Getting and Keeping a High-Pressure Economy

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Good morning. I am delighted to be joining all of you for this important conference at the Federal Reserve Bank of San Francisco.

I am especially pleased to have been invited by my friend Mary Daly. I have known Mary for a long time and have always admired her research on economic issues, both because of its quality and because she insists on tackling questions that really matter to people's lives. Her commitment to high-quality work that can make the world better is why we are all fortunate that Mary has become such an important figure in economic policymaking for our country. Thank you, Mary, for all you have done and all you will do.

Today's conference on the "Costs and Benefits of Running a Hot Economy" addresses a topic of fundamental importance. In the late 1990s, I had the opportunity to be in the cheap seats for part of a meeting of the Federal Open Market Committee. Of course, I will not reveal any secrets. But I remember clearly that one of the Reserve Bank presidents commented on the low unemployment rate by saying "In my district, everybody who wants a job has one, and some people who don't want a job have one anyway." That is what I think we mean by a "hot" economy—an economy in which the demand for workers is strong enough that everyone who wants a job has one, and even some people who don't really want a job have been offered one that is too desirable to turn down. As a synonym for the term "hot economy," I will generally refer to a "high-pressure economy," and you might picture a job market that is a pot of water bubbling vigorously.

The United States is currently enjoying a high-pressure economy. The unemployment rate is under 4 percent, and prime-age individuals are entering the labor force in larger numbers than they are leaving it. Moreover, strong demand for workers has pulled up wage growth to roughly its fastest rate in a dozen years. So, a high-pressure economy clearly has significant benefits. Unfortunately, getting and keeping a high-pressure economy may also have significant costs. Understanding those benefits and costs is important for policymakers and for concerned citizens, and that is why we have gathered here today.

I have been asked to set the stage for the discussions to come, and I will do this in four steps: First, I will briefly summarize the evidence about why a high-pressure economy is good. Second, I will explain why textbook economics implies that the Federal Reserve System can raise economic pressure for a short period but cannot keep pressure high on a sustained basis. Third, notwithstanding the textbooks, I will offer some reasons for hope that the Federal Reserve can keep economic pressure somewhat higher for a sustained period than we used to believe. And

fourth, I will speak briefly about what policymakers besides the Federal Reserve could, and I think should, do to create a sustained high-pressure economy. Let me start with my first topic:

Why is a high-pressure economy good?

The answer, simply put: We want a high-pressure economy because strong demand for workers means that more people can have jobs and that people are paid more for those jobs—and those effects are especially strong for groups of people who have fared less well than others in economic terms over the past few decades. Let me elaborate.

Jobs are important, of course, for the income they provide. That is especially true because cash benefits from our government safety net programs for people who are not working are quite limited.[1] Jobs are also important for the sense of purpose and identity and dignity they offer. People want to do meaningful things with their lives, and they want to contribute to their families and their communities; working in a job is one of the foremost ways to achieve those goals.

A high-pressure economy not only provides more job opportunities for people who are looking for work, it also pulls people into the labor force who were not looking for work. As I noted, more prime-age people have been entering the labor force than leaving it during the past several years. This effect is especially important because it is persistent: Between 2008 and 2013, a high unemployment rate caused a significant number of people to stop looking for work; some have never returned to the labor force, and others have found their way back only gradually.

In addition to increasing the availability of jobs, a high-pressure economy increases the compensation for jobs. The share of total national income going to labor has fallen markedly over the past 25 years, while the share going to capital has risen. This trend probably stems from multiple factors, but a high-pressure labor market provides a countervailing force. In addition, because a high-pressure economy makes attracting new workers more difficult, businesses tend to devote more attention to training their existing workers. And, because people can move between jobs more easily, they tend to end up in positions for which their skills and interests are better matches and thus they are probably more productive.

Crucially, the effects of a high-pressure economy on jobs and compensation are especially strong for groups of people who generally fare less well in economic terms. For example, unemployment rates for black and Latinx workers are consistently higher than the unemployment rate for whites, but the gap is smaller when the overall unemployment rate is low. Similarly, the unemployment rate for workers with less education is consistently higher than the unemployment

[1] Over the past few decades, presidents and Congresses have deliberately shifted the focus of federal programs that provide cash or near-cash benefits away from people who are not working and toward people who are working. In addition, there are ongoing discussions among federal and state officials about imposing or tightening work requirements on additional benefits.

rate for workers with more education, but this gap also is smaller when the overall unemployment rate is low. Moreover, a reduction in unemployment seems to be especially important for wage growth in the lower part of the distribution.

