RESEARCH STATEMENT | PASCAL MICHAILLAT

In the United States, policymakers must satisfy two objectives (stipulated by the Humphrey-Hawkins Full Employment Act of 1978): prevent large increases in unemployment, and prevent large fluctuations in inflation. When large increases in unemployment occur nevertheless, policymakers also aim to alleviate the plight of unemployed workers. The tools available to satisfy these objectives are monetary policy, fiscal policy, and an array of labor market policies.

Macroeconomists and public economists have been devoting time and effort to formulate recommendations that could guide policymakers. Much of this work is based on three models:
- the search-and-matching model: to analyze labor market policies;
- the new-Keynesian model: to analyze monetary policy;
- and the general-disequilibrium model: to analyze fiscal policy.

These models have been very fruitful in formulating policy recommendations: because they offer appealing descriptions of how the aggregate economy works, because they are analytically tractable, and because they are rich enough to analyze a broad range of policy experiments.

All three models are somewhat special, however, in a way that limits their usefulness in formulating policy guidelines. For instance, the search-and-matching model assumes away a possible lack of jobs in recessions, which makes policies that improve job search and matching unrealistically potent. Another example: the new-Keynesian model omits the various reasons why people dislike inflation, which makes it hard to study inflation policies. A last example: the general-disequilibrium model is demand-determined in bad times, which mutes the effects of distortionary taxation and other supply-side policies.

My research aims to generalize these models to make them still more amenable to policy analysis, and to describe the policy implications of the generalized models.

SEARCH-AND-MATCHING MODEL

The search-and-matching model is the main model used to study unemployment fluctuations and unemployment policies (see Pissarides [2000] for a textbook treatment). In the model, all unemployment would disappear if unemployed workers searched sufficiently hard for jobs. This property is difficult to reconcile with the long queues of unemployed workers at job bureaus and factory gates observed during the Great Depression; these queues indeed suggest that jobs are lacking in recessions, irrespective of how much unemployed workers want to work.

In **"Do Matching Frictions Explain Unemployment? Not in Bad Times"**, I generalize the search-and-matching model to allow for the possibility that jobs are rationed in recessions: unemployment would not disappear even if jobseekers were desperate to work. The search-and-matching model with job rationing is consistent with the long queues of unemployed workers observed during the Great Depression, but it also has various implications for policy.

For instance, the model allows us to study how generous unemployment insurance (UI) should be in good times and bad times. This was a strongly debated question during the Great Recession, pitting those who thought that UI was costly because it discouraged job search and raised unemployment further, against those who thought that UI would barely raise unemployment because there were no jobs available. Since the search-and-matching model with job rationing captures both sides of the argument, we use it to study UI in two papers on **"A Macroeconomic Approach to Optimal Unemployment Insurance"** (with Camille Landais and Emmanuel Saez). And, weighting the two sides of the argument using modern empirical evidence, we find that UI should be more generous in bad times than in good times—as it is in the United States.

NEW-KEYNESIAN MODEL

The new-Keynesian model is the main model used to study business-cycle fluctuations and monetary policy (see Gali [2008] for a textbook treatment). In its simple form, it is also used to teach general-equilibrium macroeconomics in most graduate programs.

A limitation of the new-Keynesian model is that the origin of price rigidity is never explained. Firms are assumed to infrequently reset their prices, but why they do that is not specified. Taking such a shortcut to model price rigidity could be problematic since the policy implications of the model depend on its welfare properties, which in turn depend on its microfoundations. For instance: how do we determine the welfare cost of inflation or the optimal level of inflation if we do not know why people seem to dislike inflation so much, or why firms are reluctant to change their prices more often?

Having a theory of price rigidity that conforms to customers' and firms' motivations may prove beneficial. We develop one such theory in **"Pricing under Fairness Concerns"** (with Erik Eyster and Kristof Madarasz). Our theory of price rigidity is consistent with evidence that firms stabilize prices out of fairness to their consumers. We then embed our theory in a simple new-Keynesian model, which modifies a key equation of the new-Keynesian model (the Phillips curve). We find that our model produces several realistic patterns: nonneutral monetary policy, a short-run Phillips curve that involves both past and future inflation rates, and a hump-shaped impulse response of output to monetary policy. In follow-up work, we plan to analyze what these fairness concerns mean for the welfare cost of inflation and optimal inflation policy.

