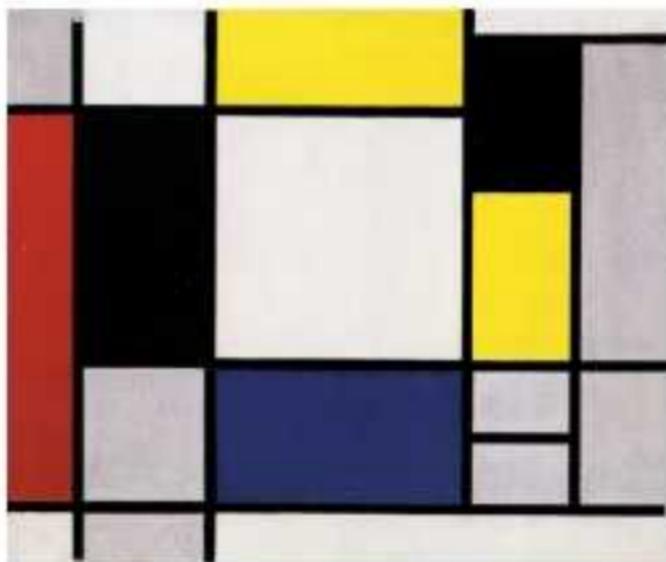


APPLIED MACROECONOMICS



EMPLOYMENT,
GROWTH AND INFLATION

Vivek Moorthy

Includes a chapter on India's demonetization



APPLIED MACROECONOMICS

Employment, Growth and Inflation

Vivek Moorthy

Professor, Economics and Social Sciences Area
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Bannerghatta Road, Bengaluru, India



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3	The Costs and Consequences of Inflation
4	Cost-Push versus Demand Pull Inflation and Basic Quantity Theory
5	Understanding the Seventies Stagflation
6	Emerging Economies and BRICS: Rapid Rise to Slowdown
7	Dissecting India's Stagflation Episode
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CHAPTER 14	India's Fiscal Accounts and The Fiscal-Monetary Policy Nexus	7	Linking Short Rates, Long Rates and Output: An Yield Curve Model
		8	The Fiscal-Monetary Policy Nexus (and application to India)
		9	Banks, Credit Creation, Money Supply, Money Multiplier and Financial Deleveraging
		10	Money Demand, Interest Rates, and Quantity Theory
		11	The Evolution of Monetary Policy
MODULE FIVE	BANKS, THE FINANCIAL SYSTEM AND MONETARY POLICY		
CHAPTER 15	Banks, Credit Creation, Money Supply and Multiplier		
CHAPTER 16	The Post War Evolution of Monetary Policy		
CHAPTER 17	Asset Bubbles, Financial Deleveraging, And Financial Crises		
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CHAPTER 19	Global Financial Markets and Exchange Rates	1	System of Exchange Rates and Link to Foreign Exchange Convertibility
CHAPTER 20	Exchange Rate & Output Adjustments: Episodes and Policies Section on From Gold Standard to Interwar Period	2	The International Monetary Systems and its Changes
		3	Balance of Payments Accounting
		4	Interaction between Balance of Payments, Economy and Money Supply
		5	India's Exchange Rate and Forex Policies and their Impact since Independence
MODULE SEVEN	SPECIAL TOPICS	PART B	Global Financial Markets and Exchange Rates
CHAPTER 21	Labour Market Policies for Macroeconomic Stability	6	The Global Foreign Exchange Market
		7	Approaches to Exchange Rate and Asset Price Determination
		8	Impact of News on Exchange Rate and Financial Markets
		9	Profiting from Market Inefficiency
		10	Monetary Policy, Equities and Exchange Rates (Section on 1920s Equity Market)
		11	Long Term Investment Strategies

The moral right of Vivek Moorthy to be identified as the author this work has been asserted.

