robert. 2019. *Distributed Ledgers: Design and Regulation of Financial Infrastructure and Payment Systems.* Cambridge: MIT Press.

Lectures 1 Introduction: Motivation for the Course

Lecture 1 – Economics Science: Motivation and Objectives of the Course: Economics as Experiments, Models as Fully Articulated Systems or Labs, RCT's versus Natural Experiments, Prediction and Validation, Actual and Counterfactual Policy and Welfare, Theory and Measurement Unified, Big Data, Computation, Villages Economies Real and as Metaphors for Modern Systems, Bitcoin/Blockchain/Distributed Ledgers, A list of Economies to be Studied and Economies in the Language of General Equilibrium Environments, Review of the Reading List

*Koopmans, T., 1947. "Measurement without theory." *The Review of Economics and Statistics*, 29(3): 161-172.

*Medville, Chapter 1 "Introduction"

*Emerging Thailand: The Spirit of Small Enterprise
https://www.youtube.com/watch?v=b_rEmiu71Pk
Varian, H., 2014. "Big data: new tricks for econometrics." *Journal of Economic Perspectives*, 28(2): 3-28.

Lucas Jr, R.E., 1980. “Methods and problems in business cycle theory.” *Journal of Money, Credit, and Banking*, 12(4): 696-715.

Angrist, Joshua D., and Jörn-Steffen Pischke. 2010. "The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics." *Journal of Economic Perspectives*, 24 (2): 3-30.

Matzkin, Rosa L., 2007. "Nonparametric Identification, "Handbook of Econometrics,in: J.J. Heckman & E.E. Leamer (ed.), *Handbook of Econometrics*, edition 1, volume 6, chapter 73 Elsevier.

Ragnar Frisch (1926) "On a Problem in Pure Economics: Translated by JS Chipman." Preferences, Utility, and Demand: A Minnesota Symposium. 1926."

Townsend, R.M., 1988. “Models as Economies.” *The Economic Journal*, 98(390): 1-24.

Bank for International Settlements (BIS). 2017. “Distributed ledger technology in payment, clearing and settlement: An analytical framework.” Committee on Payments and Market Infrastructures Papers No. 157 (February, 2017).

Iansiti, Marco and Karim R. Lakhani. 2017. “The Truth about Blockchain.” *Harvard Business Review* 95 (1): 118-127.

Denison, Erin, Michael Lee, and Antoine Martin. 2016. “What do cryptocurrencies do?” Federal Reserve Bank of New York Paper.

Townsend R. 1995. “Financial Systems Northern Thai Villages.” *Quarterly Journal of Economics*. Vol. 110, No. 4: 1011 -1046

Autor DH, Dorn D, Hanson GH. 2013. “The China Syndrome: Local Labor Market Effects of Import Competition in the United States.” *Am. Econ. Rev.* 103(6):2121–68

Malinowski, Bronisław. *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea.* London: Routledge and Kegan Paul.

Ralph L. Beals. 1975. *Peasant Marketing System of Oaxaca, Mexico.*

Lecture 2-4, Building Blocks for Constructing Economies: Preferences, Endowments, and Technology, with Partial Equilibrium Applications

Lecture 2 – Consumer Choice: Consumption Set, Rational Preferences, Utility Functions, Some Properties of Preferences, Indifference Curves, Marginal Rates of Substitution, Example Indifference Curves and Functions; Application: Utility Maximization subject to Budget , first order conditions, Major Method: General Constrained Optimization and Lagrangian Programs.

*Kreps Appendix A "Constrained Optimization"

*NS Chapter 3 "Preferences and Utility"

*NS Chapter 4 "Utility Maximization"

Lecture 3 – Consumer Behavior: Demand Functions, Homogeneity, Income and Substitution Effects, Engle Curves and Giffin Goods, Major Application: expenditure shares, Giffen Goods and Expenditures shares in China, in the US for rich and poor. Compensated (Hicks) and Uncompensated (Marshall) Demands, a first look at the Slutsky Equation, indirect utility and the expenditure function, Duality of Utility Maximization and Expenditure Minimization, properties of the expenditure function and Hicksian demand, putting restrictions on data.

