

Long-Term Consequences of Economic Fluctuations

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The 2008 financial crisis and ensuing worldwide recession created circumstances in which counter cyclical fiscal policy—that is, variation in government budget deficits and surpluses aimed at stabilizing the economy — became the policy of choice. The U.S. and China were most aggressive in pursuing these policies, but governments worldwide increased spending or cut taxes to reduce the severity of the recession and hasten recovery. For the time being, concerns about budget deficits became secondary.

But there is now a rising, even alarmist, chorus of warnings that increased government spending, however necessary in the short run, must be reversed quickly to avoid inflationary pressures or damaging increases in the cost of financing government debt in the future. Similar concerns have been expressed about extraordinary measures that have been taken with regard to monetary policy. These have involved a large expansion of the bank reserves, guarantees for financial institutions' liabilities, and the purchase of mortgage-backed securities. It has been argued that if these interventions aren't unwound quickly, they too could lead to destructively high inflation.

Our concern is that prevailing thinking may not take adequate account of how prolonged recessions or slow economic recoveries can undermine future economic growth, jobs, and wages as well. The theme of this paper is that we should not neglect the long-term consequences of a recession, or a slow recovery, for the growth of GDP, as much of macroeconomic thinking does today. A conference assembled by the authors and held at The Brookings Institution in the Fall of 2009, addressed this issue. Research presented and discussed at the conference makes a strong theoretical case that there are long-run consequences of serious recessions. Data analysis supporting these theories also point towards long-run costs of recessions – particularly those caused by banking crises. More research on this important topic is needed as the evidence presented was nuanced and at times mixed. But, the accumulated research on this issue suggests that a rapid recovery from recession is highly desirable due to the possible long-term consequences of recessions. The evidence also makes us skeptical of reflexive arguments that nations cannot afford substantial short-term fiscal stimulus. The case for a second stimulus in the U.S. is strengthened by these findings. In fact, what the U.S. may not be able to afford is

either a slow and prolonged recovery or a quick return to recession. In other words, the research suggests that a delayed return to economic health could reduce output, and therefore tax revenues, for years to come. As regards current policy, the fiscally prudent course may be to maintain expansionary fiscal and monetary policy now.

What is at Stake

For a quarter of a century, fiscal policy had been the neglected stepchild of government management of the economy. Monetary policy—essentially controlling interest rates—had become not merely the preferred policy tool to counteract either recession or economic overheating but, in the minds of many theoreticians and policymakers, the only effective countercyclical policy tool.

This was especially true in parts of academia, where theoreticians argued fiscal policy did not work. Some argued that higher interest rates due to offsetting monetary policy countered the benefits of increased demand from government spending. A more serious criticism has been that consumers and business anticipate that any increase in deficits would result in higher future taxes and adjust spending downward to offset the expansionary effect of the increased spending. Even those who advocated fiscal tools conceded that they were subject to political obstacles that slowed the response time to recessions, so that by the time they had taken full effect they were overheating an already ongoing expansion. Finally, most had come to believe that the sorts of deep and long recessions where fiscal policy might be necessary were relics of the past, and that monetary policy alone was an adequate countercyclical tool, which if properly used, would maximize growth over time.

In tandem with the ascendancy of monetary policy, academia increasingly argued that the dominant, and to many the only necessary, policy objective, was to maintain a low and stable rate of inflation. With inflation kept low, cyclical downturns would be minimized and the rate of economic expansion maximized. While in practice these academic principles were not uniformly followed, they were highly influential. Several central banks made a low inflation rate their dominant policy objective.

