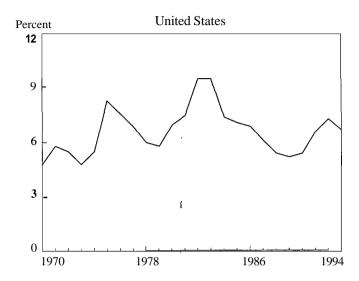
I am here today in a very new role for me. While I am not young by any reasonable criterion, I am very young as a central banker. I've been here at the Kansas City Fed conferences in Jackson Hole several times before, but always as an academic speaker, where my role was clearly to say something and maybe even to say something interesting. It is quite clear that, in my new job, my new role is to say nothing and certainly not to say anything interesting.

Mindful of that dictum, I'd like to take us back to the perspective of a central banker, which is to say back to macroeconomics — a subject we haven't talked about very much in the symposium in general, but especially not this morning. (That is not criticism at all; I feel it was quite appropriate to discuss the things we have discussed this morninng.) In particular, I was very glad to see, when I received the program, that this is a conference about reducing, not increasing, unemployment. Charts 1 and 2 (eight panels in all) illustrate what a woman from Mars who landed here in Jackson Hole to look at the unemployment history of the world since 1970 would have seen: the standardized Organization for Economic Cooperation and Development (OECD) unemployment rates of a nonrandomly selected sample. The eight panels cover every country represented on the program including the OECD and the European Union (EU)' as countries except, I'm sorry to say, New Zealand. That's because the OECD does not have a standardized unemployment rate for New Zealand that goes back this far. So this is the entire available sample. The hypothetical woman from Mars could be forgiven for wondering if the governments

Chart 1 Standardized Unemployment Rates



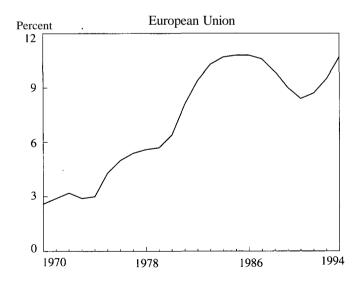
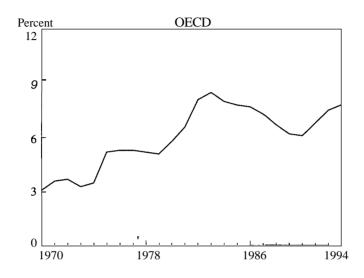
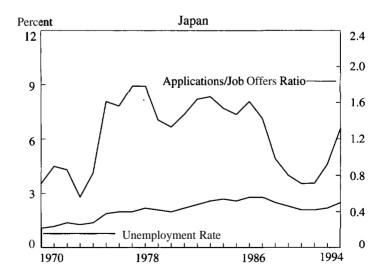


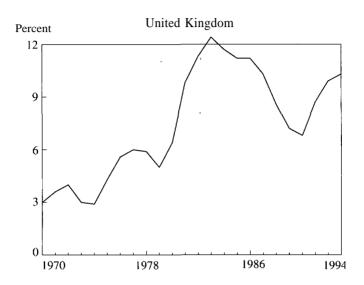
Chart 1 Standardized Unemployment Rates continued





Source: OECD Main Economic Indicators.

Chart 2 Standardized Unemployment Rates



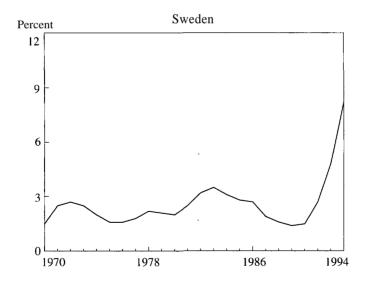
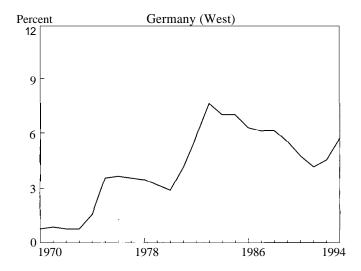
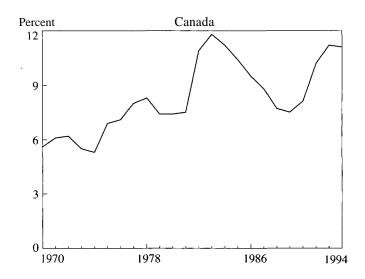


Chart 2 Standardized Unemployment Rates continued





Source: OECD Main Economic Indicators.

of these countries were really worrying about *reducing* unemployment during this period rather than *increasing* unemployment. If they were worrying about reducing it, they weren't doing too well—except perhaps for Japan and the United States.

