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This is a sequel to the book by Dr. A. Ashimov and his colleagues, Macroeconomic Analysis and Economic Policy Based on Parametric Control. The authors have expanded both the developed mathematical apparatus and the scope of problems and applications stemming from the practice of steering a national economy of a small country in the dynamic environment of the international economic order. The developed theoretical foundation is used in Chapter 1 to suggest a decision support system operating in the framework of state economic policy making. Chapter 2 presents various mathematical models built on the basis of the available statistical data and provides quality assessment of these models. Parametric control problems are being formulated on the basis of these models as problems of mathematical programming, and the obtained solutions are subjected to analyses and interpretations. This is demonstrated by the analysis of the effect of uncontrollable factors on the problem solutions. Chapter 3 is aimed at the modelling and analysis of cyclic phenomena in economics and their structural stability. Chapter 4 presents solutions of specific problems of national economy and analysis and interpretation of their solutions. In summary, the authors formulate comprehensive mathematical models of some critical mechanisms in micro economics previously known only on a qualitative level. They provide vigorous mathematical analysis of the models that justifies their applicability for the formulation of parametric control problems, and the existence of model-based solutions. The complexity of the resultant problems is addressed by the formulation of the appropriate algorithms. The described methodology leads to the development of computer-based decision support systems.

Macroeconomics in Context lays out the principles of macroeconomics in a manner that is thorough, up to date, and relevant to students. Like its counterpart, Microeconomics in Context, the book is uniquely attuned to economic realities. The "in Context" books offer engaging coverage of current topics including financial crises, rising inequality, debt and deficits, and environmental sustainability, while also providing a clear and accessible exploration of economic theory and applications. The third edition features: Clear explanations of basic economic concepts alongside more in-depth analysis of macroeconomics models and economic activity Expanded coverage of topics including, inequality, financialization and debt issues, the changing nature of jobs, and sustainable development Thoroughly updated figures and data A full complement of online instructor and student support materials such as additional tables and data, PowerPoint slides and a study guide This engaging textbook offers students an excellent guide to macroeconomics. The latest addition to the "In Context" series, it combines real-world relevance with a thorough grounding in multiple economic paradigms.

This book, originally published in 1994, explores the effects of federal policies on the US auto industry in the 1970s and 80s which were designed to save jobs and help the domestic industry become more competitive. The author develops a new model based on modern oliopoly theory to estimate the effects of the voluntary Restraint Agreements (which limited Japanese imports) on the US auto market. The results demonstrate that VRAs caused price increases which adversely affected the comptitiveness of US producers. On the eve of a new Trump administration, and the likelihood of new restrictions on imports to boost US manufacturing, this book has particular enduring relevance.

This comprehensive report-actually four compartmentalized reports in one- - focuses on policies to improve Brazil's trade performance. Specifically, three questions are addressed: What are the merits of alternative trade liberalization or integration options ? What domestic policies should be adopted to enhance Brazil's export response to trade openness? What policy options in the area of international services trade negotiations can improve access to foreign markets and enhance the value of overall trade reforms? In Part 1, Chapter 1examines regional, multilateral, and unilateral trade policies. Chapter 2 overviews export performance, surveys the overall policy environment facing potential and actual exporters, and identifies the main areas where policies could be improved to help enhance export performance. Lastly, Chapter 3 discusses how regional and multilateral negotiations can be used to support domestic reform and improve access to foreign markets. Part 2 provides quantitative estimates to answer questions about the efficacy of unilateral liberalization and multilateral trade agreements. After an introductory chapter, Chapter 2 describes the model and data. Chapter 3 presents and explains the policy results for Brazil, the implications for the distribution of income, and the reallocation of output among sectors. Results for other countries in the model are also explained. The impact on partner and excluded countries of the regional arrangements are also evaluated and compared to the impact under multilateral trade liberalization. Chapter 4 examines how the various trade policy options may be combined to optimize the outcome for Brazil. The conclusions are in Chapter 5. In Part 3, Chapter 1 briefly discusses overall macroeconomic context and the arguments for fostering greater export growth. Chapter 2 provides an overview of export performance in recent years. This is followed in Chapter 3 by an examination of the government institutional environment for policy-making related to exports. Chapter 4--the main section in this part-discusses the policies affecting export behavior. An emphasis has been placed on the results of interviews conducted with exporting firms. The final section--Chapter 5--provides some suggestions and recommendations for policies. In Part 4, Chapter 1 provides a backdrop to this section. Chapter 2 describes the pattern of Brazil's trade in services, drawing upon balance of payments statistics and data on foreign direct investment...

Metropolitan commercial real estate markets are highly influenced by global forces, the regional economy, and institutional behaviour. While descriptions of regional commercial real estate markets are well known and widespread in academic literature, this monograph goes beyond that in explaining the dynamics in and variations between European metropolitan markets. By comparing those markets on relevant indicators and through extensive data analysis, a number of explaining factors is revealed. Contributions on specific metropolitan markets with different positions within the real estate cycle illustrate not only the characteristics of the local economy and its institutions, but also urgent issues such as battling vacancy, changing retail hierarchy or managing obsolescence.

