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Introduction

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The International Seminar on Macroeconomics (ISOM) meets every June in a different European city, bringing together American and European economists to study a variety of topics within "macro-economics," which is defined very broadly. The tradition started in 1978, and during the first half of its life was popularly known as the "Gordon-deMenil seminar." Jeffrey A. Frankel is now overall co-director of ISOM, with Francesco Giavazzi as his European counter-part.

This volume contains a selection of the papers originally presented at the 26th and 27th International Seminars on Macroeconomics. Seven of these papers were presented in Reykjavik, Iceland, June 18–19, 2004. The meeting was kindly hosted by the University of Iceland, Faculty of Economics and Business Administration. Thor Gylfason was the local host, and the program was organized by Richard H. Clarida and Francesco Giavazzi. Two of the papers were originally presented in Barcelona, Spain, June 13–14, 2003. This meeting was kindly hosted by the Centre de Recerca en Economia Internacional, of the Universitat Pompeu Fabra. Jordi Gali was the local host, and the program was organized by Zvi Eckstein and Kenneth D. West.

Geographically, ISOM has been venturing farther afield. Iberia and Iceland mark off the southwest and northwest corners of Europe. Subsequent meetings will mark off the eastern corners of the continent.

ISOM Tradition and Transition

From 1990 to 2003, ISOM was organized jointly by the National Bureau of Economic Research and the European Economic Association. One goal, originally, was to help narrow what was perceived to be a gap between the two continents. European academic macroeconomists

several decades ago were more insular than their American counterparts, notwithstanding that this proposition may appear to be at odds with the observation that the United States as a whole has at times appeared the more insular place. In any case, times have changed. Europe now turns out many fine macroeconomists, who are doing frontier research and are well-plugged in to what goes on outside the borders of the countries of their birth, in other European countries as well as across the oceans.

In 2004, both sponsoring parties decided that the collaboration had accomplished its mission. Starting with this volume, the NBER has become the sole sponsor of ISOM. We will continue to work with a local host in a different European country each summer, and to divide the authors and discussants equally between Americans and Europeans. With this volume, the 27th annual ISOM proceedings, however, we inaugurate a new regime. Henceforth the proceedings are to be published by MIT Press as the *NBER International Seminar on Macroeconomics*.

The new proceedings are a companion volume to the *NBER Macroeconomics Annual*. The *Macro Annual* has since its birth in 1986 established a genuinely unique reputation for must-read articles on a range of relevant macroeconomic topics, written by leaders of the field, mostly based in the United States. Thus both conference series have distinguished pedigrees, and the decision by MIT Press to bring the two together as parallel publications is inspired and auspicious.

Overview of the Volume

The nine papers published in the 27th volume of ISOM, as usual, cover quite a range of topics. While the subject matters of the papers range widely, one can weave some overarching themes. Let us begin this inaugural NBER ISOM volume by observing that, even though countries in Asia, Latin America and elsewhere have generated much of the economic excitement in recent decades, the European Union and the United States remain the two largest economies in the world. Furthermore, although the Asians and others have developed their own brands of capitalism, the history of economic thought—for better or worse—remains largely a European-based story. Even socialism—the politically most important (though failed) intellectual challenge to neoclassical economics—originated in 19th century Europe. To this day, the American-European axis continues to dominate economic scholarship. (A sampling of the large bodies of fine research that are based in Latin America and Asia, respectively, is available every year in two NBER

seminars: the Inter-American Seminar on Economics and the East Asia Seminar on Economics. Both series were founded in emulation of ISOM.)

One of the most exciting trends in the global economy in recent decades has been European integration, represented most dramatically by European Economic and Monetary Union and its currency, the euro, which went into effect in 1999. Indeed the two conferences represented in this volume bracketed the fifth anniversary of the birth of the euro. The overarching theme of this volume is Monetary and Fiscal Policy and the Implications of European Integration.

The nine chapters fall into two categories. **Part I** deals with **Macro-economic Fluctuations and Policy Response**. Cyclical variations can be attributed to either supply shocks or demand shocks. Chapter 1 examines technology shocks as a source of economic fluctuations in the historical data.