*NS Chapter 5 "Income and Substitution Effects"

*Jensen, Robert T., and Nolan H. Miller. 2008. "Giffen Behavior and Subsistence Consumption." *American Economic Review*, 98 (4): 1553-77.

MWG 3.D-F "The Utility Maximization Problem," "The Expenditure Minimization Problem," "Duality: A Mathematical Introduction"

Lecture 4 – Production: Inputs and Outputs, Production Possibilities Sets and Properties, Returns to Scale, Aggregation over Production Sets; Major Application: Profit Maximization, Properties of Profit function, Hotelling Lemma, Isoquants, Cost Minimization and Properties of Cost Curves, Input Mix at Factor Prices; Method: Envelope Theorem. Illustrative example of basics onto modern systems: Robinson Crusoe (one person economy with preferences and production), International Trade (two country example), Leontief Input/Output Matrix, with applications to Google Search and Page Rank, Supply Chains and Great East Japan Earthquake

*Kreps 7 "The Neoclassical Firm"

Carvalho, Vasco M. and Nirei, Makoto and Saito, Yukiko and Tahbaz-Salehi, Alireza, Supply Chain Disruptions: Evidence from the Great East Japan Earthquake (December 11, 2016). Columbia Business School Research Paper No. 17-5.

Lecture 5-6, Decision Making Under Uncertainty, Linear Programs, Dynamic Programs

Lecture 5 – Uncertainty: Discrete commodity space and choice with lotteries, expected utility theory, risk and concave utility, Arrow Pratt measures of risk aversion, Uncertainty and states of the world. Application, Medieval Village Economy (risk and its magnitude, land fragmentation as diversification, cross village spatial correlations). Method: Linear Programs, in a variety of applications (location, activity analysis and profit max, utility max and budget)

*NS Chapter 8 "Expected Utility and Risk Aversion"

Lecture 6 – Dynamics and Programming: Application: Storage, Seed and Starvation in Medieval Villages; Method: Dynamic Programming, Value Functions

*Varian 19.1-3 "Time"

*Medville Chapter 3 "Storage as Risk Reduction"

Lectures 7-9, Pareto Optimality; Risk Sharing and Dynamics; Application to Village Economies; Social Networks and Supply Chains in Villages, Impact of Health Shocks and Covid-19

Lecture 7 – Pareto Optimality: Pareto Optimality, Pareto Dominance and Pareto Set, Edgeworth Box Economy, Utility Possibilities Frontier, Welfare function and a Programming Problem for determination of Optimal Allocations; Method: Separating Hyperplanes and theorems; Leading Example: Uncertainty and the state space of the optimal allocation of risk with implications for data, parametric examples to rejectable restrictions

*Kreps 5.1-4 (up to and including "the production and allocation of private goods")

Lecture 8 – Risk Sharing Applications I: Village India with ex post consumption and income data, ex ante Land Division in the Medieval Village Economy

*Townsend, R.M. "Risk and insurance in village India." *Econometrica*, 62(3), 539-591

*Medville, Chapter 2 "Uncertainty and Land-holding Patterns"

Lecture 9 – Risk Sharing Applications II: in Thai Villages, Risk and Return in Production Choice, using data on production and consumption, Idiosyncratic and aggregate risk; the Role of Gifts, Social Networks and the Transmission of Shocks in Villages:

*Samphantharak, K., and Townsend, R.M. 2018, "Risk and return in village economies." *American Economic Journal: Microeconomics* 10 (1): 1–40, 2018.

*Kinnan, Cynthia, Krislert Samphantharak, Robert M. Townsend, and Diego Vera-Cossio. 2020." Insurance and Propagation in Village Networks." Working paper, MIT.

Kinnan, C., and Townsend, R.M., 2012. "Kinship and financial networks, formal financial access, and risk reduction." *The American Economic Review*, 102(3): 289-293.