Real, current macroeconomic events connected to the theory The new fourth edition of Blanchard's respected Macroeconomics text has been substantially revised to account for the impact of the GFC on the Australasian Economy and the many issues it raises. Thus, in addition to a first discussion of the crisis in Chapter 1 and numerous boxes and discussions throughout the book, we have brought forward the chapter on the GFC to Chapter 9. Macroeconomics is the only intermediate resource with a truly Australasian focus, demonstrating economic ideas and issues with hundreds of local and international examples. This comprehensive resource presents an integrated view of macroeconomics, drawing on the implications of equilibrium conditions in three sets of markets: the goods market, the financial markets and the labour market.

How the basic concepts of economics -- including markets, institutions, and money -- can be used to create and analyze economies based on virtual goods.

What circumstances or behaviors turn poverty into a cycle that perpetuates across generations? The answer to this question carries especially important implications for the design and evaluation of policies and projects intended to reduce poverty. Yet a major challenge analysts and policymakers face in understanding poverty traps is the sheer number of mechanisms—not just financial, but also environmental, physical, and psychological—that may contribute to the persistence of poverty all over the world. The research in this volume explores the hypothesis that poverty is self-reinforcing because the equilibrium behaviors of the poor perpetuate low standards of living. Contributions explore the dynamic, complex processes by which households accumulate assets and increase their productivity and earnings potential, as well as the conditions under which some individuals, groups, and economies struggle to escape poverty. Investigating the full range of phenomena that combine to generate poverty traps—gleaned from behavioral, health, and resource economics as well as the sociology, psychology, and environmental literatures—chapters in this volume also present new evidence that highlights both the insights and the limits of a poverty trap lens. The framework introduced in this volume provides a robust platform for studying well-being dynamics in developing economies.

Abstract Chapter 1. Heterogeneous Entrepreneurial Ability and Wealth Inequality Models with entrepreneurship can reproduce high wealth concentration at the top. The key assumption is the borrowing constraint, that is, households are unable to borrow enough assets to start a business or invest optimally in the business. However, some empirical evidences show that borrowing constraint does not matter for the majority of households in the US. This paper seeks to generate high wealth concentration at the top without assuming borrowing constraint. The baseline model that introduces heterogeneity in entrepreneurial ability is able to match the wealth distribution while the model assuming same entrepreneurial ability fails. Besides wealth distribution, the baseline model generates other moments that are consistent with the data. Chapter 2. Taxing Top Earners: The Role of Entrepreneurs This paper studies the optimal top marginal income tax rate in a quantitative framework with entrepreneurial choice, financing constraints, and realistic earnings and wealth distributions. I find that the revenue-maximizing top tax rate is approximately 41 percent -- close to the recent levels in the US. In contrast, when calibrated with only workers to match realistic earnings and wealth distributions, the model predicts a revenue-maximizing top tax rate of 81 percent -- close to the established view. There are two channels through which the baseline model has a lower revenue-maximizing top tax rate. First, the wealth distribution channel: increasing the top tax rate decreases wealth accumulation and leads to a less skewed wealth distribution in the long run (there are more top entrepreneurs with low wealth and less top entrepreneurs with high wealth). With financing constraints, there is a similar change in the business earnings distribution, implying a fall in the average business earnings at the top. Second, the general equilibrium effect on labor earnings of workers: in the model with entrepreneurs, increasing the top tax rate reduces the capital stock much more than labor supply, which decreases the capital-labor ratio and thus the equilibrium wage rate in the model economy. Finally, I find that the welfare-maximizing top marginal income tax rate is close to the revenue-maximizing one. Chapter 3. Household Heterogeneity and Consumption Amplification Macroeconomic models with household heterogeneity in wealth can generate larger consumption response to aggregate shocks compared to a representative-agent economy. In other words, there is consumption amplification associated with wealth heterogeneity. However, I find that in a Krusell-Smith type real business cycle (RBC) model, this amplification effect is only significant at the onset of a recession and gradually dies out as the recession proceeds. The finding is of interest because part of the motivation for the widely adoption of models with wealth heterogeneity is their different and empirically plausible implications for consumption dynamics compared with representative-agent models. I then introduce household heterogeneity in housing and find that the model with housing has more persistent amplification effect on consumption during the recession.