These effects on groups of people who tend to do less well economically deserve particular attention in our policy discussions. Over the past several decades, and in contrast to some earlier periods of American history, a rising economic tide has not been lifting all boats in a comparable way: Most Americans below the top part of the income distribution have benefited only a little from overall economic growth.[2] Empowering those people to advance economically is both a moral and practical imperative, so our economic policies should be guided much more by what would boost the standard of living for middle- and lower-income Americans than by what would boost overall national output and income.

In sum, a high-pressure economy brings important economic and social benefits. And that takes me to the second part of my remarks:

Why is it difficult for the Federal Reserve to keep economic pressure high?

The answer, simply put: If the Federal Reserve used expansionary monetary policy to keep economic pressure high, the inflation rate might keep rising and rising. Rising inflation is the principal danger of a sustained high-pressure economy. Let me explain.

Any market-oriented economy has some unemployment because people who enter the labor force or leave a job do not find a new job immediately. How long people are unemployed depends on multiple factors. One of those factors is the strength of demand for goods and services, which the Federal Reserve can affect through monetary policy.

The key point for today's discussion is that the amount of unemployment affects inflation. When unemployment is high, businesses do not need to try hard to attract workers, so they tend to increase wages slowly. With wages increasing slowly, the costs of production increase slowly and prices generally increase slowly, so there is little inflation. By contrast, when unemployment is low, businesses need to compete intensely for workers, so they tend to increase wages rapidly. If wages rise more rapidly than workers' productivity, the costs of production increase. Those cost increases are generally passed through to price increases, which represent inflation.

Therefore, if the Federal Reserve used expansionary monetary policy to keep the demand for workers strong and the unemployment rate very low, the resulting upward pressure on wages would generate higher inflation.

[2] See Congressional Budget Office, "The Distribution of Household Income, 2016," July 2019.

And that is not all: Inflation depends not only on the pressure businesses feel from costs such as wages, but also on businesses' expectations of future inflation. If a business manager thinks that other businesses will be raising their prices, he or she will feel more able to raise the prices at his or her business. And how do people form their expectations of future inflation? As a starting point—but I will complicate this shortly—we might presume that expected inflation would equal the inflation that people have experienced recently.

Therefore, if the Federal Reserve used expansionary monetary policy to keep the demand for workers strong and the unemployment rate very low, the upward pressure on wages would generate higher inflation, and the higher inflation would feed into expectation of future inflation, which would generate still-higher inflation.

Indeed, the evidence available a number of years ago implied that, if the Federal Reserve kept the unemployment rate very low, inflation would keep rising indefinitely.[3] That possibility may seem remote to many people here today because the Federal Reserve has successfully avoided high inflation for the past three decades. But such an inflationary spiral is possible, and it would be very damaging to the economy and would need to be stopped. In order to bring inflation back down again, the Federal Reserve would need to make the unemployment rate unusually high for a while so that the cost pressures and expectations-setting process would run in reverse. That is, the Fed would need to produce a low-pressure economy to offset the inflationary effects of the initial high-pressure economy.

In contrast to that disruptive back-and-forth, if the Federal Reserve instead accepted an unemployment rate that was not so low, then the growth in wages would tend to be in line with the growth of productivity, costs of production would not increase, and the inflationary spiral would not start and would not need to be reversed. The economy would never get as hot as in the first scenario, but it would not need to get as cold either.

The logic I have just described has been a central pillar of economics textbooks and monetary policymaking—in the United States and many other countries—for decades. The relationship between unemployment and inflation that I have described is known as the Phillips curve, after an economist from New Zealand who did early empirical research on this subject. The idea that inflation will continue to rise as long as unemployment remains below a key level is known as the accelerationist Phillips curve. That key level of unemployment is known as the non-accelerating inflation rate of unemployment or NAIRU (or sometimes, almost equivalently, as the natural rate of unemployment).