Whatever their relative importance, however, demand shocks are the ones that governments can potentially more likely counteract, or at least dampen, by means of macroeconomic policy. In recent decades, economists have considered monetary policy a much more useful tool in this regard than fiscal policy. Chapter 2 analyzes the problem of optimal macroeconomic policy in the case of a liquidity trap. The liquidity trap is a traditional textbook circumstance where changes in the money supply might lose all effect and yet fiscal expansion become more powerful. That eminent economists have again taken it seriously in recent years represents a striking reversal of the pendulum.

Another sign of the decline of interest in the quantity of money is that price stability has become the new popular choice for the nominal anchor that a rule should target, in place of the money supply and even the exchange rate. But macroeconomists have not yet decided whether they are in favor of targeting the price *level* or the inflation *rate*. Chapter 3 considers how the choice among rules for monetary policy— specifically the choice between targeting the price level vs. the inflation rates—should be affected if central banks learn over time.

Macroeconomic policy must increasingly take into account that cyclical fluctuations in each country are affected by those in other countries. Much of international trade and financial integration now takes place through the vehicle of multinational companies. Chapter 4 computes correlations of returns and investment to investigate the extent to which cyclical correlation across countries can be attributed to transmission between multinational companies and their international affiliates.

Part II considers **Macroeconomic Policy in a Union of Diverse Economies**. Although the launching of European Economic and Monetary Union (EMU) was an historic and basically successful initiative, it can be hard to tailor a single monetary policy to 12 or more diverse economies. Chapter 5 deals with the interaction of monetary and fiscal policy in the European Monetary Union, in the sense that it shows how monetary policy can have different effects in high-debt countries versus low-debt countries.

What is the source of concern among the EMU skeptics? On the one hand, conventional textbook theory says that if a group of diverse countries give up the ability to respond to cyclical fluctuations by means of an independent monetary policy tool, they should at least have a fiscal tool at hand. On the other hand, out of fear that individual member countries might abuse the European Central Bank to bail them out, the European Monetary Union adopted the Stability and Growth Pact to put upper limits on the size of member countries' fiscal deficits (3 percent of GDP). Chapter 6 investigates what can be learned about the effects of such constraints on fiscal policy by considering the so-called balanced-budget rules that most U.S. states have.

If member countries give up both monetary and fiscal policy, what is left? One argument is that if a country has flexible wages and prices, markets will adjust rapidly to demand fluctuations, and thus there is less need for discretionary macroeconomic policy. Because Europe has less flexible markets than the United States, some American economists have long been skeptical that Europe satisfies as well the criteria for monetary union. But one view has been that flexibility is not a permanent structural characteristic, but rather responds eventually to the choice of exchange rate regime. The hope is that the discipline of EMU would force member countries to evolve more flexible goods and labor markets. One could shed some light on this question by means of Chapter 7, which models the effect of the exchange rate regime on the degree of price flexibility.

An alternative view is that such structural parameters as wage or price flexibility are more deeply rooted in, for example, longstanding cultural differences across countries. Where Americans are famous for working longer hours and preferring the dynamism of raw competition to the security of the safety net, for example, Europeans are notorious for putting a higher value on long August vacations, social protections, and quality of life. In Italy, young men in their twenties and thirties continue to live at home, perhaps enrolled in university, long after their

American counterparts have moved out and entered the career ladder. Chapter 8 examines the implications of such "cohabitation" with one's parents on the saving decision.

Chapter 9 assesses the prospects for the ten countries that entered the European Union in 2004 (most of them in Central Europe) based on the experiences of the preceding round of entrants in the 1980s. Ireland, Spain, and Portugal grew more rapidly after they joined the European Union, presumably because the enhanced opportunity to trade with richer neighbors allowed faster productivity growth. This precedent augurs well for Poland and the other new Central European members, many of whom have indeed for some years been growing rapidly enough to begin narrowing the gap. However it is harder than one would think to match up economic convergence with the specific process of joining the EU. The authors conclude that convergence may take a long time. While the EU continues to look east for the future source of new members, new workers, and economic growth, the path of expansion will have its bumps.

Part I: Macroeconomic Fluctuations and Policy Response

We now summarize the chapters in greater detail.