Featuring information, data, case studies and analysis of recent economic events, the Economics Annual Update 2015 provides you with topical material to draw on for tasks throughout your course, and for answering examination questions. Written by an experienced teacher and examiner, this is the book you need if you are aiming for the highest grades at AS and A2 Economics. - Up-to-date case study examples with data to help you develop your knowledge and improve your exam answers - Linked to the Edexcel, OCR and AQA Economics specifications, with exam--type questions at the end of each chapter - Includes a good balance of microeconomic and macroeconomic content - Written for both AS and A2 students Contents list Chapter 1: The German beer cartel: what happened and why did it break down? Chapter 2: Help to Buy: are we creating another housing bubble? Chapter 3: High Speed 2: do the benefits outweigh the costs? Chapter 4: African development: what is causing and constraining growth? Chapter 5: Scottish independence referendum: what were the economic issues? Chapter 6: Latin American economies: growth, world cups and defaults Chapter 7: Payday loan regulation: will consumers be better off? Chapter 8: Egypt's fuel subsidy cut: a necessary reform? Chapter 9: the Eurozone: what problems remain? Chapter 10: Gold prices: what comes up must come down Chapter 11: Briefing on the UK Economy (including Economic data analysis)

Ronald Inglehart argues that economic development, cultural change, and political change go together in coherent and even, to some extent, predictable patterns. This is a controversial claim. It implies that some trajectories of socioeconomic change are more likely than others--and consequently that certain changes are foreseeable. Once a society has embarked on industrialization, for example, a whole syndrome of related changes, from mass mobilization to diminishing differences in gender roles, is likely to appear. These changes in worldviews seem to reflect changes in the economic and political environment, but they take place with a generational time lag and have considerable autonomy and momentum of their own. But industrialization is not the end of history. Advanced industrial society leads to a basic shift in values, de-emphasizing the instrumental rationality that characterized industrial society. Postmodern values then bring new societal changes, including democratic political institutions and the decline of state socialist regimes. To demonstrate the powerful links between belief systems and political and socioeconomic variables, this book draws on a unique database, the World Values Surveys. This database covers a broader range than ever before available for looking at the impact of mass publics on political and social life. It provides information from societies representing 70 percent of the world's population--from societies with per capita incomes as low as $300 per year to those with per capita incomes one hundred times greater and from long-established democracies with market economies to authoritarian states.

Understanding macroeconomic developments and policies in the twenty-first century is daunting: policy-makers face the combined challenges of supporting economic activity and employment, keeping inflation low and risks of financial crises at bay, and navigating the ever-tighter linkages of globalization. Many professionals face demands to evaluate the implications of developments and policies for their business, financial, or public policy decisions. Macroeconomics for Professionals provides a concise, rigorous, yet intuitive framework for assessing a country's macroeconomic outlook and policies. Drawing on years of experience at the International Monetary Fund, Leslie Lipschitz and Susan Schadler have created an operating manual for professional applied economists and all those required to evaluate economic analysis.

This dissertation consists of two chapters. The first one is an empirical study in international trade which investigates the effect of an intensified competition on the price and quality of traded goods. The second one is a theoretical study in macroeconomics that incorporates the theory of efficiency wage in a competitivesearch equilibrium with adverse selection.Chapter 1: Competing on Price and Quality: Theory and Evidence from Trade DataImport competition induces firms either to reduce their markup, upgrade their quality, or both. Modern models of international trade typically consider one margin of adjustment to explain the consequences of import competition. However, examining U.S. import data suggests that firms actively respond by adjusting bothquality and markup. This paper develops and calibrates a Ricardian model of trade which incorporates the endogenous response of quality and markup to import competition. Countries are heterogeneous both in physical efficiency and quality capability. Firms engage in a two-dimensional Bertrand competition in whichthey simultaneously choose the price and quality of output. Estimation results indicate that developed countries are more productive both in physical and quality production. Moreover, in response to import competition, developed countries mainly upgrade quality, while developing countries mainly reduce the markup. Ignoring the quality channel would underestimate the gains from trade that the U.S. derives with developed countries and overestimate the gains from trade with developing countries. The counterfactual experiment indicates as the U.S. economy grows, it benefits more from free trade with quality-capable countries than with countries which are less capable.Chapter 2: Efficiency Wage, Competitive Search and Adverse SelectionThis paper investigates the theory of efficiency wage (wage per unit of efficiency) in a competitive search equilibrium with adverse selection. Firms post wages. Workers whose efficiency is private information decide where to apply after observing posted wages. A separating equilibrium is characterized. Contrary to the result derived in Weiss (1980), not only unemployment rises in response to a negative shock (e.g., output price fall), but each unit of efficiency is also rewarded less. Moreover, I extend the model to a general equilibrium setting in which the product market is monopolistically competitive. Comparative statics show that moving toward a more competitive market induces an increase in the efficiency wage and a decrease in the output price. However, while the rise in the relative measure of firms to workers lowers the output price, its effect on the efficiency wage is indeterminate.

How Immigrants Contribute to Kyrgyzstan's Economy is the result of a project carried out by the OECD Development Centre and the International Labour Organization, with support from the European Union.