[3] See Olivier J. Blanchard, "Should We Reject the Natural Rate Hypothesis?," *Journal of Economic Perspectives*, Winter 2018, and Christopher Erceg, James Hebden, Michael Kiley, David Lopez-Salido, and Robert Tetlow, "Some Implications of Uncertainty and Misperception for Monetary Policy," Federal Reserve Board Finance and Economics Discussion Series 2018-059.

Thus, in the jargon of the economics profession: If the economy has an accelerationist Phillips curve, the Federal Reserve cannot keep the unemployment rate persistently below the NAIRU without creating an inflationary spiral. The Federal Reserve could crank up economic pressure for a while, but then inflation would rise, and to bring inflation back down, the Federal Reserve would need to drop the pressure in the economy below its starting point.[4]

That logic may sound like "game over" for the Federal Reserve to create a sustained high-pressure economy. However, reality may be somewhat different from the textbook conditions I have described, so perhaps the game is not quite over. The third section of my remarks is:

How might the Federal Reserve sustain a high-pressure economy despite the textbook analysis I have just offered?

The answer, simply put: The relationship between unemployment and inflation, and the dynamics of inflation, have changed from what is described in most textbooks, and our current economic conditions are different from the starting point in most textbook analyses. Therefore, I think the Federal Reserve now has an opportunity to experiment with sustaining a high-pressure economy. But that experiment would have real risks, so the Federal Reserve would need to proceed carefully and be prepared to stop if things go badly. Let me explain.

According to the most recent evidence, the Phillips curve has evolved from the traditional textbook version I told you about. Contrary to some commentary on both the right and left of American politics, the Phillips curve has not disappeared, and suggestions that it can or should be ignored in monetary policymaking are not supported by the evidence.[5]

But the evidence shows that the Phillips curve has changed.[6] One change is that lower unemployment now raises inflation by less than it did before, when one focuses on the direct effect and does not include a possible inflationary spiral. Inflation is less sensitive to labor-

[4] If the Federal Reserve let the unemployment rate stay above the NAIRU indefinitely, the inflation rate would tend to keep falling, which would be costly as well. Therefore, the standard logic implies that the Federal Reserve would not change the average level of unemployment, and instead would aim to minimize variations in unemployment (and inflation), which are also costly.

[5] A great deal of meticulous research, including a number of important papers earlier this year, document a systematic relationship between unemployment and inflation in which lower unemployment leads to higher inflation. For example, see Simon Gilchrist and Egon Zakrajsek, "Trade Exposure and the Evolution of Inflation Dynamics," Federal Reserve Board Finance and Economics Discussion Series 2019-007; Peter Hooper, Frederic S. Mishkin, and Amir Sufi, "Prospects for Inflation on a High-Pressure Economy: Is the Phillips Curve Dead or Is It Just Hibernating?," National Bureau of Economic Research Working Paper 25792; Michael McLeay and Silvana Tenreyo, "Optimal Inflation and the Identification of the Phillips Curve," NBER Working Paper 25892; Richard K. Crump, Stefano Eusepi, Marc Giannoni, and Aysegul Sahin, "A Unified Approach to Measuring U*," NBER Working Paper 25930; James H. Stock and Mark W. Watson, "Slack and Cyclically Sensitive Inflation," NBER Working Paper 25987; and Kristin Forbes, "Has Globalization Changed the Inflation Process?," Bank for International Settlements Working Paper 791.

[6] For estimates underlying the comments that follow, see in particular Blanchard (2018) and Erceg et al (2018).

market pressure. The other, and more important, change is that inflationary spirals do not work the way they did before, because expected inflation does not track actual inflation as closely as it used to. That is, movements in actual inflation change expected inflation by much less than one-for-one. To put these changes in the jargon of the economics profession, the Phillips curve appears to have become flatter and no longer accelerationist.