Some key developments in monetary economics, such as real business cycle theory, liquidity traps, and inflation targeting, do not particularly concern the international dimension. Nevertheless, the study of cyclical fluctuations is increasingly international.

Neville Francis and Valerie A. Ramey consider the role of technology shocks in the U.S. business cycle in their paper, **The Source of Historical Economic Fluctuations: An Analysis Using Long Run Restrictions.** They use vector autoregressions, identified under the restriction that technology shocks, but no other shocks, have long run effects on per capita working hours. They use U.S. data, carefully constructing a new series for per capita hours and extending their data back more than a century. Because related literature has found sensitivity to treatment of trends in hours, Francis and Ramey consider various treatments of such trends. They find a unit root specification to be preferable on economic grounds, since that specification produces a time series of technology shocks that is not Granger caused by monetary or government spending variables.

Employing the unit root specification, the authors decompose the effect of technology shocks on U.S. hours and output. Results differ

for pre-World War II and post-War periods. In pre-World War II years, technology shocks account for nearly half the variance in hours and nearly three–fourths the variance of output at business cycle horizons. The post-World War II decomposition is a little sensitive to the horizon used to define "business cycle." Nevertheless, for all reasonable horizons the analysis suggests a much smaller role for technology shocks— perhaps less than a fifth of the variance in hours and less than a third the variance in output in the post-World War II period is attributable to such shocks. The overall reduction in output variance post-World War II is in part attributable to a fall in the volatility of technology shocks. This indicates that better policy is not the sole cause of the smoothing of the U.S. business cycle post-World War II.

Susanto Basu in his discussant's comments praises the clarity with which the authors explain their methodology for identifying productivity shocks. He finds the postwar results consistent with other studies. But he also sees an unusual finding in the pre-War sample that is worthy of further investigation: hours worked rise after a positive technology shock if hours per worker are entered in levels. Harald Uhlig notes that the dominant long run fact is the upward trend of productivity. But he is unconvinced that the technology shocks of the standard theoretical models account for observed variation in the data. He doubts the reliability of decompositions such as those in the Francis and Ramey paper that rely on long run restrictions. As well, as a theoretical matter, changes in capital tax rates would have effects similar to those of technology shocks.

In **Optimal Monetary and Fiscal Policy in a Liquidity Trap,** *Gauti B. Eggertsson and Michael Woodford* build on earlier work to develop a theoretical framework for analyzing optimal policy in the presence of a liquidity trap. When monetary policy is the only tool available and a liquidity trap is possible in the absence of optimal policy, commitment to a history-dependent policy rule can increase welfare relative to the outcome under a purely forward-looking inflation target. When optimal tax policy is also available, the paper seeks to determine the extent to which fiscal policy can help to mitigate the distortions resulting from the zero bound, and to consider whether a history-dependent monetary policy commitment continues to be important when fiscal policy is appropriately adjusted. This is an important question.

The paper shows that even in a model where complete tax smoothing would be optimal as long as the zero bound never binds, it is optimal to temporarily adjust tax rates in response to a binding zero bound.

However, when taxes have only a supply-side effect, the optimal policy requires that the tax rate be *raised* during the "trap," while committing to lower tax rates below their long-run level later. An optimal policy commitment is still history-dependent, in general, but the gains from departing from a strict inflation target are modest in the case that fiscal policy responds to the real disturbance in an appropriate way.

In his discussion of the paper, Eric M. Leeper agrees with the theoretical relevance of those interactions between monetary and fiscal policy for resolving the problem of optimal policy in the presence of a liquidity trap. He also shows that in addition to being theoretically relevant, dynamic interactions between monetary and fiscal policies are quantitatively important, at least in a model calibrated with U.S. data. He demonstrates this in the context of a standard neoclassical monetary growth model with flexible prices, establishing the relevance of dynamic policy interactions in very different models from the ones Eggertsson and Woodford consider. In his discussion Tor Einarsson focuses on the paper's assumption that the natural real rate of interest is exogenous in the model.