Lectures 10, Household Financial Accounts, Life Cycle and Cash Mgmt Programming, Bitcoin and Payments on Distributed Ledgers

Lecture 10 – Ledgers and Management: Household Financial Accounts (income statement and balance sheet), household profiles with Life Cycle Maximization and a Wealth Planner for Thai Villages, bitcoin, statement of cash flow and distributed ledgers, cash management through the

lens of dynamic models in Thailand, Sweden as a cashless economy and Kenya e-money, Trusted Third Party and the Decentralization issue of Ledgers

Alvarez, Fernando, Anan Pawasutipaisit and Robert M. Townsend. 2018. "Cash Management in Village Thailand: Positive and Normative Implications." Working Paper.

* Samphantharak, K. and Townsend, R.M., 2009. *Households as corporate firms: an analysis of household finance using integrated household surveys and corporate financial accounting.* Econometric Society Monographs (Book 46). Cambridge University Press, Chs 2, 4.

Townsend, R and Narapong Srivisal. "The extraordinary financial lives of Ordinary People: Huge Variation in Financial Situations.

Jack, William, Tavneet Suri, and Robert Townsend. 2010. "Monetary Theory and Electronic Money: Reflections on the Kenyan Experience." *Economic Quarterly* 96 (1): 83–122

Jack, William, and Tavneet Suri. 2014. "Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution." *American Economic Review*, 104 (1): 183-223.

DLT: Section on "e-Payments and e-messages"

Lectures 11-12, Private Information, Contracts, Mechanism Design

Lecture 11 – Contracts and Mechanism Design: Motivation from rents and spatially scattered Medieval estates; the Revelation Principle, Optimal Multi-period Contracts and Inter-temporal Tie-ins, Costly State Verification and Audits; the Space of Lotteries, Incentives and Protocols, Smart Contracts, Implementation of Mechanism Design

*Medville, Chapter 5 "Rentals with Unobserved Outputs"

DLT: Section on "Contract theory and smart contracts: Mechanism design"

Lecture 12 – Contract Applications, Obstacles: occupation choice and business starts, distinguishing obstacles (limited commitment versus moral hazard) , rural versus urban Thailand and a battery of tests across information/financial regimes, linear programs to compute solutions to models and maximum likelihood for estimation in data

*Karaivanov Alex, Anna L. Pauson, and Robert M. Townsend. 2006 "Distinguishing Limited Liability from Moral Hazard in a Model of Entrepreneurship." *Journal of Political Economy* 114 (1): 100-144.

*Karaivanov, Alexander. 2001. "Computing Moral Hazard Programs with Lotteries Using Matlab." Mimeo.

Karaivanov, Saurina, Townsend. "Family Firms, Bank Relationships and Financial Constraints: A Comprehensive Score Card", International Economic Review, Vol.-60, Issue-2, May 2019

Lectures 13-15, Walrasian Equilibrium As Prediction; Application to International Trade, Tariffs, Real and Financial Liberalization

Lecture 13 – Walrasian Equilibrium and Trade: Application to International Trade, Commodity Price Differences across Countries, The Gains from Trade, Pricing Capital and Labor as Factors of Production, Who Wins and Who Losses from Tariffs, the Factor Price Equalization Theorem

*Kreps 6.1 "Pure Exchange and Price Equilibrium"

*MWG 15.D, "The 2 X 2 Production Model"

Lecture 14 – Real and Financial Flows: Thailand: Creating village, regional and national income and product accounts, GDP, NIPA; Flow of funds and balance of payments; Openness and prices in regional Thailand; Model of a small open economy with obstacles to trade, Calibration of the Model, Model-predicted and actual data compared at both village-level and individual-level;

*Paweenawat, Archawa and Robert M. Townsend. 2019. "The Impact of Regional Isolationism: Disentangling Real and Financial Factors." Working paper.

*Dawkins, C., T.N. Srinivasan and J Whalley, 2001. Chapter 58 - calibration. In Heckman, James J., and Edward E. Leamer (Eds) *Handbook of econometrics. Vol. 5.* Amsterdam: North Holland, pp. 3653-3703

Moll, B. R. M., Townsend and V. Zhorin. 2017. "Economic development, flow of funds, and the equilibrium interaction of financial frictions." *Proceedings of the National Academy of Sciences* 114(24): 6176-6184.