Published by

I.K. International Publishing House Pvt. Ltd.
S-25, Green Park Extension
Uphaar Cinema Market
New Delhi-110 016 (India)
E-mail: info@ikinternational.com
Website: www.ikbooks.com

ISBN: 978-93-85909-39-9

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Published by Krishan Makhijani for I.K. International Publishing House Pvt. Ltd., S-25, Green Park Extension, Uphaar Cinema Market, New Delhi-110 016 and Printed by Rekha Printers Pvt. Ltd., Okhla Industrial Area, Phase II, New Delhi-110 020

With fond memories of my father M.R.N. Moorthy:

*Whose cues and views
Of varied hues,
With smiles and frowns,
Through ups and downs,
Have seeped a bit
Into some nook,
Or corner, of
This long due book.*

—VM, Feb 2017

PREFACE

“every part of the system fits into some other part. the complexity and coherence of the system require the constant attention of anyone who would criticise the parts. This is not a peculiarity of Indian Finance. It is the characteristic of all monetary problems. The difficulty of the subject is due to it.”

— John Maynard Keynes,
Indian Currency and Finance, (1913)

At the outset, it should be noted that this book is partly a textbook and also part of a bigger textbook. The contents of this book largely comprise the Second Module (on Labour and Product markets) of a comprehensive macroeconomics text under way. This mini book also provides the foundations for another mini book, Financial Macroeconomics: A Policy Rate Approach, the contents of which largely correspond to the third Module of the comprehensive text. To understand how this ‘mini’ book fits into the bigger book, and how the various topics and parts connect, you are requested to go over the associated Schematic on the website economicsperiscope.com. The Schematic should make it easier to move back and forth between different parts of the various texts. It is like a subway map needed to get around a big city and it is worth spending time in absorbing and understanding it.

This book is meant to serve **several purposes**. The first purpose is to develop, from the start, an integrated framework for a growing economy, incorporating short run fluctuations around long-term growth. It works out numerical values to precisely connect unemployment, inflation, real and nominal GDP growth, and related variables. By contrast, the dominant textbooks start by analysing the levels of output and price, as in the basic Aggregate Demand/Aggregate Supply analysis, with the Aggregate Demand curve derived from the widely used IS/LM model. Then onwards, the transition from output and price level to growth and inflation respectively, called the dynamic AD-AS model, is quite *ad hoc* and graphical, not numerical, or algebraic.

In my opinion, whatever the model used, and even if no model is used, to understand macroeconomics requires learning the underlying growth arithmetic and how these variables connect. This book develops these connections. This point will be clear from the numerical sections and sample Questions and Answers for Chapters 2, 3 and 4. Further, from the model developed here, values for inflation feed into the central bank’s interest rate decision.

One notable feature of this book is that it combines a wide ranging discussion of the determinants of potential GDP growth, emphasizing the importance of property rights and labour supply, with an ‘Okun’s Law’ treatment of cyclical fluctuations. The Keynesian short-run is embedded in the classical long-run. By contrast, the standard texts cover short run fluctuations separately from long run growth, typically analysed using the Solow growth model.

The second purpose of this book is to outline wide ranging evidence supporting some principles of classical macroeconomics, although, not new classical macroeconomics, and to apply these principles to the phenomenon of stagflation. This book deals with two such episodes: the severe 1970s worldwide stagflation and India's mild stagflation post-2010 to around 2013. The dominant macroeconomic textbooks have failed to properly analyze the 1970s stagflation, attributing them to OPEC's oil price shock of 1973. By contrast, this book presents a demand based explanation that I have been teaching here at IIM Bangalore, and built up slowly since 1995.

Two concepts central to classical macroeconomics and this book are the natural rate hypothesis and the associated expectations augmented Phillips curve (henceforth EAPC). The short and long run Phillips curve theories originated in the developed economies. Yet, ironically, the EAPC is far more relevant for emerging economies, many of which still have inflation, than it is for the developed economies, which have been close to deflation since the 2008 financial crisis. These two concepts are covered in depth in this book.

