A Theory of Slack

How Economic Slack Shapes Markets, Business Cycles, and Policies

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CHAPTER 1.

Introducing slack into business cycle research

Economic research into business cycles began in earnest after the Great Depression, which started in 1929 in the United States, almost one hundred years ago. Early economists—beginning with Keynes—naturally concentrated on its most devastating aspect: mass unemployment. In contrast, contemporary business cycle models prioritize fluctuations in prices and quantities. This modern focus has neglected the unemployment increases that remain a central feature of economic downturns.

This book returns the focus to economic slack—a concept that encompasses unemployment as well as other unsold and idle resources. It starts by reviewing essential facts about slack and the business cycle. It then presents a theory to explain why slack emerges and why it fluctuates. Finally, it uses the theory to derive principles for the stabilization of slack fluctuations using monetary and fiscal policy.

1.1. Slack in Keynes's General Theory

Keynes (1936) wrote the *General Theory of Employment, Interest and Money* to make sense of the Great Depression and to offer advice to avoid such future economic calamities. The *General Theory* offers a balanced treatment of unemployment and inflation. It mentions inflation and unemployment to a significant extent, with a more extensive coverage of unemployment (table 1.1). According to its index, inflation and deflation are discussed on 9 pages; unemployment is discussed more often, on 32 pages.

What the *General Theory* does not cover, but is central to this book, are other forms of

slack beyond unemployment. Not only was it almost impossible for jobseekers to find jobs during the Great Depression, but it was also almost impossible for shops to find customers and for factories to find buyers. As a result, many shops were empty, a lot of factories were idle, and these businesses eventually had to lay their workers off and shut down. As Temin (2000, p. 301) wrote about the Great Depression, not only "unemployment rose to a peak of 25 percent and stayed above 15 percent for the rest of the 1930s," but also "there were many idle economic resources in America for a full decade."

A key insight of the book is that slack on the product market (the fact that firms cannot find customers because aggregate demand is low) generates slack on the labor market (the fact that workers cannot find jobs because labor demand is low). Indeed, if firms cannot sell their production, they will not hire workers. Hence slack on the product market is intrinsically linked to slack on the labor market. Moreover, the book treats all forms of slack with a similar theoretical framework.

1.2. Absence of slack in New Keynesian texts

During the transition from Keynesian macroeconomics to New Keynesian macroeconomics, inflation was retained as a topic of interest but unemployment was lost. The US stagflation in the 1970s led to drastic changes in macroeconomic theory, as a result of which the Old Keynesian model became obsolete and was rapidly replaced by the Real Business Cycle model. That model is built around Walrasian markets so it has no slack. Because the Real Business Cycle model emphasized efficiency and monetary neutrality, it was not useful for designing macroeconomic policies, and it was itself replaced by the New Keynesian model in the 1990s. That model adopted the structure of the Real Business Cycle model but replaced perfectly competitive markets by monopolistically competitive markets, which allowed researchers to introduce price and wage rigidity and thus break efficiency and monetary neutrality. While the monopolistically competitive model produced interesting price dynamics, it did not have room for unemployment or slack, so the research squarely focused on inflation.

This omission of unemployment and slack and complete focus on inflation appears clearly in New Keynesian textbooks. The leading New Keynesian textbooks are *Interest and Prices: Foundations of a Theory of Monetary Policy* by Woodford (2003) and *Monetary Policy, Inflation, and the Business Cycle* by Gali (2008). *Interest and Prices* has neither slack nor unemployment in its index. *Monetary Policy, Inflation, and the Business Cycle* does not have slack in its index, but unemployment is mentioned on one page at the end of the book, when possible extensions to the New Keynesian model are discussed.