Lecture 15 – Data and Policy US: China Shock, State Level Current Accounts, Measuring Wealth and Income, US Household Surveys are not Integrated Financial Accounts, Integrated Macro Accounts, Inequality and the top 1%, Distributional Accounts, the Difficulty of Gauging the Impact of Covid-19

*Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team. 2020. "How Did COVID-19 and Stabilization Policies A↵ect

Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data." Working paper

*Baker, Scott R. R.A. Farrokhnia, Steffen Meyer, Michaela Pagel, Constantine Yannelis. 2020. "Income, Liquidity, and the Consumption Response to the 2020 Economic Stimulus Payments." Working paper.

Batty, Michael, Jesse Bricker, Joseph Briggs, Elizabeth Holmquist, Susan McIntosh, Kevin Moore, Eric Nielsen, Sarah Reber, Molly Shatto, Kamila Sommer, Tom Sweeney, and Alice Henriques Volz (2019). "Introducing the Distributional Financial Accounts of the United States," *Finance and Economics Discussion Series* 2019-017. Washington: Board of Governors of the Federal Reserve System.

Autor DH, Dorn D, Hanson GH. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *Am. Econ. Rev.* 103(6):2121–68

Krislert Samphantharak, Scott Schuh and Robert M. Townsend. 2018. "Integrated Household Surveys: An Assessment of U.S. Methods and an Innovation". *Economic Inquiry*, 56 (1), 2018: 50–80.

Piketty, Thomas, Emmanuel Saez, Gabriel Zucman, Distributional National Accounts: Methods and Estimates for the United States, The Quarterly Journal of Economics, Volume 133, Issue 2, May 2018, Pages 553–609, https://doi.org/10.1093/qje/qjx043

Smith, Matthew, Owen Zidar, Eric Zwick. 2020. "Top Wealth in America: New Estimates and Implications for Taxing the Rich." Working paper.

Bond, Philip and Robert M. Townsend. 1996. "Formal and Informal Financing in a Chicago Ethnic Neighborhood." Economic Perspectives, July/August 1996, Federal Reserve Bank of Chicago.

Lectures 16-17 Optimality of Competitive Equilibria, and Existence of Competitive and Nash Equilibria

Lecture 16 – Optimality of Competitive Equilibrium: Competitive equilibria are Pareto optimal; any Pareto Optimum can be supported as equilibrium with Transfers; Sufficient Assumption and proofs, with first order conditions and with supporting hyperplanes; finite dimensional Euclidean Space and extension to Valuation Equilibria in more general spaces

*Kreps 6.3 "The Efficiency of a General Equilibrium"

Debreu, G., 1954. "Valuation equilibrium and Pareto optimum." *Proceedings of the National Academy of Sciences* 40 (7): 588-592.

Prescott, E., and R.M. Townsend. 1984. "General competitive analysis in an economy with private information." *International Economic Review* 25 (1): 1-20

Lecture 17 – Existence: Fixed Point Theorems, Existence of Walrasian Equilibiria with Negishi Algorithm Using second welfare theorem, Recent Computer Science Contributions, Nash equilibria in Mixed Strategies; Existence, Application to Financial Markets ,trade fails and penalties in limit order pricing

*Kreps 6.4 "Existence and The Number of Equilibria"

Scarf, H.E., 1982. "The computation of equilibrium prices: an exposition." In Arrow, Kenneth J., and Michael D. Intriligator (Eds.) *Handbook of mathematical economics. Volume 2*. Amsterdam: North-Holland, pp. 1007-1061.

Negishi, T., 1960. "Welfare economics and existence of an equilibrium for a competitive economy." *Metroeconomica*, 12 (2-3): 92-97.