The basic new-Keynesian model, which has become a workhorse in monetary economics and which constitutes the theoretical framework used by many central banks in deriving "optimal" rules, assumes that the monetary authorities know both the true structure of the economy and the value of its parameters. Kosuke Aoki and Kalin Nikolov in **"Rule-Based Monetary Policy under Central Bank Learning"** analyze how monetary policy rules are affected by learning and uncertainty, asking what happens if those parameters are not known with certainty and the central bank learns them over time using least square regressions.

In the workhorse model, optimal policy may be expressed equivalently in terms of a target for either inflation or the price level. In the presence of learning, however, the two are not the same. This is because the inflation target, which by definition involves last period's price level, is directly affected by imprecision in last period's estimates of parameters, while the price level target is not. Aoki and Nikolov show that when you abandon the assumption of full information, price level targeting performs best and the history dependent rule the worst.

The authors relate their findings to the control theory literature, which argues that policies should feed back on the integral of past deviations of outcomes from expected outcomes. Price level targeting is desirable

precisely because it has this feature, while the history dependent rule tends to cumulate errors.

The paper is accompanied by two very useful discussions. V. V. Chari uses his comments to address two points: whether the sticky price model that underlies new-Keynesian models is convincing, and whether the least square learning method used in this paper—as well as in a large related literature—makes sense. Fabio Canova puts forward a number of interesting suggestions; in particular he argues that the model should allow agents to learn about Central Bank policy parameters and the Central Bank about private agent decisions.

In "The Comovement of Returns and Investment within the Multinational Firm," *Mihir A. Desai and C. Fritz Foley* explore whether financial integration, particularly the cross-border investments of multinational firms, can help explain the synchronization of business cycles. The paper presents evidence on the co movement of returns and investment within U.S. multinational firms to address this question. These firms constitute significant fractions of economic output and investment in most large economies, suggesting that they could create significant economic linkages. Aggregate measures of rates of return and investment rates of U.S. multinational firms located in different countries are highly correlated across countries. Firm-level regressions demonstrate that rates of return and investment rates of affiliates are highly correlated with the rates of return and investment of the affiliate's parent and other affiliates within the same parent system, controlling for country and industry factors. The evidence on these interrelationships and the importance of multinationals to local economies suggests that global firms may be an important channel for transmitting economic shocks. This evidence also sheds light on asset pricing puzzles related to the diversification benefits provided by multinational firms.

In their discussions of the paper, both Evi Pappa and José Manuel Campa praise the data assembled by the authors and the motivation for the study. However they also, in their own ways, point out that the evidence the authors provide is consistent with many theoretical explanations and that there is little effort in the current work to distinguish among the various alternatives.

Part II: Macroeconomic Policy in a Union of Diverse Economies

As noted, it is increasingly difficult to ignore the international dimension in macroeconomics. This is overwhelmingly true in Europe, where the members of the European Economic and Monetary Union can no

longer set monetary and fiscal policies independently of each other. But European countries do not always share the same economic structures or the same policy priorities. Some observers, especially American economists, have long been concerned that the members of EMU may be too diverse to submit successfully to the straitjackets of a common monetary policy set by the ECB or a common set of fiscal constraints embodied in the Stability and Growth Pact.

In "**How Do Monetary and Fiscal Policy Interact in the European Monetary Union?**" *Matthew B. Canzoneri, Robert E. Cumby, and Behzad T. Diba* use the New Neoclassical Synthesis framework to calibrate a series of models that seem to capture important aspects of the interaction between monetary and fiscal policy in the Euro area. Some of their key findings are as follows. They show that if constraints on deficits are deemed necessary, the model suggests requiring that government purchases, rather than the wage tax rate, respond to the deficit. In fact, the model suggests that such a constraint may actually be welfare enhancing, since government spending crowds out private consumption in the model.

In their model, deficits are more sensitive to interest rates in high debt countries, due to the burden of debt service. In addition, high debt countries tend to have higher tax rates, increasing tax distortions, and making tax revenues more sensitive to changes in the tax base. Not surprisingly, these factors lead to welfare costs: the typical household in a high debt country would be willing to give up 1.3 percent of its consumption each period to live in the average country in the calibrated model. The model suggests the common monetary policy favors larger countries in the Euro area, since their inflation rates are more highly correlated with aggregate (Euro area) inflation. They show that the welfare cost of wage and price stickiness in the average (small) country is four times greater than in our large country.