As a result, it appears that the Federal Reserve could keep unemployment low without launching an inflationary spiral. Rather, if the Federal Reserve kept unemployment low for a sustained period, inflation would rise, but it would not keep rising. Indeed, based on the estimated Phillips curve in a recent paper by economists at the Federal Reserve Board, it appears that the Federal Reserve could keep unemployment a full percentage point below the NAIRU for an indefinite period and ultimately raise inflation by only one-quarter percentage point.[7]

However, I want to emphasize the word "appears" from those last few sentences. Expected inflation has been less sensitive to actual inflation at least in part because the Federal Reserve has demonstrated a commitment to keeping inflation low. In economists' jargon, that commitment has "anchored" inflation expectations. If the Federal Reserve weakened that commitment by trying to keep unemployment below the level we have viewed as sustainable and allowing inflation to rise, expectations might become unanchored again, and an inflationary spiral might re-emerge.[8] Moreover, if inflation remained fairly insensitive to unemployment, then unwinding such an inflationary spiral would require high unemployment for a lengthy period.

Unfortunately, economists simply do not know how the Phillips curve would evolve if the Federal Reserve tried to keep the unemployment rate low for a sustained period. This uncertainty is one of many that the Federal Reserve faces, and as with those other uncertainties, this one presents significant risks of making monetary policy either too expansionary or not expansionary enough.

In my judgment, a reasonable balancing of risks suggests that the Federal Reserve should try to keep the unemployment rate below the estimated NAIRU unless and until inflation substantially exceeds 2 percent.

That approach would have important advantages: For one, it would sustain a high-pressure economy for at least a while, with all the advantages I described earlier. For another, we would

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[7] See Erceg et al (2018).

[8] This risk is an example of the well-known Lucas critique. The Phillips curve estimates that I have described are so-called reduced-form estimates because they capture the dynamic relationships between a few key variables and do not analyze people's fundamental behavior. In "Econometric Policy Evaluation: A Critique" in 1976, Robert Lucas warned that if reduced-form estimates were used to justify changes in policymaking, the dynamics between key variables might change; in economists' jargon, the parameters of reduced-form models are not invariant to the policymaking approach.

learn how low the NAIRU really is. The unemployment rate has been below previous estimates of the NAIRU for almost three years now, and wage growth has never been rapid during this time and may have already leveled off, which suggests that the NAIRU might be a good deal lower than we used to think. Yet another advantage is that inflation would probably rise a little, which would be good. Federal Reserve Chairman Jay Powell has explained that the Federal Reserve views its inflation target of 2 percent symmetrically—not wanting inflation to be below 2 percent any more than above 2 percent. And some leading economists outside the Federal Reserve System have argued for raising the inflation target to give the Federal Reserve more room to maneuver in future recessions. Yet, inflation as measured by the PCE chain-price index—the Federal Reserve's preferred measure—has been below 2 percent for almost all of the past decade and remains there today. So, some increase in inflation is desirable.

Of course, my proposed approach has disadvantages as well. One disadvantage is the low interest rates that would be needed to keep unemployment low. Analysts have raised legitimate concerns that low interest rates encourage excessive risk-taking and create other distortions in the financial system. And with prevailing market interest rates so low, the Federal Reserve might be unable to push rates low enough to keep unemployment below the estimated NAIRU. I worry about the implications of low interest rates, and I have spoken about the importance of generating sufficient economic stimulus and upward pressure on rates through expansionary fiscal policy.[9] However, for any given setting of fiscal policy, I think the disadvantages of low interest rates are better addressed through financial regulation than by pushing up interest rates and sacrificing some employment and compensation gains.

In my view, the chief disadvantage of my proposed approach is the risk that expected inflation would become unanchored and an inflationary spiral would result. But I think that risk would be very limited as long as the Federal Reserve stated clearly that it would act to restrain inflation if inflation moved substantially above 2 percent. The risk would be limited in part because expected inflation seems quite well anchored today: In the latest estimates of the Phillips curve, expected inflation is far from being equal to past inflation, and expected inflation seems not to have changed very much over the past dozen years, even though actual inflation stayed consistently below the Federal Reserve's target. Moreover, economic conditions were quite different when inflation expectations became unanchored in the 1970s: Inflation was much higher at that time than anything we have seen in the past 35 years, so was far more salient in people's thinking, and the Federal Reserve did not take strong action to stop that runup.