Inflation, by contrast, is ubiquitous in both books (table 1.1). The index of *Interest and Prices* tells us that the term "inflation" appears on 97 pages. Additional related terms, such as "inflation inertia," "inflation-targeting central banks," and "inflation-targeting rules,"

TABLE 1.1. Pages mentioning unemployment and inflation in the *General Theory* and New Keynesian texts, according to their indexes

	Keynes (1936)	Gali (2008)	Woodford (2003)
Unemployment	5–9, 13, 15, 16, 22, 109, 121, 128, 190, 235, 251, 274, 275, 278, 289, 334, 335, 346–349, 358, 359, 362–364, 381, 382	188	
Inflation and related concepts	119, 202, 207, 281, 301, 303, 291, 331, 332	1, 4, 11, 21–22, 31–32, 34, 37–38, 47, 49–52, 54–56, 60, 77, 79, 95–99, 103, 105, 107–108, 116, 120, 125–127, 130, 133–135, 137–139, 148, 155–156, 161–164, 168–176, 179, 189	3–5, 13–14, 17, 19–21, 39, 43–44, 46, 49, 90–101, 116–122, 126–138, 159–160, 176–177, 188, 203–205, 212–213, 215, 236, 248, 251, 262, 267, 272, 276–286, 289–295, 301–305, 317, 341, 347, 360–362, 381–382, 396–405, 408–409, 413–416, 418, 437, 440–441, 445–446, 460, 462–463, 467–485, 493, 499–501, 522–527, 544, 559–565, 576–582, 590–604, 615, 619–623, 639–641, 694–695, 714–715, 724–727
Unemployment share	78%	2%	0%

Besides the term "inflation," Keynes (1936) also features "deflation." In Gali (2008), the terms related to inflation include "inflation dynamics" and "inflation targeting." In Woodford (2003), the terms related to inflation include "inflation inertia," "inflation rates," "inflation-targeting central banks," "inflation-targeting rules," and "deflation." The unemployment share is the share of pages mentioning unemployment in the total number of pages mentioning either unemployment or inflation and related terms.

appear on a further 104 pages. In total, there are 195 pages that cover inflation. According to the index of *Monetary Policy, Inflation, and the Business Cycle*, the term "inflation" appears on 42 pages. Related terms such as "inflation dynamics" and "inflation targeting" appear on 8 additional pages. In total there are 50 pages discussing inflation in that book.

1.3. Recentering business cycle research

Policymakers in many countries have a dual legal mandate: keeping prices stable and maintaining the economy at full employment. Yet the New Keynesian model only speaks about the price-stability mandate; it says nothing about full employment.

The book offers a new business cycle model that provides a more balanced treatment of inflation and unemployment—that can help us think both about price stability and full

employment. The model accounts for fluctuations not only in quantities and prices, but also in slack. The balanced treatment of unemployment and inflation that was a hallmark of Keynesian thought disappeared in the New Keynesian literature, as the focus turned solely to inflation. Such unilateral focus on inflation is problematic in the context of business cycles because slack varies far more than prices over the business cycle and it carries substantial welfare costs. So slack must be taken into account to provide an accurate depiction of business cycles and relevant policy advice.

So what, exactly, is economic slack? Economic slack describes productive resources in the economy that are unsold and therefore idle. There are many different forms of slack: people who cannot find a job and remain unemployed; machines left idle in a factory; employed workers left idle on the job; hotel rooms, restaurant tables, airplane seats that remain vacant; durable goods that cannot be sold and depreciate; perishable goods that cannot be sold and perish.

And why is it crucial to consider slack when designing business cycle stabilization policies? The main reason is that fluctuations in slack have large consequences for welfare. Economic slack represents a waste of productive resources, and it is therefore something that should be limited. In addition to its wastefulness, unemployment generates other, large costs to society. People who are unemployed suffer from lower mental and physical health than employed workers. Even employed people in areas with high unemployment report lower well-being. Accordingly, good economic policy should avoid periods of elevated slack.

