

PROLOGUE

FOUNDATIONS OF APPLIED MACROECONOMICS: A POLICY RATE APPROACH*

*This prologue has been written for economists who might be interested in reading this mini text and/or considering adopting it for classroom use in teaching core macroeconomics. I start with two citations from Berkeley Professor Brad de Long's (2000) blog,

There is an apocryphal rule about new textbooks: they can only have 15% new material. A successful new textbook must be different enough from the old standards to give professors an incentive to switch, but must be similar enough to the old standards to keep the process of switching from requiring professors to throw away all their old lecture notes and completely redesign their courses.... This is a neat trick. It makes intellectual progress--at least intellectual progress in undergraduate instruction--nearly impossible.

You can see the contortions that people get themselves into by examining how modern textbooks attempt to convince students of the applicability of the IS-LM framework for understanding macroeconomic events. One textbook has a long discussion of the relevance of IS-LM--all of it discussing the effects of changes in central bank-controlled interest rates. There is no discussion at all of shifts in or movements along the LM curve. Smart students notice this incongruity. They wonder what is going on. Other students don't wonder, but then they have a very hard time understanding the newspaper: "why," they ask, "does the newspaper talk about interest rate changes instead of shifts in the LM curve?" A Macroeconomics Textbook Manifesto, de Long 2000.

I came across these splendid comments from de Long, many years later when googling for IS/LM critiques. MY response to them:

First, writing a text book to replace IS/LM completely (not just downplay the LM curve, as de Long suggested in 2000), is a very risky mission. Especially for someone like me, who is neither a saltwater nor a freshwater economist, but a backwater one...!

Secondly, I wish more students would ask the question that de Long raises, and more so those teaching macro!

Addendum: Repeated comments in Indian newspapers: Reserve Bank of India (RBI) Governor raised rates 13 times between March 2010 and October 2011, from 3.5% to 8.5%, but that failed to tame inflation. (The Policy Rate model developed in my text is directly applied to this episode).

Introduction: The Evolution of this Book

This mini book Foundations of Applied Macroeconomics: A Policy Rate Approach is mainly the crucial Module Third (Financial Foundations) of a comprehensive macro text (Macroeconomics: An Integrated Financial Approach) that I have been writing, and that has been under way for years. The Table of Contents of the three books (Item # 1, Appendix) indicates how this mini book and another mini book fit into the larger, comprehensive text. I shall call them the full book, the Policy Rate mini book and the Stagflation mini book respectively. Please go over the Table of Contents. For my own convenience, I use acronyms for the books (MIFA, FOAM etc) and code names for the Chapters, for which the numbers vary across the books, and whose order can get changed.

This prologue starts with a chronological account and explanation of the evolution of these books. Ever since I started teaching macroeconomics at IIM Bangalore in late 1995, the major difficulty I have faced, was to teach and use the IS/LM framework, knowing fully well that it fundamentally misrepresents the way monetary policy is conducted under normal circumstances – which is by setting and changing the policy rate.

The Federal Reserve System started declaring its (federal funds) interest rate target from February 1994 onwards, which I knew very well, since I was at the Federal Reserve Bank of New York at that time. Even if there were doubts earlier, henceforth it should have been clear to the public as to what is the policy variable. Hence when I started teaching here in 1995, the need for a macro text with the interest rate as the policy variable was glaringly evident to me!

Indeed, I had signed up with then Tata McGraw Hill (India) in 1998 to write a macro text for India. However, at that time I had not worked out a framework to replace IS/LM and so was reluctant to go ahead. Sooner or later, I felt that one should write a text with a Policy Rate approach to explain concrete events and outcomes in the economy. It would be awkward for me (or any author) to

first write an IS/LM based text and then switch to a Policy Rate text, thus negating the earlier one, besides wasting time and effort. There would be a loss of credibility. As long as I continued to teach from the prescribed texts based on IS/LM, the situation was tolerable. If at all my students asked (unlike de Long's students. they never did!), I could justify it by saying that this is the prescribed text.

I am sure many of those teaching IS/LM are increasingly aware of its fundamental drawbacks.

They conveniently choose the path of least resistance of continuing to teach it. Further, the incentive structure is badly skewed towards advanced research, often irrelevant and that never gets taught, at the expense of developing vital new material to teach in basic courses.