Echenique, F.; and Wierman, A. Finding a Walrasian Equilibrium is Easy for a Fixed Number of Agents. In Proceedings of the 13th ACM Conference on Electronic Commerce, of EC '12, pages 495-495, New York, NY, USA, 2012. ACM

Paes Leme and Chiu-wai Wong (2016) "Computing Walrasian Equilibria: Fast Algorithms and Structural Properties"

Jehle, Geoffrey A. and Philip J. Reny. 2011. *Advanced Microeconomic Theory*. Third Edition. New York: Financial Times/Prentice Hall. Chs. 7.1-7.2.2 "Strategic Decision Making", "Dominant Strategies", "Nash Equilibrium"

*Asu Ozdaglar's Lecture material from Course 6.254. "Existence of a Nash equilibrium"

Fleming, Michael J. and Kenneth D. Garbade. "Explaining Settlement Fails." Federal Reserve Bank of New York: Current Issues in Economics and Finance. Volume 11, Number 9 September 2005

Dubey, Pradeep. (1982) "Price-quantity Strategic Market Games" EconometricaVol. 50, No. 1 (Jan., 1982), pp. 111-126

Lectures 18-19, Microeconomics and Macro Aggregation: Theory and Data from Two Perspectives, Imposed Structure from Above vs Identification and Falsification with Minimal Assumptions from Below

Lecture 18 – Aggregation, the positive and normative representative consumer for prediction and welfare respectively, indirect utility and properties, Roy's identity, Gorman Polar forms, Linear expansion paths and data, critical review of traditional and new foundations of macroeconomics, Application: The Representative Consumer in Aggregated Models

*Daron Acemoglu. Introduction to Modern Economic Growth. Princeton: Princeton University Press. Chapter 5.2. "The Representative Household", 218-226

Lecture 19 – Identification and Falsification, as applied to Consumer Optimization and to General Equilibrium theory, A Unified Approach—Infinite Data and the Slutsky Matrix, Finite data and Reveled preference, Convexity not testable, computational considerations, Falsifiability, income data alone is not enough to test

*Varian 8.1-3 on Slutsky matrix

*Varian 8.5 "Integrability"

*Varian 8.7 "Revealed Preference"

Lectures 20-21, Failures of the Welfare Theorems and Some Market Structure Remedies; Cryptocurrency Values, Monetary Theory and Some Policy Remedies

Lecture 20 – Failures of the Welfare Theorems: Failure of the Second Welfare Theorem – Nonconvexity; Failure of the First Welfare Theorem - Local Satiation, Pollution but Fixed with Markets in Rights, Externalities generally, rights for assignment to others, Infinite Horizon and Infinite wealth, Economics of Platforms in a Walrasian Framework: Platform and Payment externalities, Internalizing Externalities with Market Design; Application: Competition in Cryptocurrencies

*Arrow, K.J., 1969. "The organization of economic activity: Issues pertinent to the choice of market versus nonmarket allocation." In *The analysis and evaluation of public expenditure: the PPB-system*. Washington DC: Joint Economic Committee, 91st Cong., 1st sess 1, pp. 59-73.

*Jain, Anil and Robert M. Townsend. 2019. "The economics of platforms in a Walrasian setting." Working paper.

Lecture 21 – Bubbles: Bitcoin Values, Overlapping Generations and Bubbles, Lessons from Monetary Theory, Efficiency questions, is the bubble large enough in actual economies, the value of money as from cash-in-advance, removing indeterminacy in practice, a fin tech application in Southeast Asia, Commitment and a Digital Reserve Bank, activist monetary and token policy

*Townsend, Robert M. 1980. "Models of Money with Spatially Separated Agents." In *Models of Monetary Economies*, edited by John Kareken and Neil Wallace. Minneapolis: Federal Reserve Bank of Minneapolis, pp. 265-303

*Abel, Andrew B., N. Gregory Mankiw, Lawrence H. Summers, and Richard J. Zeckhauser. 1989. "Assessing Dynamic Efficiency: Theory and Evidence." *Review of Economic Studies* 56 (1): 1-19

DLT, Section on "Token Valuation"

Townsend, Robert and Neil Wallace. 1987. "Circulating Private Debt: An Example with a Coordination Problem." In *Contractual Arrangements for Intertemporal Trade*, edited by Edward C. Prescott and Neil Wallace. Minneapolis: University of Minnesota Press, pp 105-20.

Tirole, Jean. 1985. "Asset Bubbles and Overlapping Generations." *Econometrica* 53 (6): 1499-1528

Manuelli, Rodolfo, and Thomas J. Sargent. 2010. "Alternative Monetary Policies in a Turnpike Economy." *Macroeconomic Dynamics* 14 (5): 727-762