Nonetheless, some observers worry that trying to keep the unemployment rate below the estimated NAIRU would reflect hubris about the power of monetary policy and forgetfulness of past mistakes. Such worry should be taken seriously: The Federal Reserve cannot cure every

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[9] See Douglas W. Elmendorf, "Should We Reduce Federal Budget Deficits Now?," remarks at Brookings, April 2019.

economic ill, and letting inflation rise so much in the 1970s was a costly mistake. But the Federal Reserve can err not only through excess confidence but also through excess doubt: Doubt about the Federal Reserve's ability to fight the Great Depression of the 1930s weakened the monetary response, and doubt about the Federal Reserve's ability to end the Great Inflation of the 1970s delayed the response then. And one of the great successes of monetary policy—combating the financial crisis and Great Recession—came from the "courage to act," to quote the title of former Federal Reserve Chairman Ben Bernanke's memoir. Moreover, just as policymakers might make the mistake of forgetting the past, they also might make the mistake of putting too much weight on particular past periods: In particular, views of economic policy formed in an era when inflation was too high might give that experience undue emphasis in our current era when inflation has mostly been too low.

All that said, I do not think we should leave the task of sustaining a high-pressure economy entirely in the hands of the Federal Reserve. That brings me to my fourth and final topic:

What can policymakers besides the Federal Reserve do to create a sustained high-pressure economy?

The answer, simply put: Other policymakers in the federal government and policymakers in state and local governments have a number of tools for strengthening the demand for workers, and their tools have some advantages over the principal tool available to the Federal Reserve. Therefore, those other policymakers should focus their attention on boosting labor-market pressure as well. Let me explain briefly.

I noted earlier that how long people are without work depends on multiple factors. Only one of those factors is the strength of demand for goods and services, which the Federal Reserve can affect through monetary policy. But there are many other factors as well, including education, job training, job-placement mechanisms, public jobs programs, the location of jobs and housing, transportation infrastructure, health care, addiction programs, and the criminal justice system—indeed, everything that helps or hinders the connection of potentially productive workers with work that needs to be done.

Those factors are affected, in turn, by a range of economic and social policies, and therefore can be changed by concerted policy actions. Indeed, when monetary policymakers worry that they are being expected, unrealistically, to solve all of our economic ills, they sometimes draw attention to these other sorts of policies; I drew part of the list I just read from a speech by Ben Bernanke after he had left the chairmanship of the Federal Reserve.

One advantage of these other tools over the Federal Reserve's use of expansionary monetary policy is that using many of the other tools would not increase inflationary pressure. Inflationary

pressure is increased when businesses are competing intensely for workers and driving up wages. But many of the other tools I listed would increase the number of workers with the needed capabilities in the appropriate places, and that increase in supply would not generate inflationary pressure.

Another advantage of these other tools over Federal Reserve policy is that they can be targeted at different regions and at workers with different characteristics. Pressure in the labor market can be measured on average across the country, but actually it varies by potential worker. For example, the unemployment rate differs significantly across states and between people of different races, with different amounts of formal education, and so on. We should really be aiming to raise the labor-market pressure for each worker.

The Federal Reserve is not well positioned to do that. Monetary policy does have different effects in different places, but those differences stem primarily from differences in the structure of economic activity: Places where production is concentrated in goods and services for which demand is more interest-sensitive will tend to experience stronger effects from changes in monetary policy. But that distribution of effects is not under the control of the Federal Reserve. And the effects of monetary policy on workers with different characteristics is not something the Federal Reserve can control either. In sum, the Federal Reserve can affect the national-average amount of labor-market pressure, but other policies controlled by other policymakers can affect the pressure for workers in different situations, and that is important.

Conclusion

Let me conclude. I have tried to make four points: First, we want a high-pressure economy because then more people can have jobs and people will be paid more for those jobs—and those effects are especially strong for groups of people who have been faring less well than others in economic terms. Second, given traditional estimates of the relationship between unemployment and inflation and of the dynamics of inflation, if the Federal Reserve used expansionary monetary policy to boost economic pressure persistently, the inflation rate might keep rising and rising. But third, the relationship between unemployment and inflation and the dynamics of inflation have changed, giving the Federal Reserve an opportunity to experiment with sustaining a high-pressure economy. In my judgment, the Federal Reserve should undertake that experiment but should proceed carefully and be prepared to stop if things go badly. And fourth, other policymakers in the federal government and policymakers in state and local governments have other—and in some ways, better—tools for strengthening the demand for workers, and they should use those tools as well.

I hope this has been a helpful introduction to today's important conference. Thank you for your attention, and I am happy to take your questions.