Master current economic concepts with the most reader-friendly instructional approach to macroeconomics available -- MACROECONOMICS FOR TODAY, 11E by national award-winning author Irvin Tucker. No matter what your current level of macroeconomic understanding, this edition provides an interesting writing style, unique presentation and visual learning system with helpful, colorful graphs that clarify important macroeconomic principles and effectively explain the latest developments. Rather than presenting a confusing array of economic analyses for you to memorize, this edition demonstrates how to apply basic macroeconomic principles in daily life and recognize macroeconomic concepts at work in today's news. You study the latest information on economic growth, federal deficits, monetary policy and other emerging developments in macroeconomics. Learning tools, road maps and sample quizzes help reinforce your understanding. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Chapter 1 explores a potential solution to the continuing disequlibrium in microfinance markets. I design a mechanism to aid in securitization of microloans, using a dynamic investment pool governed by a Central Microcredit Clearinghouse (CMC), that would sell investment units back to MFIs and outside investors simultaneously. The CMC would serve as a catalyst to this other avenue of microcredit financing, securitization of microloans, which could help spawn the type of growth in investor-based funding of MFIs that is so urgently needed. Chapter 2 analyzes Official Development Assistance (ODA) commitment and disbursement activity in terms of motivation, considering that the difference between bilateral aid commitments and disbursements may be related to the business cycle of the donor country. The annual disbursement gap is calculated for each pair for each year, as well as a cumulative disbursement gap, and these are regressed against multiple cyclicality measures of income and a set of control variables. It is found in multiple specifications that the cumulative disbursement gap is generally procyclical, much as aid itself, although the cyclicality of aid depends on the cyclicality measure. This is confirmed with four extensions designed mainly as robustness checks. Chapter 3 uses both the round six and 2006-2008 National Survey of Family Growth (NSFG) data for both male and female respondents along with macroeconomic data over the same time period to test a number of theoretical questions regarding changes in relationship exit costs and their effects on behavior in cohabitation, marriage, and separation. I find that our proxy for cohabitation surplus and exit costs significantly affects subsequent decisions of cohabitation, marriage, separation, and divorce. Also, marriage hazard rates are related to these changing exit costs in ways consistent with recent advances in theory.

In Chapter 1, I develop a New Keynesian model with inventories and convex costs of labor adjustment. For each of the three empirically observed responses to monetary policy shocks: (1) the slow adjustment of inventories compared to changes in sales; (2) the delayed and gradual response of inflation; and (3) the transitory movement in the aggregate price level in the same direction as the interest rate, also known as the "price puzzle," my model has important implications. First, adjustment costs counteract the financing-cost effect of interest rate changes on inventory holdings, but are still inadequate for the calibrated model to generate countercyclical inventory--to-sales ratios. I find that this financing-cost effect needs to be reduced by 80 percent for the model to predict inventory behavior correctly. Second, firm-specific adjustment costs in production increase the degree of real rigidity for price adjustment, so the response of inflation in the presence of high aggregate marginal costs is still slow-moving and persistent. Finally, the motive of cost smoothing for holding inventories implies that marginal costs should move in the opposite direction as the interest rate, which casts doubt on the use of the cost channel to explain the "price puzzle." In Chapter 2, I propose a theory of the information channel between home consumption bias and home equity bias. Consumption-revealed information is acquired spontaneously in an investor's daily life and thus is naturally immobile. For this reason, consumption experience more concentrated in home-produced goods endows domestic residents with information advantage in home equities. This channel also helps to explain many empirical facts such as the 90\% correlation between import shares and foreign equity shares. In Chapter 3, I use individual portfolio data from a China's brokerage firm to test the predictions of Chapter 2. I find that the fraction of local stocks in the brokerage portfolio is 143 percent higher than the fraction of local stocks in the market portfolio. One third of this portfolio locality is explained by business exposure of listed firms, measured by their sales per capita in the brokerage city. The result shows that a rise in sales per capita by \$2.75 leads to a 32 percent increase in the portfolio share relative to the mean. To examine whether business exposure helps investors to gain information other than familiarity, several indicators of business exposure in nonlocal areas are included in a regression. The result suggests that if a nonlocal firm's business is concentrated in other areas, local investors tend to shy away from its stock. However, some coefficients are not statistically significant, so we still cannot reach the conclusion that a firm's sales business has significant amount of information content on stock returns.

Principles of Macroeconomics is a lucid and concise introduction to the theoretical and practical aspects of macroeconomics. This revised and updated third edition covers key macroeconomic issues such as national income, investment, inflation, balance of payments, monetary and fiscal policies, economic growth and banking system. This book also explains the role of the government in guiding the economy along the path of stable prices, low unemployment, sustainable growth, and planned development through many India-centric examples. Special attention has been given to macroeconomic management in a country linked to the global economy. This reader-friendly book presents a wide coverage of relevant themes, updated statistics, chapter-end exercises, and summary points modelled on the Indian context. It will serve as an indispensable introductory resource for students and teachers of macroeconomics.

This is the United Nations definitive report on the state of the world economy, providing global and regional economic outlook for 2020 and 2021. Produced by the Department of Economic and Social Affairs, the five United Nations regional commissions, the United Nations Conference on Trade and Development, with contributions from the UN World Tourism Organization and other intergovernmental agencies.

The global economy is climbing out from the depths to which it had plummeted during the Great Lockdown in April. But with the COVID-19 pandemic continuing to spread, many countries have slowed reopening and some are reinstating partial lockdowns to protect susceptible populations. While recovery in China has been faster than expected, the global economy's long ascent back to pre-pandemic levels of activity remains prone to setbacks.