Now, in my view, central banks, or more generally macroeconomic policies, do indeed have a role in reducing unemployment as well as, not incidentally, in reducing inflation. Before I pursue that point further, there is a preliminary point—actually a hurdle which, if not jumped, leaves nothing more to say on the subject. That hurdle is this: for a central bank to have any role in either raising or reducing unemployment, you have to believe in Keynesianism. If you don't, changes in aggregate demand are all dissipated in prices right away—up or down—and you just don't have any ability to affect the unemployment rate.

The Fortune Encyclopedia of Economics has a definition of Keynesian economics. I wrote it, so I know what's in it. I am only going to summarize the first half of it, which is the definition of positive Keynesianism, forgetting about any normative considerations. This definition has three pieces, and I'll just read them briefly. First, it says: "A Keynesian believes that aggregate demand is influenced by a host of economic decisions—both public and private—and sometimes behaves erratically. The public decisions include, most prominently, those on monetary and fiscal (that is, spending and tax) policy."

Second, it says that a Keynesian believes that: "... changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run impact on real output and employment, not on prices."

And third: "Keynesians believe that prices and, especially, wages respond slowly to changes in supply and demand, resulting in shortages and surpluses, especially of labor."

That is at least one person's definition of what it means to be Keynesian, in a positive sense. Now, by this definition, I submit that President Nixon had it right when he said, "We are all Keynesians now." (I think he said this in the 1970s.) Money is not neutral, and I

don't think I have to take any time to defend that proposition any longer—although I must say that, if this were a conference of academics, I probably would. If you accept this proposition, then I can go on. If you don't, of course, I can sit down right now. (I suppose I shouldn't put that to a vote!)

If you accept this proposition and you accept the natural rate hypothesis, which has been thoroughly discussed at this meeting, they lead to what I like to call "the approximate dichotomy." I'll come at the end to why it is only "approximate"—or at least one reason why—but this is what I mean by the approximate dichotomy: where employment is concerned, in the short run macroeconomics is everything and in the long run macroeconomics is nothing.

Let me elaborate slightly on what I mean by that. In the short run, changes in aggregate demand can and do easily change the unemployment rate by, say, plus or minus two percentage points. Such events happen frequently in business cycles. There is nothing, I submit, that we know in the way of microeconomic interventions that could have an effect remotely close to that in the United States—certainly not in the short run, and maybe not even in the long run. So that's one-half of the dichotomy.

However, in the long run the meaning of the natural rate hypothesis, as Dale Mortensen stated clearly this morning, is that the unemployment rate will converge to the natural rate *regardless of macroeconomic policy*. And that means, roughly speaking, that the employment rate of five to ten years from now has nothing to do with today's macroeconomic policy. The latter is totally irrelevant. Today's macroeconomic policy will, however, have something to do with the price level of five to ten years from now.

I emphasize this dichotomy because, while it is mother's milk to economists, it is almost totally unknown outside the economics profession—indeed it is a totally foreign doctrine. Very few people have in their heads the notion that the effects of aggregate demand on jobs are temporary, which is not to say ephemeral—I don't mean they are gone in three to six months, they are certainly not—but temporary. Nor do most people realize that a very big microeconomic achieve-

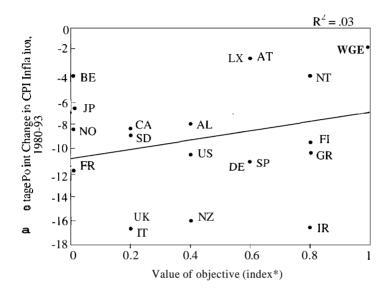
ment, at least in the United States, might be reducing the natural rate of unemployment by 0.25 percent. That would be a major, major achievement. But I think that very few people outside the economics profession understand either part of this dichotomy, which is a shame.

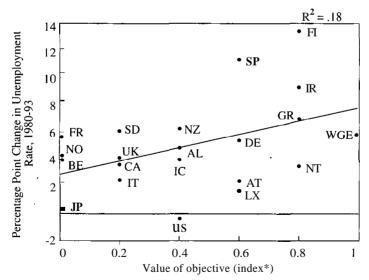
In view of this approximate dichotomy, what is a poor central banker to do? My view is that we should remember a television quiz show that I occasionally watched in my wasted youth called *The Price* Is *Right*. You may remember that on *The Price* Is *Right* an object would appear, and contestants were supposed to guess the price. You won if you came as close to the actual price as possible *without going over*. That was the name of the game. Similarly, in my view, the job of a central bank, in this regard, is to guide the employment rate up to its natural rate, but not higher than that. By that criterion, I think the United States is extremely close to being "on target," but the European Union, I believe, is quite far from being on target.

I have stated quite clearly, I think, that I believe the central bank does have a role in reducing unemployment, or raising employment. But, as we know, not all central banks explicitly recognize an employment objective of that sort. We heard very eloquently at lunch yesterday, from Donald Brash, the virtues of single-minded concentration on an inflation, or a price level, objective. The charge given by the Congress to the Federal Reserve is quite different, as many of you know. It calls upon us to pursue *both* maximum employment *and* stable prices. Since these two objectives conflict in the short run, the Federal Reserve Act calls upon us to strike a balance. That has always seemed very appropriate to me.