The third purpose of this book is to endeavour to raise the level of macroeconomic understanding in Indian policy discussions. The economy was greatly liberalized since 1991, and free market views now heavily predominate. Nevertheless the macroeconomic views of many of the liberalizers and the media are pre 1991 and mostly Keynesian in the sense that inflation is generally considered to be due to food supply shocks. Further, leaving aside the explanation of inflation, the predominant and influential view among Indian policy makers is that capital stock and infrastructure are the determinants of potential GDP growth, neglecting the role of labour supply. This book provides evidence about the role of labour supply.

Finally, although this book is not about the Indian economy or emerging economies as such it has a full chapter on the rise and slow down of the BRIC economies, and a detailed chapter on India's economy. Hence it can be used for a course on emerging economies or India. It is unfortunate the macro texts widely adopted here are excessively America-centric, with scant coverage of emerging economies. This (made in India!) book, which draws upon Asian data, not just Indian data, can fill that void.

The General Reader Versus the Textbook Reader

While a text is meant for students, this book is also meant for a wider audience—all those who have been interested in, and have been following the Indian economy, for the last several years or more. In particular, various economists, policy makers, journalists, some CEOs, management consultants, equity analysts and country fund managers should, hopefully, find that this book provides both analytical foundations and data to help examine their specific topic of interest. Hence a conversational style has been adopted to cater to this wider audience. Given the nature of the content, this book alternates between formulaic sections and wide ranging discussion, and between concepts and views.

The reader has to switch between two modes (and possibly moods) depending on the chapter and the section. For a general reader, coming across section and subsection titles

and numbers may be irksome and might distract from absorbing the flow of text. However, for the textbook reader, this compartmentalization helps from both the examination point of view, and for understanding the links between variables later on and maybe elsewhere. The general reader needs to be sympathetic to the needs of the textbook reader and vice versa. To reduce the burden on the reader, citations and references have been sorted into major ones (text) and minor ones (footnotes).

A Chapter by Chapter Outline

What follows is a brief roadmap of the book. Chapter 1 outlines the crucial concept of potential GDP and highlights the associated variable which is called ADSGAP here (Aggregate Demand and Aggregate Supply Gap). Chapter 1 also analyzes different approaches to, and the role of various factors, in determining potential GDP growth in an economy, emphasizing the role of labour supply, property rights and the rule of law.

Chapter 2 traces the historical evolution of the Expectations Augmented Phillips Curve (henceforth EAPC). It then develops the basic EAPC model, linking actual and expected inflation to ADSGAP. Chapter 3 discusses the real world costs and consequences of inflation and disinflation, highly relevant for discussions of inflation targeting.

Chapter 4 resurfaces, and cites at length from, an obscure but illuminating debate at the University of Chicago's Booth School in April 1966 between Robert Solow and Milton Friedman about the efficacy of wage-price controls. In this debate, Milton Friedman introduced the pioneering concepts of the natural rate of unemployment and the associated long run Phillips Curve and EAPC. This Chapter constructs a simple model to explain how these supply based concepts can be fitted into a demand based approach to inflation, as in the Quantity Theory of Friedman. Chapter 5 critiques the widely prevalent explanations, that the stagflation of the 1970s was caused by the OPEC oil price shock of October 1973. Drawing upon evidence for USA starting from the late 1960s, it explains the stagflation based on the EAPC.

Chapter 6 discusses the emerging economy boom years and the subsequent slowdown, based upon the BRIC (Brazil, Russia, India and China) Reports of Goldman Sachs. Chapter 7 uses wage and inflation expectations data to show that India's ongoing stagflation during 2011-2013 can be explained from the shifting EAPC, and how the National Rural Employment Guarantee Act of 2006 aggravated India's labour supply constraint. It then draws upon food price data from India and ASEAN countries to argue that high India's food inflation was demand driven. Chapter 7 broadly assesses the importance of EAPC factors and monetary policy influences, versus, then influential policy paralysis view, in driving the stagflation. Brazil's stagflation during this period could be similarly analyzed.

From First E-book to this Version (First update 2016)

The first version, as an e-book, was released in January 2014, for limited classroom use. The chapters on India had been written in 2012 and 2013 when it was undergoing stagflation, and

the book was initially called Understanding Stagflation: Past and Present. Unfortunately, due to delay in the copyright permissions process for some vital citations well into 2015, those sections had to be left out. Hence publication of the complete book got delayed.