A cutting-edge graduate-level textbook on the macroeconomics of international trade Combining theoretical models and data in ways unimaginable just a few years ago, open economy macroeconomics has experienced enormous growth over the past several decades. This rigorous and self-contained textbook brings graduate students, scholars, and policymakers to the research frontier and provides the tools and context necessary for new research and policy proposals. Martín Uribe and Stephanie Schmitt-Grohé factor in the discipline's latest developments, including major theoretical advances in incorporating financial and nominal frictions into microfounded dynamic models of the open economy, the availability of macro- and microdata for emerging and developed countries, and a revolution in the tools available to simulate and estimate dynamic stochastic models. The authors begin with a canonical general equilibrium model of an open economy and then build levels of complexity through the coverage of important topics such as international business-cycle analysis, financial frictions as drivers and transmitters of business cycles and global crises, sovereign default, pecuniary externalities, involuntary unemployment, optimal macroprudential policy, and the role of nominal rigidities in shaping optimal exchange-rate policy. Based on courses taught at several universities, Open Economy Macroeconomics is an essential resource for students, researchers, and practitioners. Detailed exploration of international business-cycle analysis Coverage of financial frictions as drivers and transmitters of business cycles and global crises Extensive investigation of nominal rigidities and their role in shaping optimal exchange-rate policy Other topics include fixed exchange-rate regimes, involuntary unemployment, optimal macroprudential policy, and sovereign default and debt sustainability Chapters include exercises and replication codes

This is an update of OECD 2006 "Understanding National Accounts". It contains new data, new chapters and is adapted to the new systems of national accounts, SNA 2008 and ESA 2010.

This text offers business school students an excellent practical explanation of the short-term linkages in the macroeconomic arena. While the underlying theoretical constructs are not ignored, emphasis is placed on the empirical underpinnings and managerial implications of macroeconomics. The text begins by introducing key concepts such as the GDP, National and Personal Income, and the various measures of inflation and unemployment. Building on this foundation it then analyzes the following aspects of macroeconomics: aggregate supply and demand, international financial markets, cyclical fluctuations, policy analysis, and forecasting. Engages the reader with detailed case studies and "Manager's Briefcase" discussions. Focuses on the short-term linkages in macroeconomics. Uses an empirically oriented approach, while also explaining underlying theoretical constructs. Includes chapter summaries, key concepts, and practice questions. Lecturer resources available at http://www.blackwellpublishing.com/mfm/

This guide offers various ways for students to learn the material in the new edition and assess their understanding

This book investigates how global business cycles impact the economies of developing countries. Global business cycles, the wave-like movements of economic expansion followed by contraction in aggregate economic activities, impact all economies comprising the global economy. The patterns being shown in developing countries correspond increasingly to those in the global north, and yet there is a relative dearth of studies exploring whether global business cycles exist and how they operate in developing economies. This book explores how cycles operate at the global and sub-global developing country levels, with a particular focus on the level of development and the structure of the economies. Drawing an important distinction between cycles and fluctuations, the book criticises mainstream conceptualisation and identification of cycle phenomena, and instead proposes an alternative conception and methodology for the identification of cycles. Along the way, the book also delves into the manufacturing and rise of China, and other potential competitors in the industrial arena, as increasingly important drivers of global cycles and global economic growth. This book will be an important read for researchers and upper-level students of development economics and international political economy.

Both parts of Volume 44 of Advances in Econometrics pay tribute to Fabio Canova for his major contributions to economics over the last four decades.

Here Ireland's premier economic historian and one of the leading authorities on the Great Irish Famine examines the most lethal natural disaster to strike Europe in the nineteenth century. Between the mid-eighteenth and early-nineteenth centuries, the food source that we still call the Irish potato had allowed the fastest population growth in the whole of Western Europe. As vividly described in Ó Gráda's new work, the advent of the blight phytophthora infestans transformed the potato from an emblem of utility to a symbol of death by starvation. The Irish famine peaked in Black '47, but it brought misery and increased mortality to Ireland for several years. Central to Irish and British history, European demography, the world history of famines, and the story of American immigration, the Great Irish Famine is presented here from a variety of new perspectives. Moving away from the traditional narrative historical approach to the catastrophe, Ó Gráda concentrates instead on fresh insights available through interdisciplinary and comparative methods. He highlights several economic and sociological features of the famine previously neglected in the literature, such as the part played by traders and markets, by medical science, and by migration. Other topics include how the Irish climate, usually hospitable to the potato, exacerbated the failure of the crops in 1845-1847, and the controversial issue of Britain's failure to provide adequate relief to the dying Irish. Ó Gráda also examines the impact on urban Dublin of what was mainly a rural disaster and offers a critical analysis of the famine as represented in folk memory and tradition. The broad scope of this book is matched by its remarkable range of sources, published and archival. The book will be the starting point for all future research into the Irish famine.