The next question is: How does the book build a business cycle model with slack? The central assumption in the model is that both labor and product markets are organized around a matching function. The matching function gives the number of trades achieved when a certain number of buyers and sellers look for each other (Petrongolo and Pissarides 2001). Because matching takes time and effort, not all sellers are able to trade, which naturally generates slack in both labor and product markets. This differs from canonical business cycle models. The Real Business Cycle model features Walrasian labor and product markets. The New Keynesian model features monopolistic labor and product markets. And the Old Keynesian model features nonclearing Walrasian markets.

The book's central argument is that understanding markets and business cycles requires embracing a framework built around a matching function. By using a matching function, the framework is realistic: it features slack on all markets. The framework is also tractable: markets can be studied using a supply-demand apparatus that incorporates buyers' and sellers' trading probabilities. Such a slackish framework not only explains the sources and costly nature of unemployment, but it also provides a more accurate lens through which to view markets, business cycles, and the conduct of monetary and fiscal policy.

1.4. Overview of the book

Overall, the book is devoted to developing a new model of business cycles, and to exploring its implications for macroeconomic policy in the most transparent and practical way possible. The book is organized into five parts, each building on the last to develop the theory of slack and explore its implications.

Part I finishes setting the stage. For readers interested in the sequence of research that led to the framework developed here, chapter 2 recounts that journey. It details the real-world puzzles and academic debates that motivated each step. Readers eager to dive into the evidence and model might prefer to skip ahead. Chapter 3 then establishes the empirical foundation for the book, presenting essential facts about the existence, cyclicality, and social costs of slack that any business cycle model must address.

Part II develops the theoretical heart of the book: the microfoundations of a slackish market. We begin in chapter 4 with the key building block—the matching function—before constructing the slackish market model in chapter 5. We then explore how prices are set through norms (chapter 6), how market capacity is determined (chapter 7), and how the model behaves in a dynamic setting, leading to the emergence of a Beveridge curve (chapter 8). In chapter 9 we then define market efficiency, which provides a welfare benchmark against which to measure market outcomes. Finally, the part concludes in chapter 10 by applying the slackish market model to the labor market. This is an important application because from a social perspective, unemployment is the most costly form of slack. There are also good data on labor market slack, which allows us to calibrate the model and compare its quantitative behavior with real-world patterns.

Part III scales up from a slackish market to a slackish economy. This part embeds the market model from part II into a macroeconomic framework to study business cycles. We start with a basic one-market economy in chapter 11 to understand the core properties of slackish business cycles. We then extend the framework to a more realistic economy with both labor and product markets (chapter 12). The two-market economy allows us to understand how slack percolates across markets. Finally, we incorporate a Phillips curve to link slack and inflation (chapter 13).

With a complete business cycle model in hand, part IV turns to the central policy questions. This part uses the slackish model to derive principles for business cycle stabilization. We first construct a measure of the tightness gap for the United States (chapter 14) to quantify the scale of the problem. Then, we derive formulas for the optimal conduct of monetary policy (chapter 15) and fiscal policy (chapter 16) based on the tightness gap. We also derive a formula for optimal unemployment insurance based on a generalized tightness gap (chapter 17). The part closes by showing how slack data can be used to detect recessions early (chapter 18).

The book therefore addresses a number of questions that recur during all business

cycles and that policymakers systematically face, especially in downturns. It explains for instance how much interest rates should fall when unemployment rises; how large stimulus spending should be in downturns; whether and how the generosity of unemployment insurance should respond to unemployment fluctuations.

Part V concludes the book. It begins by summarizing the main arguments and implications of the slackish framework (chapter 19). It then situates the model within the macroeconomic landscape by drawing connections to Old Keynesian, Real Business Cycle, and New Keynesian models (chapter 20). The book closes in chapter 21 by outlining avenues for future research, highlighting how the concept of slack opens up new opportunities for modeling, data collection, and policy design. This final chapter also discusses how the models and policy insights developed in the book could be fruitfully applied to countries besides the United States—especially developing countries, in which slack is widespread.

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