Despite many financial crises around the world since the early 1980s, fluctuations in GDP had moderated measurably and the academic and policymaking communities were therefore highly confident about the success of these ideas. Many well-regarded academic economists regarded the “great moderation,” as it was called, as proof that the focus on inflation had worked. Leading advocates included Ben Bernanke, now chairman of the Federal Reserve, and MIT professor Olivier Blanchard, now chief economist of the International Monetary Fund.¹

The credit crisis of 2008 and the ensuing deep recession profoundly challenged these principles. The focus on low inflation did not prevent huge speculative bubbles in either stocks in the late 1990s or housing in the 2000s. Then, as the economy in the U.S. began to weaken, sharp reductions in interest rates, undertaken by the Federal Reserve beginning in August 2007, proved insufficient to prevent the most serious U.S. recession

¹ Remarks of Governor Ben S. Bernanke, Feb. 20, 2004, <http://www.federalreserve.gov/Boarddocs/Speeches/2004/20040220/default.htm>; Blanchard, Olivier, and John Simon, "The Long and Large Decline in U.S. Output Volatility," *Brookings Papers on Economic Activity*, 1, 2001. pp. 135-64.

since the Great Depression. The unemployment rate rose to more than ten percent and the employment rate of adults fell to 30-year lows.

When push came to shove, most major nations quickly reverted to fiscal tools to ameliorate the recession in tandem with expansive monetary policies. In the U.S. the Obama administration engineered an \$800 billion package of additional spending and tax cuts early in its term. In China, government spending increases as a proportion of GDP exceeded the American stimulus. The Federal Reserve under Ben Bernanke's leadership adopted new aggressive policies to support the credit system.

Adding credibility to the argument that rapid and aggressive policies were needed, there were new empirical and historical studies that encouraged the use of fiscal tools in just such circumstances. The Congressional Budget Office estimated that the Obama stimulus package added significantly to GDP and job creation.² In a widely cited new book, economists Kenneth Rogoff and Carmen Reinhart produced historical studies to show that in recession caused by banking crises the rapid application of fiscal stimulus was necessary to reduce recessionary damage and bring about recovery.³ As chief economist of the IMF, Oliver Blanchard, and two co-authors, also raised questions about the over-reliance on monetary policy and suggested that it was important to maintain "room" for the use of expansionary monetary *and* fiscal policy to combat contractions.⁴

Despite these efforts, and considerable evidence of the effectiveness of fiscal policy, a vehement backlash came from many quarters. Congressional Republicans in particular used growing deficits to criticize the Obama administration.

Economists across the country warned that Washington Democrats' unprecedented government spending binge, which grew non-defense spending by a combined 67 percent last year, could lead to currency shock, inflation and crippling interest rates,

wrote Republican Congressional leader John Boehner this March. This was among the more temperate comments.

Public opinion surveys also show that growing deficits are high among the concerns of Americans.⁵ In February, President Obama announced a bi-partisan commission to reduce future deficits. An influential think tank, the Peterson Institute, has engaged in an intense effort to raise political awareness of growing deficits. And indeed, even those academic who argue that fiscal stimulus is necessary in the short run believe the penalties of excessive public debt could be severe in the future.

Rogoff and Reinhart are among them. Based on their historical research, they argue that when debt reaches 90 percent of GDP it can have serious consequences that significantly reduce future economic growth. The Congressional Budget Office, while conceding the beneficial short-run effects of the Obama stimulus, argued that the long run

² CBO release. <http://www.cbo.gov/ftpdocs/106xx/doc10682/Frontmatter.2.2.shtml>

³ Carmen M. Reinhart and Kenneth S. Rogoff, *This Time is Different, Eight Centuries of Financial Folly*, Princeton University Press, 2009.

⁴ Olivier Blanchard, Giovanni Dell'Ariccia, and Paolo Mauro, Rethinking Macroeconomic Policy, International Monetary Fund, February 12, 2010.

⁵ USA Today-Gallup poll, <http://www.gallup.com/poll/127247/Voters-Rate-Economy-Top-Issue-2010.aspx>

impact on growth would be negative as government debt displaced (“crowded out”) borrowing for investment in the long run.⁶

Due to the severity of the credit crisis, and the bold rescue packages undertaken, the current environment is extraordinary in many ways. We do not disagree that excessive debt over time can be damaging. But, prevailing estimates of the impact of additional stimulus neglect potential positive long-run impacts and therefore may neglect an extremely important benefit. There is a strong theoretical case that recessions or slow recoveries can undermine potential growth, and the ability of the economy to create jobs, by reducing plant and equipment investment, R& D, human capital investment, and public investment in such areas as transportation and energy technologies. Thus, to the extent fiscal stimulus reduces these consequences of recession, it may improve the long-term performance of the economy. This means an increase in the potential to create more jobs and higher wages for all workers.

