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## UNH Economist Hopes to Shake up Macroeconomics

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UNH News Bureau  
603-862-1462

October 11, 2001

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DURHAM, N.H. -- On Friday, Oct. 5, Michael Goldberg, The Reginald F. Atkins Chair and associate professor of economics at the University of New Hampshire's Whittemore School of Business and Economics, gave one of the most important talks of his professional life at a macroeconomics conference on the campus of Columbia University in New York City. His topic drew vigorous criticism from established leaders in the field, but Goldberg was "pleasantly surprised" at how many colleagues showed support.

"Our ideas, which question conventional wisdom, are new, and as such they represented a very large pill for most of our audience to swallow," he says. "But even though it may be a long, uphill battle to gain acceptance for our ideas, it was also fun to present them. Most importantly, I think I'm right."

Macroeconomics is the "big picture" study of economics, tackling such questions as what drives changes in the unemployment rate, whether recession can be warded off with tax cuts, and what makes international exchange rates vary over time. Last week's conference attracted no less than eight Nobel prize winners in economics -- people known worldwide for their ground-breaking ideas on macroeconomics.

It was the perfect opportunity for the Whittemore School professor and his co-author, Roman Frydman of New York University, to shake up the traditionalists' view of how things work. Their talk was titled "Imperfect Knowledge Expectations, Uncertainty Premia and Exchange Rate Dynamics."

Once they presented the new ideas along with research results, the two were challenged and questioned by "the

top minds" in macroeconomics. Their story reads a little like the "emperor's new clothes" tale, with elements of David and Goliath, Goldberg agrees.

The "high priests" of macroeconomics -- as Goldberg sometimes refers to them -- subscribe to a theory known as Rational Expectation (RE). In simple terms, it proposes that every economic agent bases his or her actions on perfect knowledge of all variables which might affect a certain decision.

For example, RE assumes that buyers on the international exchange rate market know everything about what might affect rates when trading euros for dollars. RE proponents agree that their model may be overly simple, but it has the advantage of assuming that market trends are based on rational knowledge. This idea has a postulate named for it -- the postulate of individual rationality -- Goldberg explains, and no macroeconomist, he and Frydman included, would suggest that agents deliberately act irrationally.

The disadvantage of the RE model is that it cannot explain why rates change over time, Goldberg and Frydman assert. Further, macroeconomists who have proposed models which include all the different reasons why a trader might change his or her trading habits run into overwhelming complexity. "It turns out that you cannot fully characterize the updating of expectations," Goldberg says. "They build in too many forecasting errors -- the model is too fully determined -- and it is not successful in helping to explain anything." That's where Goldberg and Frydman's new approach comes in, offering an alternative model in which economic agents are assumed to have limited or uncertain knowledge of variables which might affect their decisions, but their actions will be somewhat predictable based on how they characteristically update their expectations. If they are usually conservative, their trading behavior will reinforce the status quo. If they are usually radical, the exchange rate market in which they are active will see wilder swings.

Goldberg and Frydman feel that keeping some "indeterminacy" in the model is the key. They have dubbed their model the "Imperfect Knowledge Expectation" or IKE, to reflect the idea that there is no fixed rule about how agents will behave, and that the

quality of information agents use to update their expectations will have an effect on market trends.

"I think we have a sound, solid paper," Goldberg says. "It matches better what we see in the real world, and it has testable implications. Basically what we say to our eminent colleagues is that if you want to explain the world as it really is, you have to recognize the indeterminacy of it. Many of them seemed open to considering our ideas."

"There is art in science," says Goldberg. "If you get rid of all the art, you're left with a very mechanical model. It may run like a top, but it doesn't do anything."

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