In his discussion of the paper Gauti B. Eggertsson compares the authors' policy rules to the Ramsey/optimal commitment allocation. The optimal allocation illustrates that taxes should not be smoothed over the business cycle—rather they should be changed so that the "natural rate of interest"—i.e., the real interest rate that is consistent with market clearing and zero inflation—perfectly tracks the nominal interest rate (which is exogenously given by the common monetary policy). In this case it is fiscal policy that achieves the Wicksellian equilibrium by endogenously moving the natural rate of interest to track the nominal interest rate. This indicates that the divergence in the inflation rates across EMU countries is a measure of the failure of fiscal pol-

icy to achieve the optimal allocation. The discussion emphasizes that the authors put on productivity shocks may be problematic and argue that other shocks could be more relevant over the business cycle. In his discussion, Carlo A. Favero reviews the model and poses the question "is this the right model for Europe?" He concludes that heterogeneity related to asymmetries in the responses of national inflation to Euro-area inflation are less relevant after 1999, that the heterogeneity related to differences in public sector balance sheets are important and should be carefully modeled and that heterogeneity related to differences in household and firms balance sheets should be introduced to obtain a closer relation between the simulated economy and the Euro area.

Fabio Canova and Evi Pappa in **"Does it Cost to be Virtuous? The Macroeconomic Effects of Fiscal Constraints"** use annual panel data from the 48 continental U.S. states to study the relationship between fiscal constraints and macroeconomic behavior. They split the data in two according to each of nine dichotomous indicators of fiscal constraints. These indicators measure the stringency of balanced budget laws, the stringency of debt restrictions, and some political measures such as whether the governor has line item veto power over the budget.

Using a variety of statistical techniques the authors conclude that such rules have little macroeconomic import in the U.S.—a finding that leads them to suggest that the deficit restrictions embodied in the European stability and growth pact may not have much effect either.

Discussing the implications for Europe, Kenneth D. West in his comments remains unconvinced. It may be, he argues, that budget rules in the U.S. states have little effect in part because the Federal government provides extra smoothing to states that impose such rules: progressivity of Federal income taxes, for example, insures that *ceteris paribus* less tax revenue is taken from states with lower income, thereby providing some extra smoothing to states whose tight budget rules might otherwise cause sever recessions.

Gylfi Zoega questions the paper's implications for Europe from a different viewpoint. He points to the persistent regional differences in unemployment rates within countries. The reason why unemployment in the north of England has for very many decades been higher than that in the south has not much to do with the cyclical behavior of public spending and taxes, the accumulation of public-sector debt, nor for that matter monetary policy. The supply side appears more important than the demand side. It follows that normalizing regional European data—such as employment and output—by country averages or nor-

malizing country employment and output by European averages will yield non-stationary variables that make the empirical methods used in this paper inappropriate; in particular the calculation of variances and impulse response functions would be problematic.

In "Can Endogenous Changes in Price Flexibility Alter the Relative Welfare Performance of Exchange Rate Regimes?" *Ozge Senay and Alan Sutherland* reconsider the issue of how to model price stickiness. The paper examines the extent to which changes in the degree of price flexibility modify the ranking of alternative monetary policy regimes in an open economy framework. The model that the authors propose belongs to the New Open Economy Macro literature, which builds models following the New Keynesian tradition along with rigorous microfoundations. While most of the literature is based on the assumption that the degree of price flexibility is exogenously fixed, Senay and Sutherland depart from it by endogenizing the degree of nominal rigidity.

Senay and Sutherland assume that the sequence of events is as follows. Agents observe the monetary policy regime chosen by the authorities, and then firms set the optimal degree of price flexibility once and for all by comparing expected benefits and costs. Gianluca Benigno argues, in his comments, that it would be interesting to explore how the determination of the optimal policy should take into account the endogenous degree of price flexibility that is affected by the chosen policy itself. In equilibrium monetary policy and the degree of endogenous price flexibility are jointly determined by optimizing agents. But in any case, as argued by Canzoneri in his comments, the basic point—that allowing for endogenous price stickiness can significantly alter our evaluation of monetary policy regimes—is certainly well taken.