Simultaneously I was also learning the intricacies of IS/LM, since from early 1995 onwards I taught an advanced, elective course Issues in Monetary Policy. In that, one of the topics I covered was the 1970s debate between Alan Blinder and Robert Solow versus Milton Friedman, in an IS/LM framework, and then between Sargent and Wallace versus Darby in the early 1980s on the stability of money versus bond financing of the debt. Much earlier, while teaching a doctoral course at Pennsylvania State University, I worked through part of the Blinder-Solow (1974) paper, but could not arrive at any conclusion as to what to make of their proofs.

Understanding that debate helps in realizing why the IS/LM model must be eschewed. That debate, with proofs from my 1998 Working Paper, explaining what is wrong at a deeper level with the Blinder-Solow results is covered in an Appendix in this mini book. Somehow I never made the effort to publish this working paper. Inertia prevailed, *mea culpa*! However, I wrote to Milton Friedman in 2005 about the fallacies of their Solow Blinder proofs, in connection with a request about my book (Main text of letter to Friedman and his reply attached, Item # 2, Appendix).

Another important and simultaneous catalyst to developing the book(s) was a newspaper debate I had with a former Reserve Bank of India (RBI) Governor, who was advocating monetization of the deficit along Sargent Wallace (1981) lines. This was in mid-1995, when rates on T Bills in India's newly liberalized financial markets had shot up from 8% to above 12% in under a year. Yet the T-Bills were still not getting easily absorbed by the market. In response to the ex-Governor's piece, also titled "Some Unpleasant Monetary Arithmetic", I wrote a rejoinder "Print Bonds, Not Money". In response to his second piece "Should we Prefer Bonds or Money?" I wrote a second rejoinder, "Why Gentlemen Still Prefer Bonds," August 1995, Item # 3, Appendix), providing relevant data on GDP growth, inflation and interest rates for Asian countries.

In the course of that debate, it became evident to me that understanding, let alone acceptance, of the natural rate hypothesis, and associated monetary policy axioms of classical macroeconomics, was very limited in Indian policy circles. Although classical views about free markets had gained wide acceptance in India after its liberalization in 1991, classical macroeconomics was then, and even now, not generally accepted. A good text providing a wide range of robust evidence from emerging economies supporting the natural rate hypothesis was clearly called for.

The impetus to develop a Policy Rate model, yet rooted in classical macroeconomics, with an exogenous real interest rate in the long run, arose when the RBI requested me to do a project for them. In the course of that project, co-authored with RBI economists, there was an operational need to develop a model with the interest rate as the changing policy variable to work out debt ratios, and make fiscal projections for the Finance Commission, with discrete time periods.

In that Study, completed in June 2000, I developed a Policy Rate model. Inflation is determined by the Aggregate Demand Supply Gap in a growing economy. That inflation rate feeds into expected inflation and then into the Policy Rate of the central bank. That interest rate is then used to solve

for all debt variables. The crucial Chapter 10 of the full book is a stripped down version of the RBI Study model, leaving out debt variables.

The analytical perspective underlying the framework in my book(s) is outlined in the excerpt Quantity Theory versus Monetarism from the RBI Study (Item # 4, Appendix). The cross country plots, an important input in the evolution of this perspective, indicate that at relatively low inflation rates the Fisher equation is very strong, while the Quantity Theory is very weak.

Independent of the Policy Rate approach, according to me, a good macro text should, from the start, lay out the arithmetic (or algebraic) framework for variables in a growing economy. That is not the case right now. The basic solution in IS/LM is for the level of output and interest rate, which is then extended to a flexible price IS/M or AD/AS model by varying the price level. Up to this point, numerical solutions for class can be worked out, and very easily with fixed prices. From that point on, however, the transformation to inflation and growth in the dynamic, typically graphical AD/AS model in standard texts is *ad hoc*, with generally no precise solutions.

The suitable approach, in my view, is to start with a growing economy, enabling one to thereby work out numerical solutions or precise values for inflation and growth, whatever the 'behavioural' approach (Keynesian, classical, etc) of the author or text. One major takeaway for students from a macro course should be to merely become familiar with how the different variables numerically connect. This is what I have tried to do.

Another major drawback of existing texts is the duplication of the Phillips curve analysis (short and long run) with AD/AS analysis (short and long run). As de Long has insightfully stated, "*The third streamlining operation*"... would be to downplay the Aggregate Demand – Aggregate Supply model, and the associated Aggregate Supply "AS" curve. The best price variable is the one on the vertical axis of the Phillips curve, the inflation rate. It is no accident that the density of empirical

examples and references to real-world events drops to near zero in sections of textbooks that develop the AS-AD model... My solution is to integrate AS and the Phillips curve immediately and deeply – to say that these are two views of aggregate supply, that they cover the same concepts, and that the Phillips curve approach is more useful for understanding policy.

