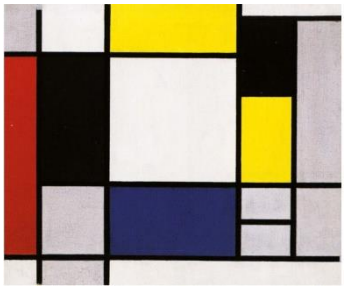
# APPLIED MACROECONOMICS: EMPLOYMENT, GROWTH AND INFLATION



Includes a Chapter on India's November 2016 Demonetization

CHAPTERS IN THE BOOK



For Schematic linking above to a full text: Macroeconomics: An Integrated Financial Approach, based on a Policy Rate Approach and Yield Curve model to replace IS/LM, see inside.


Vivek Moorthy

# 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), pg. 181

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. 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 abbrevated or full Schematic. 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.

This book is meant to serve several purposes. The first purpose is to develop, from the start, an integrated framework for a growing economy, embedding 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 dynamic analysis, is quite *ad hoc* and graphical, not numerical.

In my opinion, whatever the model used, and even if no model is used, to understand macroeconomics requires learning the underlying growth arithmetic in order to understand how these variables connect. This book provides that. (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, as in the subsequent Financial Macroeconomics mini book.

One notable feature of this book is that it follows up 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 the cyclical fluctuations around potential growth. 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 principles of 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-2008 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 the liberalizers and the media are pre 1991 and mostly Keynesian. 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 economics it has full chapters on the rise and slow down of the BRIC economies, and a detailed analysis of India economy. Hence it can be use 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 (entirely made in India!) book, which draws upon Asian economy data, not just India, and incorporates IIMB research can fill that void.

## The General Reader Versus the Textbook Reader

While a text is meant for students, this book is 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.

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.

## 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.

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 resurrects, and cites at length from, an obscure but illuminating debate at the University of Chicago 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, also expounded in most textbooks, 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 associated 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 aggravated India's labour supply constraint. It then draws upon food price data from ASEAN countries to indicate that high India's food inflation was demand driven. It further outlines how huge hikes of administered Minimum Support Price, often considered as the cause for food inflation, can be partially traced to the EAPC, and provides evidence for specific agricultural commodities. Finally Chapter 7 broadly assesses the importance of EAPC factors and monetary policy decisions, versus the then influential policy paralysis view in driving the stagflation.

## From First E-book to this Version (January 2016)

The first edition, 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 getting copyright permissions for some vital citations, those sections had to be left out and so publication of the complete book got delayed.

Since September 2014, oil prices started falling 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 2014 and ends there. Massive and questionable revisions to India's GDP data in January 2015 have pushed up growth rates, but as discussed in a revised data Appendix, has not so far altered the multi-year averages up to 2013 analysed here. Barring the revised Data Appendix, the content of the text pertaining to India's stagflation is mostly the same. However the (renumbered) Chapter 1 has been expanded to include an evaluation of the Ease of Doing Business Ranking of the World Bank. The book has been retitled Applied Macroeconomics: Employment, Growth and Inflation, and referred to by the acronym EGI book.

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 11M Bangolore for research grants that facilitated some of research. I also thank Mr. Tapas Maji who was involved with the development and editing of the this book at various stages. Finally I thank Mr. Krishan Makhijani and the current editorial team at IK Publishers for their efforts.

Second update (end-December 2016)

Following India's demonetisation in November 2016, Section 4.5 on Quantity Theory and Money Demand was expanded and the full Chapter 8 on demonetisation was added.

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

**Vivek Moorthy**
Email: vivek.moorthy@iimb.ernet.in
**www.economicsperiscope.com**

# CONTENTS

HIGHLIGHTS AND NOVEL FEATURES OF THIS BOOK

Develops an integrated framework, combining short run fluctuations with long run growth, unlike widely used text books that treat these topics separately.

- Works out growth arithmetic for relevant variables, some needed for financial macroeconomics, instead of the usual graphical treatment in main text books.
- Wide ranging discussion of alternative approaches to growth and development
  --- emphasizes role of property rights, title to land, and labour supply constraints.
  --- investigates the impact of Ease of Doing Business rank upon GDP growth.

Expounds a classical macroeconomics approach and related concepts.

- Provides wide ranging evidence on the natural rate hypothesis and the expectations augmented Phillips curve, integrating the latter with a demand approach to inflation.
- Puts together evidence challenging the conventional view that the mid-1970s stagflation was due to the October 1973 quadrupling of oil prices.
- Examines India's stagflation episode, using these concepts.

Should be useful for academics, analysts, and policy makers following India and can serve as a reference work.

- Evaluates the role of policy paralysis, National Rural Employment Guarantee Act of 2006, minimum support price system in agriculture and Reserve Bank of India policies with regard to food prices, inflation and growth, for the ten year period ending 2013.
- Includes a Data Appendix, written before India's controversial new GDP series in January 2015, followed by an update assessing these revisions a year later.

Can be used for a course on the Indian economy or emerging economies.

- Entirely ~~made-in-india~~, also incorporates doctoral research done at IIM Bangalore.
- Analyses the boom and subsequent slowdown of BRIC economies, and compares growth and inflation trends in China, India and major ASEAN countries.

Includes a Chapter analysing India's demonetisation covering fiscal, monetary and banking aspects.

**Most important of all**, the model developed here yields values of inflation that carry over to the central bank's decisions, analysed in the subsequent book Financial Macroeconomics: A Policy Rate Approach (see Schematic of Books). This subsequent book is meant to replace the dominant but irrelevant IS/LM framework.

Vivek Moorthy is Professor, Economics and Social Sciences Area, Indian Institute of Management Bangalore. He obtained his Master's degree from Jawaharlal Nehru University and his doctorate in economics from UCLA. After teaching at Pennsylvania State University, he worked at the Federal Reserve Bank of New York in the Domestic Research Division, and then as Senior Economist, Foreign Exchange Analysis. At IIMB he teaches courses in macroeconomics and global financial markets.

I.K. International Publishing House Pvt. Ltd.
S-25, Green Park Extension, Uphaar Cinema Market
New Delhi-110016, India • E-mail: info@ikinternational.com

ISBN 978-93-85909-04-7
9 789385 909047
www. ikbooks.com