In economic analyses, the variables of interest are often functions defined on continua such as time or space, though we may only have access to discrete observations -- such type of variables are said to be ``functional'' (Ramsay, 1982). Traditional economic analyses model discrete observations using discrete methods, which can cause misspecification when the data are driven by functional underlying processes and further lead to inconsistent estimation and invalid inference. This thesis contains three chapters on functional data analysis (FDA), which concerns data that are functional in nature. As a nonparametric method accommodating functional data of different levels of smoothness, not only does FDA recover the functional underlying processes from discrete observations without misspecification, it also allows for analyses of derivatives of the functional data. Specifically, Chapter 1 provides an application of FDA in examining the distribution equality of GDP functions across different versions of the Penn World Tables (PWT). Through our bootstrap-based hypothesis test and applying the properties of the derivatives of functional data, we find no support for the distribution equality hypothesis, indicating that GDP functions in different versions do not share a common underlying distribution. This result suggests a need to use caution in drawing conclusions from a particular PWT version, and conduct appropriate sensitivity analyses to check the robustness of results. In Chapter 2, we utilize a FDA approach to generalize dynamic factor models. The newly proposed generalized functional dynamic factor model adopts two-dimensional loading functions to accommodate possible instability of the loadings and lag effects of the factors nonparametrically. Large sample theories and simulation results are provided. We also present an application of our model using a widely used macroeconomic data set. In

Chapter 3, I consider a functional linear regression model with a forward-in-time-only causality from functional predictors onto a functional response. In this chapter, (i) a uniform convergence rate of the estimated functional coefficients is derived depending on the degree of cross-sectional dependence; (ii) asymptotic normality of the estimated coefficients can be obtained under proper conditions, with unknown forms of cross-sectional dependence; (iii) a bootstrap method is proposed for approximating the distribution of the estimated functional coefficients. A simulation analysis is provided to illustrate the estimation and bootstrap procedures and to demonstrate the properties of the estimators.

This dissertation contains three essays at the interaction between macroeconomics and the financial market, with an emphasis on macroeconomic implications of heterogeneous firms under financial frictions. My dissertation explores the relationships among financial market friction, firms' entry and exit behaviors, and job reallocation over the business cycle. Chapter 1 examines the macroeconomic effects of financial leverage and firms' endogenous entry and exit on job reallocation over the business cycle. Financial leverage and the extensive margin are the keys to explain job reallocation at both the firm-level and the aggregate level. I build a general equilibrium industry dynamics model with endogenous entry and exit, a frictional labor market, and borrowing constraints. The model provides a novel theory that financially constrained firms adjust employment more often. I characterize an analytical solution to the wage bargaining problem between a leveraged firm and workers. Higher financial leverage allows constrained firms to bargain for lower wages, but also induces higher default risks. In the model, firms adopt (S,s) employment decision rules. Because the entry and exit firms are more likely to be borrowing constrained, a negative shock affects the inaction regions of the entry and exit firms more than that of the incumbents. In the simulated model, the extensive margin explains 36% of the job reallocation volatility, which is very close to the data and is quantitatively significant. Chapter 2 investigates firms' financial behaviors and size distributions over the business cycle. We propose a general equilibrium industry dynamics model of firms' capital structure and entry and exit behaviors. The financial market frictions capture both the age dependence and size dependence of firms' size distributions. When we add the aggregate shocks to the model, it can account for the business cycle patterns of firm dynamics: 1) entry is more procyclical than exit; 2) debt is procyclical, and equity issuance is countercyclical; and 3) the cyclicalities of debt and equity issuance are negatively correlated with firm size and age. Chapter 3 studies the equilibrium pricing of complex securities in segmented markets by risk-averse expert investors who are subject to asset-specific risk. Investor expertise varies, and the investment technology of investors with more expertise is subject to less asset-specific risk. Expert demand lowers equilibrium required returns, reducing participation, and leading to endogenously segmented markets. Amongst participants, portfolio decisions and realized returns determine the joint distribution of financial expertise and financial wealth. This distribution, along with participation, then determines market-level risk bearing capacity. We show that more complex assets deliver higher equilibrium returns to expert participants. Moreover, we explain why complex assets can have lower overall participation despite higher market-level alphas and Sharpe ratios. Finally, we show how complexity affects the size distribution of complex asset investors in a way that is consistent with the size distribution of hedge funds.