In thinking about the fact that different central banks have quite different stated objectives, I started to wonder whether the objectives actually matter. And, while I was wondering about that, I stumbled upon something which some of you have seen before: a ranking of central banks by Alex Cukierman and two co-authors. (See Chart 3.) Cukierman and others rated twenty-one industrial countries by what they called "central bank independence." Actually, I think this was quite a big misnomer because', if you notice, the United States is ranked pretty low. And I can tell you we feel fairly independent at the Fed, at least inside the building. In fact, the rankings really rate central

Chart 3 Central Bank Objectives, Inflation, and Unemployment





^{*} Source for index of central bank objectives: A Cukierrnan, S. Webb, and B. Neyapti; "Measuring the Independence of Central Banks and Its Effect on Policy Outcomes," *World Bank Economic Review*, 6,3 (September 1992), pp. 353-398.

banks on the single-rnindedness of their concentration on inflation-reduction, or price level stability. Here, .again, I must apologize to New Zealand. I didn't make up these rankings, and they came before the Reserve Bank Act of 1989. New Zealand, among other countries, would clearly be ranked differently today.

What I've done in Chart 3 is looked at the period of disinflation: 1980-1993. It seems to me that around 1980 the countries of the industrialized world looked back at the 1970s and said: "Enough—indeed, too much. We had an awful lot of inflation, it didn't do anybody any good, and we ought to get rid of it." There was a kind of sea change in attitudes around the world, although not with exactly the same timing everywhere.

So Chart 3 examines the period between 1980 and 1993. Central banks are ranked by the objective index created by Cukierman and others, with 1.0 connoting the most single-minded concentration on inflation-reduction—you see, for example, that the Bundesbank is on the far right on this criterion—and with zero on the other extreme: banks that did not have any inflation objective at all in their charge (that includes the Bank of Japan and it included then, but not now, the Bank of France). And the question I asked was: Did the bank's legally stated objective make any difference to what happened in this thirteen-year period? Was there any systematic difference between the banks that were focused on inflation-reduction and those that were not?

Well, the top panel shows the changes in inflation over that period. You can see that it is negative for every one of these countries; this was, after all, a period of disinflation. But the answer to the question is no. There is no correlation (technically, the R^2 is 0.03) between how much inflation fell and the legal charge of the central bank.

The lower panel shows that there was some correlation—not overwhelming, but noticeable—between the rise in unemployment and the central bank's objective. Here all the U's are positive, except for the United States which had slightly lower unemployment in 1993 than it had in 1980. So unemployment rose in every one of these countries, essentially; and it rose more in the countries whose central banks were more single-mindedly devoted to inflation-reduction. But the differ-

ence is not tremendously significant. The message, I think, may be that the significance of the central banks' charge may be more apparent than real. But I wouldn't dismiss it entirely. Now, there is a two-handed answer for you!

Let me come back briefly to the relationship between the microe-conomic issues we've mainly been talking about at this conference and macroeconomics. Despite the dichotomy that I've emphasized up to now, there is a relationship between the two—and for several reasons. One is the reason that Assar Lindbeck so eloquently emphasized this morning: that microeconomic interventions might have very different operating properties at different levels of macroeconomic activity. This is a complementarity, by the way: Lindbeck suggested that many micro-interventions work better in a strong macroeconomy.

The other point—which is also a complementarity between macro and micro—is what Charlie Bean's paper was largely about. Let me take just a couple of minutes on that. If microeconomic policies succeed in lowering the natural rate of unemployment, then, according to what I said before, the central bank should provide enough aggregate demand to get the economy there. Supply will not create its own demand. I think we've known that for 60 years.

The one slight disagreement I have with Charlie Bean, which Stan Fischer mentioned in his turn yesterday, is that such policies need not be inflationary if aggregate supply is in fact expanded. The name of the game, then, is to expand aggregate demand in line with aggregate supply. And the same dictum applies in the other direction. If microeconomic events, policies, or whatever—excessive welfare states, productivity shocks, you name it—reduce the ability of the economy to produce goods and services, then it is the duty of the central bank to contract aggregate demand in line with the reduction in aggregate supply. Among other causes of inflation, the 1970s saw a failure to throttle back aggregate demand fast enough when productivity growth slowed throughout the industrial world.

The last thing I'd like to talk about is the exception to the approximate dichotomy, to which I alluded earlier. That has to do with hysteresis. As Bean noted in his paper, the sharp dichotomy between

the demand side and the supply side begins to melt away if there is true hysteresis in the system. You can think of hysteresis as meaning that, where aggregate supply is concerned, the motto is: "Use it or lose it." If you don't use it, you start to lose it.