In September 2014, oil prices fell sharply. Stagflation in India turned into low growth and low inflation. However, the basic analysis of stagflation here is based on data as of early 2013 and ends there. Massive and questionable revisions to India's GDP data in January 2015 pushed up growth rates, but as discussed in a revised data Appendix, have not so far altered the multi-year averages up to March 2013 analysed here.

Barring the revised Data Appendix, the content of the text pertaining to India's stagflation is mostly the same. However, Chapter 1 has been expanded to include an evaluation of the Ease of Doing Business Ranking of the World Bank. Content pertaining to the BRIC economies has been expanded into a full chapter. The book has been retitled Applied Macroeconomics: Employment, Growth and Inflation, and referred to by the acronym EGI.

With the above updates the book should have been ready by end-2016. However, following India's demonetization in November 2016, Section 4.5 on the Quantity Theory was significantly expanded, and the full Chapter 8 on demonetization was added. Needless to say, this has further delayed the completion of the book.

Second update (2017)

For the first and revised versions of this book, I thank Anupam Manur, A Arul Jason and also SJV Madhav for valuable research assistance at various stages from 2013 to now, and to IIM Bangalore for grants that facilitated some of this research. With reference to research done at IIMB, acknowledgments are due to Shrikant Kolhar, my former FPM (Doctoral) student, and to Anupam Manur for their findings on food inflation, cited in Section 7.5 and 7.4 respectively, and to former PGP student Snehal Gajbhiye, for her project findings on the Ease of Doing Business rankings, partly used in Section 1.5.1.

Comments, criticisms and general feedback, from one and all, are welcome.

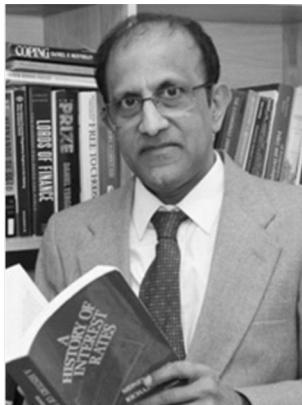
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March 2017, IIM Bangalore

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At IIM Bangalore since 1995, he teaches core and elective courses in macroeconomics and financial markets, across various programs. After joining IIM Bangalore, he has been Visiting Professor at the University of Ottawa, Canada; Jawaharlal Nehru University, New Delhi; National Institute of Public Finance and Policy, New Delhi; Sciences Politiques, Lille, France and Claremont Graduate University, California. He has been a consultant for the Reserve Bank of India, 12th Finance Commission, the Bank of International Settlements and other organizations.

His research interests and areas range across labour markets, monetary and fiscal policy, global financial markets and banking, with a focus on policy. He has authored and co-authored Federal Reserve Bank of New York memoranda, research studies and reports on monetary policy, on foreign exchange and on financial market developments. His 1990 paper, tracing the puzzling post 1981 US Canada unemployment rate gap back to Canada's 1971 unemployment insurance legislation, was covered in depth in the Canadian press and related findings were cited prominently in the New York Times.

His subsequent international and Indian journal publications have been on various topics: notably interest rates and exchange rates, long standing academic debates about the stability of public debt under alternative modes of financing, food prices, inflation measurement and policy for India. His debate in 1995 in the Economic Times with a former Reserve Bank of India Governor culminated in a research study for the RBI in 2000 of India's public debt, of which he was the principal author. He has written for the following newspapers and magazines in India and abroad - the Economic Times, Business Line, Business Standard, Mint, Financial Express, Wall Street Journal, Economic and Political Weekly, and Far Eastern Economic Review, mostly on macroeconomic issues.

He also writes on transport policy. His minor website unclogroads.com contains the full original presentation and some of his newspaper articles advocating a steep revenue neutral Vehicle Area Levy to tackle a wide array of economic problems.