In "Saving and Cohabitation: The Economic Consequences of Living with One's Parents in Italy and the Netherlands," by *Rob Alessie, Agar Brugiavini, and Guglielmo Weber*, anyone with significant experience as a child or a parent will find several opportunities to reflect on their own experiences with the ties that bind, as Desai points out in his discussion. The paper addresses the issue of how the saving rate is affected by the decision of young adults to leave the parental home or to stay, and finds strong positive effects of the child income share on the saving rate in Italy and the Netherlands.

To interpret their results, the authors rely heavily, though not exclusively, on the intuition that children seek independence and parents seek dependence. Desai, in his comments, makes the point that it seems

equally, if not more, plausible that parents are seeking independence and children are enjoying dependence. Survey evidence is hardly the last word on this given the ambivalence prompted in parents faced with the departure of their children. Even in the Italian setting it is not clear who is enjoying cohabitation more. Further research might usefully devise tests of which mapping of preferences is borne out by the data rather than assuming the source of this conflict.

The key result of this paper is that whether or not a child who is currently living at home with her parents is going to leave in the next period affects household saving in the current period. The decision to stay or leave is exogenous in this model, and the magnitude of the effect depends on the share of the child's income in total family income. As argued by Michael McMahon in his comments, there are many factors, including country-specific cultural factors, which drive the decision to leave the family home. An interesting extension to this paper would be to try to endogenize the decision to stay or leave; this would allow an analysis of the impact of changing parameters on cohabitation.

In *"Is Poland the Next Spain?" Francesco Caselli and Silvana Tenreyro* review Western Europe's record with labor-productivity convergence and extrapolate some of its implications for the future path of Eastern Europe. They show poorer Western European countries caught up with the richer ones through both higher rates of physical capital accumulation and greater total factor productivity (TFP) gains. These (relatively) high rates of capital accumulation and TFP growth reflect convergence along two margins. One margin (between industries) is a massive reallocation of labor from agriculture to manufacturing and services, which have higher capital intensity and use resources more efficiently. The other margin (within industries) reflects capital deepening and technology catch-up at the industry level. In Eastern Europe the employment share of agriculture is typically quite large, and agriculture is particularly unproductive. Thus, they argue there are potential gains from sectoral reallocation. However, quantitatively, the between industry component of the East's income gap is quite small. Therefore, the East seems to have only one real margin to exploit: the within-industry one. Coupled with the fact that within-industry productivity gaps are enormous, this suggests that convergence will take a long time. On the positive side, however, Eastern Europe already has levels of human capital similar to those of Western Europe. The authors argue this is good news because human capital gaps have proved very

persistent in Western Europe's experience. Hence, Eastern Europe does start out without the handicap that appears to be harder to overcome.

In his discussion of the paper Jeffrey A. Frankel begins by laying out the four theories around which the paper is built: the Solow model, endogenous growth theory, classical trade theory, and structural transformation. His main point is that the paper reveals a major problem in the otherwise-satisfying story of economic integration accelerating all four channels of convergence in Europe. The timing is rather far off, at least for some of the countries. For example, most of the catch-up by the Southerners, particularly Greece and Spain, came before 1975, even though they did not accede until five and ten years later, respectively. He also points out that the catch-up seems to go into reverse in 1975-2000, which is the period of accession to the EU. When assessing the prospects for central and Eastern Europe, Frankel concludes that the trade story may offer the best insight into the likely process of convergence. In his discussion, Richard Clarida praises the paper's approach, but emphasizes that it is important to understand what exactly accounting can tell us that helps us to distinguish among different theories of convergence, and concludes rather less than the authors try to coax out. In particular, it is hard to conclude that the structural development story is the only explanation for the declining share of labor in agriculture. Without relative price data, we just don't know if sectoral productivity differences within countries represent gross inefficiencies. For example, a "Ricardo Viner" specific factors model with mobile labor is a model that features an efficient allocation of labor across sectors notwithstanding absolute productivity differences.

Part I: Macroeconomic Fluctuations and Policy Response