Another limitation is that the new-Keynesian model does not behave well at the zero lower bound (ZLB): output and inflation follow explosive paths when the ZLB is long-lasting; forward-guidance policies have implausible effects; government multipliers are implausibly large when government spending is persistent enough; and so on. While the topic of the ZLB was once exotic, it has become prominent in the aftermath of the Great Recession, with the United States and Europe entering a prolonged ZLB episode. The anomalous behavior of the model used to study ZLB episodes is therefore problematic.

To address this limitation, in **"A New Keynesian Model with Wealth in the Utility Function"**, we modify another key equation of the standard new-Keynesian model (the Euler equation) by assuming that people save not only for future consumption but also because they enjoy holding

wealth. There is a good amount of evidence for this assumption that wealth directly enters the utility function, including from neuroscience, and from the fact people's time discount rates are much higher than market interest rates. This minimal deviation resolves all anomalies at the ZLB, making the model more adapted to study ZLB episodes.

A last limitation with the standard new-Keynesian model is that it behaves very similarly in booms and busts, contrary to empirical evidence that when there is a lot of slack in the economy, policies stimulating demand—such as government spending—are more effective. In **"A Theory of Countercyclical Government Multiplier"**, I show that this problem can be resolved by replacing the standard labor market structure with a matching model with job rationing. In such a model, the government-spending multiplier is much larger in slumps than in booms. This is because in slumps, a large amount of labor is idle, so it is easy to expand employment.

GENERAL-DISEQUILIBRIUM MODEL

Most modern research on stabilization policy is concerned with monetary policy, but those who study fiscal policy—especially government spending—often do so with variants of the general-disequilibrium model (see Barro and Grossman [1976] for a textbook treatment, and Mankiw and Weinzierl [2011] for a modern application to fiscal policy). In this model, in bad times, output is entirely determined by the demand side: the supply side is irrelevant. This implies, for instance, that distortionary taxation has no negative effect on output in bad times. Such lopsided representation makes it difficult to provide balanced policy advice.

In **"Aggregate Demand, Idle Time, and Unemployment"** (with Emmanuel Saez) we generalize the general-disequilibrium model by introducing a matching function on the goods and labor markets. We obtain a general-equilibrium model with slack on the goods and labor markets—as in the general-disequilibrium model—but in which the equilibrium is jointly determined by supply and demand. The model is therefore more adapted to study fiscal policy.

In **"Optimal Public Expenditure with Inefficient Unemployment"** (with Emmanuel Saez), we explore the implications of our model for the design of stimulus packages in recessions. We find that optimal stimulus packages are determined by three statistics: the unemployment gap, which determines the prevailing amount of slack; the government-spending multiplier, which determines the effectiveness of government spending at reducing unemployment; and the elasticity of substitution between public and private consumption, which captures the social value of government spending. We can also study how financing government expenditure with distortionary taxation influences the size of the stimulus package. Unlike what is often believed, we find that distortionary taxation should not effect at all the size of the stimulus package; distortionary taxation only reduces the average level of government spending.

In an ongoing project with Emmanuel Saez, we are developing **"An Economical Business-Cycle Model"**. This model synthesizes our previous research to provide a simple model of the business cycle that describes key features of advanced economies in recent decades: low and stable inflation, highly variable unemployment, and long ZLB episodes. We plan to use the model to revisit the design of stabilization policy. Preliminary results suggest that stabilization policy should re-

spond to the unemployment gap—the gap between actual and efficient unemployment. Hence, we are developing an empirical method to measure this unemployment gap in real time.

OTHER INTERESTS

Working in macroeconomics makes one wonder what the role of models is, what makes a good model, and why some models are used more than others. In **"Persistence of False Paradigms in Low-Power Sciences"** (with George Akerlof), we explore how false paradigms may persist in science. It is commonly believed that a lack of experimental evidence (typical in macroeconomics) slows but does not prevent the adoption of true theories. We evaluate this belief using a model of scientific research and promotion in which tenured scientists are slightly biased toward tenure candidates with similar beliefs. We find that when a science lacks evidence to discriminate between theories, or when tenure decisions do not rely on available evidence, true theories may not be adopted. The nonadoption of underconsumption theory by macroeconomists in the early 20th century illustrates such risk.

In related and ongoing work with Adam McCloskey, we are exploring how existing statistical techniques should be adjusted to systematically correct for strategic behavior and biases in the conduct of science and in the publication process.

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