In this thesis, I am undertaking the analysis of the effects of increasing intellectual property rights on the reallocation of different kinds of research and development within an endogenous growth framework. This thesis' approach considers the innovation process as sequential and cumulative in nature and studies the effects of different property rights regimes on a country's innovative performance. In particular, by explicitly modelling basic and applied research and development (R & D) within a general equilibrium framework, I try to overtake the existing growth theory, which usually aggregates all sources of R & D and innovation, neglecting intermediate inventive steps. My approach is certainly inspired by the current Schumpeterian growth theory (see Aghion and Howitt, 1998 and 2009), which envisages new products and processes arising from Poisson processes, whose arrival rates depend on private and public R & D. However, unlike the previous Schumpeterian models, in most of the chapters of this thesis, creative destruction itself is modelled as a two-stage processes, or more precisely, as a sequence of investment decisions in R & D, whose result is a probability to invent (basic research) or to innovate (applied research). Hence, the first step, "basic research", creates a research tool which is by itself not profitable, but has the potential to become the basis for the second step innovation. The second step is a marketable product which increases consumers' utility and, through the grant of a patent, generates the monopolistic rent for the second step innovator, i.e. the manufacturer of the new product. This is a natural and simple way to explicitly model basic and applied research, yet it entails non-trivial technical complications in the models along with strong policy implications. Chapter 2 tries to answer the following research question: in order to foster innovation and growth should basic research be publicly or privately funded? This chapter studies the impact of the shift in the U.S. patent system towards the patentability and commercialization of the basic R & D undertaken by universities. Such a shift rendered the U.S. universities more responsive to "market" forces. Prior to 1980, universities undertook research employing researchers motivated by "curiosity." After 1980, universities patent their research and behave as private firms. This move, in a context of two-stage inventions (basic and applied research) has an a priori ambiguous effect on innovation and welfare. Chapter 2 builds a Schumpeterian model and matches it to the data to evaluate this important turning point. iii Chapter 3 extends the model presented by Chapter 2 by introducing Kremer's (1998) mechanism for inducing innovation by means of auctions for new patents. Such patent buy-outs are run by the public sector in order to reward innovators and freely disseminate most of the new basic research findings. My work is the first attempt to use Kremer's idea to address the issue of the patentability of basic research and the financing of early innovation. The same Chapter 3 also quantitatively analyses the impact of the so called "research exemption" of patented basic knowledge. Under the research exemption doctrine, if the second innovator is successful in developing a saleable product or process, then he or she can patent it and yet infringe another patent. The key question that modern economies' innovation systems have been facing in the past few decades is: how should basic research be funded in view of maximizing the efficiency of the innovation system as a whole? In other words, is it possible to conceive the privatization of a country's basic knowledge and an efficient system of incentives to basic research? The study presented by Chapter 4 provides a quantitative assessment on the effects of the US patent reforms that, at the beginning of the Eighties, brought to the patentability of research tools, often invented by the university-led research activity. In particular, Chapter 4 re-examines the policy scenarios and the comparisons presented throughout Chapter 2 and Chapter 3 in order to try to provide these two with a robust empirical support. In the first scenario, only the public sector institutions undertake basic research, rendering all results publicly available for firms, racing to find patentable applications. In the second scenario, important for assessing the post-1980 reforms in the US system of innovation, basic research itself is privatized, and hence patented by private firms. The most important question for the political economy of basic research is which system is most conducive to innovation and growth. The public system permits more idea dissemination, but may not give basic researchers enough incentives to focus their research on the directions most needed by the private developers downstream. The private system optimally channels basic research, but, by allowing the patentability of ideas upstream, precludes free entry into applied R & D. This generates conflicting effects, and the policy conclusions depend on the value of all the relevant parameters in the economy. In Chapter 4, I estimated the most important of these parameters with the US data immediately preceding the major reorganization of university and basic research in the 80s, and I simulated the two scenarios. The resulting simulations show that public R & D system, prevailing at that time, was indeed outperforming every privatized alternative scenario. iv Since the incentives to conduct basic or applied research play a central role for economic growth, Chapter 5 tries to answer the following research question: how does increasing early innovation appropriability affect basic research, applied research, education, and wage inequality? Chapter 5 analyses the macroeconomic effects of patent protection by incorporating a two-stage cumulative innovation structure into a quality-ladder growth model with skill acquisition. It focuses on two issues (a) the over-protection vs. the under-protection of intellectual property rights in basic research; (b) the evolution of jurisprudence shaping the bargaining power of the upstream innovators. It shows that the dynamic general equilibrium interactions may seriously mislead the empirical assessment of the growth effects of IPR policy: stronger protection of upstream innovation always looks bad in the short- and possibly medium-run. In a common law system an explicit dynamic macroeconomic analysis is appropriate; hence I have incorporated the mathematical modelling of the evolution of the common law into the rational expectations of the agents. This major modification allows me to schematically replicate the evolution of the skill premium, education, and strengthening of intellectual property rights (IPR) happened in the US during the Eighties and Nineties of the XX century. Chapter 5 also provides a simple "rule of thumb" indicator of the basic researcher bargaining power and 5 shows that IPR evolution can be introduced into a fully rational expectation framework. This helps explaining the well-known dynamics of the skill premium and education in the US, that motivated well-known theories of skill biased technical change and directed technical change (see Acemoglu 2008). Chapter 6, finally, draws inspiration from an important recent empirical literature on competition and productivity in the service sectors (see Nicoletti and Scarpetta, 2003; Alesina et al., 2005; Griffith et al., 2006; Aghion et al., 2006) to build a theoretical framework to predict whether innovation is hampered by the lack of completion in the non-manufacturing sectors. In this final chapter, I have built a simple model of process innovation where the provision of essential services (intermediate inputs, for example financial services or transports) for the production of the final good is subject to sectorial regulation, which shapes the market structure of the intermediate sector as a non-competitive one. The structure adopted in this chapter allows examining the effects on the economy of the presence of two different monopolized tasks: the intermediate service provision and the use of the innovation. The ultimate purpose is to show how the lack of competition in an intermediate essential sector, like the service sector, is actually able to depress productivity growth in the final sector.