For the United States, the evidence is against hysteresis; I would say overwhelmingly against. The clean little secret of macroeconometrics is that the Phillips curve in the United States that we estimate right now in 1994 looks almost the same as when we estimated it in 1974. There has been barely any change in econometric estimates of Phillips curves in twenty years. That Phillips curve is, by the way, essentially linear and most likely—almost certainly—has a AU term in it, the *change* in the unemployment rate in addition to the *level* of unemployment

Now why do I mention such a seemingly technical detail? It turns out that AU is highly significant for the hysteresis issue. The standard Phillips curve equation essentially relates the *change* in the inflation rate ($\Delta\Pi$) on the left to the *level* of the unemployment rate (U) relative to the natural rate on the right. A Phillips curve with hysteresis in it will relate the *change* in the inflation rate on the left to the *change* in the unemployment rate (AU) on the right. If you integrate the relationship $\Delta\Pi_t = -\beta U_t$ —and here the econometricians in the room will start fainting because you can't just do that; you change the properties of the error term quite a bit; but let's forget about that—you get something that looks like a first cousin to the old-fashioned Phillips curve, just as it came from Bill Phillips:,a downward-sloping relationship between the *level* of inflation and the *level* of unemployment: $\Pi_{\tau} = -\beta U_{t}$.

That raises two key questions. One is empirical and one is theoretical. The empirical question is obvious from what I've already said. Is there, in fact, in the Phillips curve of an individual country an effect of the *level* of the gap between the unemployment rate and the natural rate, or the GDP gap? Or is there no such effect? Is it only the first-difference of that gap? For the United States, I've stated already that the evidence is overwhelming that there is an effect of the gap. For Germany, France, and Italy, I think the evidence is underwhelm-

ing, to say the least. Indeed, I think we have to entertain seriously the hypothesis that there is no conventional Phillips curve in those countries. Instead, there is one that looks much more like a "hysteretical" Phillips curve, if that is a word.

Next comes the theoretical question, the very important theoretical question: Is this process reversible? The history of Europe in the 1980s and into the 1990s was one of moving down a long-run, old-fashioned Phillips curve ($\Pi_t = -\beta U_t$) toward what appears to be permanently lower inflation purchased by permanently higher unemployment. That is the case *if* the hysteresis hypothesis is correct.

But can we go back? With vigorous enough microeconomic interventions, anything is reversible. But those can be very tough things to do. They can be tough economically, tough politically, and certainly tough on the people who will be the victims of these policies. Yesterday Allan Meltzer referred to "harsh, brutal capitalism" as the way to accomplish this.

However, the key question for the central bank—which has no control over these microeconomic interventions—is: Is high unemployment reversible by macroeconomic policies? The analogy is to smashing through a barrier. Hysteresis creates a barrier. The question is: Can you smash through it by macroeconomic interventions? Or is it only micro policies that will work? And here, I think, Bean's discussion of the different sources of hysteresis is very germane, very useful, and mostly but not 100 percent correct. Let me say why. It seems to me that if hysteresis comes from the insider/outsider model, especially its union variant, then when unemployment is high the union just hunkers down and cares only about the employed people. Such hysteresis is not going to be reversible, except by extreme—really extreme—policies. So you get the answer: No, you cannot go back in the other direction.

On the other hand, if the reason for hysteresis is "use it or lose it"—if human capital has deteriorated, if physical capital has deteriorated or been scrapped, or if hiring and firing costs have created ranges of indeterminacy within which the unemployment rate will just stay

where it is—then I believe the answer is: Yes. Reversing macroe-conomic policies can indeed reverse what appears to be a permanent rise in the unemployment rate, though they will take some time and need to be pursued with some effort.

I want to conclude now with one last thought, just to prove that I was paying attention at the conference. As 1 listened to the different papers, I was struck by the following empirical regularity. Several times I heard it stated that the *most* that macroeconomic policy could possibly do to unemployment in the European Union would be to lower the unemployment rate by two or three percentage points. This was sometimes said as if it were a great achievement and sometimes as if it were a small achievement. 1 would certainly count it a great achievement. But the point I'm making is that this was offered as the most that could be achieved; and some people were saying, "Well, that really doesn't get you very far."

I think I also heard, around the lunchtable and elsewhere, that it would be surprising if microeconomic interventions could reduce the natural rate of unemployment in Europe by more than two or three percentage points. And that would also be a great achievement. It was striking to me that those two numbers are the same—two to three percentage points on the macro side and two to three percentage points on the micro side. It leads me to my concluding remark: we should not go away from Jackson Hole accepting the view, popular in some places, that high unemployment in Europe is an entirely microeconomic problem for which macroeconomics has little or no relevance.

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