This is again what exactly I have done in Module Two (Labour and Product Markets) of the full book, refined over years. It starts with GDP growth arithmetic in Chapter 4, discusses factors affecting GDP growth, stressing the importance of labour supply. It develops numerical examples of the original short and long run Phillips curve. It then uses an Okun Law coefficient (linking the output ratio to unemployment rate) to convert the labour market Phillips curve into an output (ratio) based Phillips curve, **dropping** the unemployment rate.

This output based Phillips curve allows us to back out nominal and real GDP growth rates. These variables are directly measured and easy for policy makers and others to comprehend. They also feed into the financial economy, are needed for the Domar debt condition, and can also be applied to financial solvency of corporates based on their sales growth, interest rates and financial ratios. Further, precise exam questions can be set using the output based Phillips curve with growth variables (Item # 5, Appendix) to replace the IS/LM numericals used now in macro courses.

In my opinion, Brad de Long is very correct in stating that the Phillips curve is more useful for understanding policy. It is one of the most important concepts in macroeconomics. However for many emerging economies such as India, given the lack of reliable, regular labour market data, the output based version of the Phillips curve has to be used. As macroeconomists, especially in emerging economies, we have to work with GDP data, needed for financial macroeconomics.

Finally, unlike other Policy Rate texts making headway that have eliminated only the LM curve, my text also eliminates the IS curve also, based on the Keynesian multiplier, and replaces it with a

simple investment function. It then extends the policy rate model and works out a simplistic model of the yield curve (long minus short rate) predicting GDP growth. This very crucial stylized fact was unearthed by Robert Laurent of the Chicago Fed, and also pointed out that year by the distinguished currency trader George Soros in his book, *The Alchemy of Finance*. The yield curve was statistically examined in depth by Arturo Estrella and Gikas Hardouvelis of the New York Fed in 1988, and again by Estrella in 2005. Around that time 'Greenspan's conundrum' and short rate – long rate linkages were being widely discussed.

Prior to this mini book under way, an expanded version of Module Two of the full book, with some topical chapters for the general reader, was converted into another mini book *Understanding Stagflation: Past and Present*. These topical chapters were written in 2013 when stagflation was rife in India, and the first e-book edition came out in January 2014. This Stagflation book uses the Phillips curve analysis to explain the 1970s episode of OPEC stagflation and then the mild stagflation that India (and other emerging economies such as Brazil) underwent in recent years.

The revised version *Understanding Stagflation: A Classical Macroeconomics Approach* is available from me and the e-book edition should be out very soon.

Policy Rate and Stagflation mini books versus the comprehensive, full book (MIFA)

Initially I had no plan to write these mini books, but was just writing a full text. Indeed, I have spent a lot of time writing Module Six on Open Economy and Global Financial Markets, building upon my experience in Foreign Exchange analysis at the New York Fed. Chapters 18 and 19 of the big book have five parts each, Chapter 20 has to be written out. There is enough content in that for a medium size book!

In writing the Open economy Module, I have found that the dominant text by Krugman and Obstfeld is seriously deficient. Their DD-AA framework is an inverted IS/LM framework, but giving

primacy to the interest rate, not output. Further, it assumes uncovered interest parity holds, which is most often not the case. It is thus doubly deficient. (In my early years here, I taught an Open Economy type course using this book but have replaced it with my own open economy approach: two exogenous policy rates, with covered interest parity holding for developed economies, coupled with a 'news' approach to random walk spot exchange rates, that are influenced by interest rate changes, and with uncovered parity most often not holding. This is far from a complete precise model, but it builds upon and best fits the stylized facts. Important policy and also forex trading implications result from this approach.

Regarding the full book, I have realized that it is too Herculean a task to try to finish it. Further, getting macro teachers to consider replacing IS/LM with a Policy Rate Approach needs to be done piece meal, starting with the crucial Third module that comprises this Policy Rate mini book. If these mini books start gaining acceptance, then I can get back to completing the bigger book.

Items listed below may not be there nor in that order. (Feb 2016)

Item 1: Table of Contents of full book and Stagflation and Policy Rate mini books.

Item 2: Letter in 2005 to **Milton** Friedman about my text, Blinder-Solow and his reply.

Item 3: My second rejoinder to former RBI Governor (1995) on bond financing for India.

Item 4: Excerpts from co-authored Development Research Group RBI Study (2000).

Item 5: From Chapter 2 of Stagflation Book or Chapter 5 of full book. Phillips curve numerical example, then carried over to the Policy Rate model in next Module.