Survey data are often used to provide estimators for current macroeconomic variables and indicate likely movements in the economy. Many surveys only offer a qualitative indication of the recent past and expected future. Data provided often only give the percentage of firms who respond a "up", "unchanged" or "down". In the past, much research was done on extracting quantitative indicators for the current and future state of the economy from this qualitative information. Four examples of this type of research are the probability method of Carlson and Parkin (1975), the regression method of Pesaran (1984) and an alternative approach by Cunningham, Smith and Weale (2001 and 2002). This last approach is different, because it relates individual firms' categorical responses to official data, in contrast to the two former methods, that only use "aggregate responses" to quantify the survey data. The implicit assumption or this type of use of Business Survey data is, that at the early moment of responding to these surveys, firms actually have enough information to provide a correct indication of the development of production and/or turnover. The question thus rises, to which extent firms' early responses to survey data relate to later quantitative data on a single company basis. Do results from, for example the Manufacturing Business Survey (MBS), give good indications for microeconomic realisations, such as turnover and production developments of individual companies? This paper answers this question. The quality of MBS results is examined by linking and comparing on company level MBS and industrial turnover data. The outline of this paper is as follows. In chapter 2 the linking process of the survey data with turnover is described. Using the obtained combined MBS and turnover data set, the relationship between MBS-data and turnover for recent production trends is determined in chapter 3. In chapter 4 a classification is developed with categories describing the degree to which surveys provide answers that are in accordance to turnover developments. Next, in chapter 5 and chapter 6 results for applying this classification for two questions of the MBS are presented. Finally, conclusions and some final remarks are given in chapter 7.

The papers in this volume analyze the deployment of Big Data to solve both existing and novel challenges in economic measurement. The existing infrastructure for the production of key economic statistics relies heavily on data collected through sample surveys and periodic censuses, together with administrative records generated in connection with tax administration. The increasing difficulty of obtaining survey and census responses threatens the viability of existing data collection approaches. The growing availability of new sources of Big Data—such as scanner data on purchases, credit card transaction records, payroll information, and prices of various goods scraped from the websites of online sellers—has changed the data landscape. These new sources of data hold the promise of allowing the statistical agencies to produce more accurate, more disaggregated, and more timely economic data to meet the needs of policymakers and other data users. This volume documents progress made toward that goal and the challenges to be overcome to realize the full potential of Big Data in the production of economic statistics. It describes the deployment of Big Data to solve both existing and novel challenges in economic measurement, and it will be of interest to statistical agency staff, academic researchers, and serious users of economic statistics.

This dissertation presents an introduction to big data that can potentially be used in nowcasting key macroeconomic variables for advanced economies. It also explores the forecastability of big data in short-term exchange rate forecasting. Finally, it draws on evidence from a sentiment analysis of Article IV Consultations over the period of 2012 to 2018 and examines the development of member countries' perceptions of IMF policy advice. Chapter 1 uses big data from Google search data to form better nowcasts of macroeconomic variables. My empirical strategy contributes to the macroeconomic nowcasting literature on three fronts. First, I take a number of steps to identify the most comprehensive set of relevant search queries that capture people's search behavior in relation to each monetary policy variable, such as the unemployment rate and inflation. Second, I consider regularization and dimension reduction methods to handle the underlying high-dimensional regressor space with highly correlated covariates. Third, I evaluate both average point forecasts and conditional point forecasts against benchmark models with DMW test and CSPA test, respectively. According to the test statistics, I find that Google search data offer significant improvements in nowcasting macroeconomic variables both unconditionally and conditionally. Chapter 2 examines the short-term forecastability of exchange rates using machine learning models in a rich data environment. I investigate the performance of different machine learning models, such as variable selection models, dynamic factor model, and decision regression trees in obtaining accurate forecasts of three currency pairs (U.S./U.K., Japan/U.S. and U.S./Australia). I consider three types of forecasts: point forecasts, unconditional weighted directional forecasts and conditional weighted directional forecasts. According to the DMW test, out-of-sample forecasts of every currency rejects the null hypothesis of equal forecasting errors with the random walk with at least one machine learning model. Furthermore, the conditional weighted directional forecasts allow us to know when exactly our models are more profitable than the random walk with zero profit. And it turns out that our weighted directional forecasts are significantly positive especially on the tails of the conditioning variable distribution. Chapter 3 constructs multi-aspect policy sentiment measurements to interpret authorities' tones in response to specific policy advice in IMF Article IV Consultations. Specifically, we use a topic-based sentiment analysis approach that entails the application of a latent Dirichlet allocation (L-DA) model as well as sentiment prediction machine learning models. Therefore, we are able to provide the stylized facts that provide useful input for assessing the impact of Fund advice on macroeconomic development of member countries.

The guide offers various ways for students to learn the material in the text and assess their understanding.