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CONTENTS

<i>Preface</i>	<i>v</i>
<i>Permissions and Acknowledgements</i>	<i>ix</i>
<i>List of Symbols, Terms, Acronyms, and Abbreviations</i>	<i>xi</i>
<i>About the Author</i>	<i>xiii</i>
<i>List of Figures</i>	<i>xxi</i>
<i>List of Tables</i>	<i>xxiii</i>
1. Building the Framework for a Growing Economy	1
1.1 Demand and Supply in Macroeconomics	1
1.2 Factors Affecting Aggregate Demand	3
1.3 Factors Affecting Aggregate Supply	5
1.3.1 Conventional Approach to Growth for Developing Economies	5
1.3.2 Solow Growth Framework	6
1.4 An Alternative Approach to Aggregate Supply	8
1.5 The Ease of Doing Business Survey	11
1.5.1 Links between Output and Ease of Doing Business	13
1.5.2 Other Important Determinants of Growth	19
1.6 Labour Supply Chain and Potential GDP Growth	21
1.7 Choosing the Right Output Measure for Macroeconomic Analysis	23
1.7.1 Fluctuations around Potential GDP: A Hypothetical Case	25
1.7.2 Classifying Business Cycle Phases Theoretically	26
1.8 Links between Unemployment Rate and Output	29
1.8.1 Okun's Analysis and Okun's Law	29
1.8.2 The Algebra and Economics of Okun's Law	31
1.8.3 Okun's Law Regressions (Advanced Section)	34
1.9 Estimates of Potential GDP and their Limitations	35
1.10 Classification of Actual Recessions	37
2. From Short-Run to Long-Run Phillips Curve.....	48
2.1 Impact of Changing Aggregate Demand on Unemployment	48
2.2 The Original Phillips Curve	49
2.3 The Phillips Curve Moves to America	52
2.3.1 The Phillips Curve as a Policy Choice	53
2.4 The Friedman-Phelps Expectations Augmented Phillips Curve	54
2.4.1 Level Versus Change Effects Upon Inflation	56

2.5	Evidence for the Prediction of Rising Inflation	58
2.5.1	The Shifting Phillips Curve in European Countries	60
2.6	Global Evidence on the Natural Rate Hypothesis	61
2.6.1	Inflation and Growth in Developing Economies	63
2.7	Output Based Version of the EAPC: The Basic Model	65
2.7.1	Policy Decisions and EAPC Loops	67
2.8	India's Inflation Targeting Debate	67
3.	The Costs and Consequences of Inflation	71
3.1	Categorizing the Costs	71
3.2	Menu Costs	72
3.2.1	Inflation and the Frequency of Price Changes	72
3.2.2	The Consequences of Staggered Price Changes	73
3.3	The Costs of Minting, Printing and Counterfeiting	74
3.4	How Inflation Distorts Price Signals	76
3.5	The Rationale for Cost Based Pricing	78
3.6	The Shrinkage Effect of Inflation	79
3.7	The Convenience of Nominal Accounting	80
3.8	Deflation Versus Disinflation	82
3.9	The Sacrifice Ratio and Disinflation Strategies	83
3.9.1	The Volcker Disinflation	84
3.9.2	Rational Versus Adaptive Expectations and Credibility	85
3.10	The EAPC/ADSGAP Model with Lags	86
4.	Cost Push Versus Demand Pull Inflation and Quantity Theory.....	91
4.1	The Cost-Push View	91
4.2	The Classical Emphasis on Demand Constraints	92
4.3	Origins of the Natural Rate of Unemployment Concept	94
4.3.1	The Friedman-Solow Debate on Wage-Price Guideposts	94
4.3.2	Cost Push and Wage Restraint in the Simple Phillips Curve	95
4.3.3	Solow's Defence and Friedman's Rejoinder	96
4.4	Combining the EAPC with Demand Based Inflation: A Model	98
4.5	Money Demand, Velocity and Quantity Theory	100
4.5.1	Income and Velocity	100
4.5.2	The Demand for Money	102
4.5.3	Keynes' Discussion of the Quantity Theory	104

5. Understanding The Seventies Stagflation.....	109
5.1 The Huge Hike in Oil Prices	109
5.2 Evidence Against the OPEC Supply Shock View	111
5.3 Impact of Collapse of the US Dollar on Oil Prices	113
5.4 Commodity Prices Versus the Cartel	115
5.5 Response of US Fed Chairman Burns to Stagflation	116
5.6 Oil Prices and the World Economy: A Brief Update	119
6. Emerging Economies and BRICs: Rapid Rise to Slowdown	121
6.1 The Emergence of the Emerging Markets	121
6.2 The First BRICS Report: Speeding Along the GDP Autobahn	123
6.3 The Second BRICS Report: India in the Fast Lane	124
6.4 The Unexpected Slowdown	126
6.5 The Closing of the Goldman Sachs BRICS Fund	130
6.6 Explaining the Rise and Fall of the BRICS	132
6.6.1 The Argentina Barings Crisis of 1890	132
6.6.2 Capital Flow Reversals after 1990	133
6.7 Revisiting Japan's Prolonged Stagnation	136
6.7.1 A Different Financial and Business System	136
6.7.2 Role of the Yen/Dollar Exchange Rate Agreement of 1987	137
6.7.3 Outlook for China: Implications of Japan	138
6.8 Geopolitical Importance of the BRICS	140
6.8.1 Inclusion of the Yuan in SDR Basket	142
6.9 Outlook for Emerging Economies and their Equity Markets	143
6.9.1 Returns to Different Investors in the BRICS	146
6.9.2 Volatility in MSCI China Versus Shanghai Index	149
6.9.3 Correlation between Emerging Markets and S&P Index	150
6.10 Data Appendix	152
7. Dissecting India's Stagflation Episode	156
7.1 India's High Growth Phase	156
7.1.1 The Widespread Nine Percent Euphoria	157
7.2 The Weak Growth Phase: Policy Paralysis?	159
7.2.1 Real Time Projections of Growth and Inflation	161
7.3 NREGA, Labour Shortages and Wage Increases	163
7.4 'Exogenous' Administered Food Price Hikes?	166
7.5 A Protein Centric View of India's Inflation	168
7.5.1 Food Prices and Inflation in Select Asian Countries	169

7.6	The Food Inflation Episode in China	170
7.6.1	Food Inflation in a Two Sector Growing Economy	171
7.7	Profits, Wages and Sales During Stagflation	172
7.8	Policy Conclusions: A Postscript	173
7.9	GDP Measurement Issues and 2015 Revisions (Appendix)	174
7.9.1	Evaluating the 2015 GDP Revisions	177
8.	Analyzing India's Demonetization.....	181
8.1	Basic Facts about the Note Ban	182
8.1.1	The Various Stated Goals of the Scheme	184
8.2	Government Spending, Taxes and Corruption	185
8.2.1	Less Spending versus More Taxes?	186
8.2.2	Government Spending, Cash Use and Election Funding	187
8.2.3	India's flawed Fiscal Responsibility Act?	188
8.3	Basic Concepts for Evaluating the Note Ban	190
8.4	Failure to Catch Most 'Black Money'	191
8.4.1	Complications due to Counterfeiting	192
8.5	Cash Use, Corruption, Taxes and Digital Currencies	194
8.5.1	Cash Use and Corruption Across Countries	194
8.5.2	Bitcoin, Chinese Yuan and the US Dollar	197
8.6	Projecting Impact of Note Ban	198
8.6.1	Projections based on Quantity Theory	198
8.6.2	Printing without Enough Planning	199
8.6.3	Short Term Impact beyond Quantity Theory	200
8.7	Assessing Longer Term Impact	201
8.7.1	A Simple Framework for Tax Projections	204
8.8	Variteies of Demonetization (Appendix I)	205
8.9	The Changing Promise on India's Rupee Notes (Appendix II)	207
8.9.1	China's Slide away from Silver	209
8.10	Free Banking Versus Independent Central Banks	210
8.11	Tables and Background Information	216
Name Index.....	223	
Subject Index.....	227	