How can we begin to assess these possibilities? With financial support from the Rockefeller Foundation, we contracted a dozen studies on various issues related to the subject. Because of neglect of research in these fields, this was a preliminary effort, but we attempted to cover a wide range of views. Several of the papers strongly supported the contention that there are damaging long-term consequences due to recessions. But other papers either did not support the contention or contradicted it. On balance, however, the implications of these studies and other research are clear. Overall, the evidence calls into question the contention that counter-cyclical fiscal policy impedes long-run growth. It also suggests, at the least, that we should take seriously the possibility that the long-run effects of fiscal policy can be positive. This is especially the case in the current severe circumstances.

The stakes are high for this project. By neglecting long-term damage both in forecasting models and in policy-making, the nation could undermine its long-term prospects. As usual, workers would pay a high price.

Theoretical Underpinnings: How Short-Run Downturns Can Affect Long-Run Growth

Given how many different ways short run fluctuations in aggregate demand can affect medium and long-term growth, it is remarkable that there hasn’t been more work on this topic. Rising aggregate demand—that is the purchases of goods and services at current prices—means that the economy is running closer to its full capacity. In such a circumstance, labor is more fully employed, factories more fully utilized, stores occupied, buildings rented out, and so on.

In the standard economic model, however, the ability of aggregate demand management to expand output is limited by the capacity of the economy. Capacity is normally thought of as being determined by factors such as the size of the labor force, the savings rate, and the rate of technological progress. These factors are assumed to be unaffected by short-run fluctuations in aggregate demand. Thus there is usually no relationship in standard economics between short-run policy and long-run growth other

⁶ Testimony of Douglas W. Elmendorf before the Committee on the Budget U.S. House of Representatives, January 27, 2009, pp22-23.

than the negative impact of budget deficits on capital investment due to the crowding out of private debt by public debt in credit markets.

The counter-argument is that high levels of aggregate demand can indeed create conditions that expand capacity, mostly by encouraging research and development, capital investment and educational investment, and through reducing costs of production.

In their paper, "Long-run effects of short-run aggregate demand fluctuations," Amitava Krishna Dutt and Jaime Ros, suggest several plausible links between the level of aggregate demand in the short run and the level of potential output in the long run. They include the possibility that with strong aggregate demand, resulting labor shortages would stimulate investment in innovative labor-saving technical change. Thus, the nation's productivity – output per hour of work—may well be increased. High levels of demand may also result in declining per unit costs due to economies of scale, allowing more output with the same resources—again an increase in productivity. Also, If nominal wages are rigid (they don't rise to completely offset higher demands for labor), somewhat higher levels of inflation due to increased aggregate demand will result in higher levels of employment and thus higher output in the long-run. The authors cite several considerations that could produce a long-run trade-off between inflation and unemployment. In each case, the model developed by the authors showed that expanding aggregate demand can, under certain circumstances, lead to an increase in output in the long-run.

C.W.M. Naastepad and Servaas Storm presented a related model and reached similar conclusions. Lance Taylor discussed a number of models in which the state of aggregate demand is dependent on the rate of economic growth in the long run.

Other authors focused on the effects of recession and banking crises on the financial sector's ability to facilitate capital investment and research and development, both of which are determining factors of long-term growth. Daniel Leigh, one of the commentators at the Brookings Conference, had co-authored a chapter for the IMF's *World Economic Outlook*.⁷ It specifically examined the medium- to long-run consequences of recessions brought about by banking crises. The report described several channels through which banking crises could affect output and employment in the medium and long run. First, in the aftermath of a banking crisis, firms will often face tighter lending standards that make it harder for them to invest in new projects. The deeper and longer the crisis, the greater the effect on investment. The general decline in asset prices due to a financial crisis may also weaken corporate balance sheets, which make it more costly to borrow and can undermine investment. There may also be long-term increases in the perceived riskiness of financial assets—notably, stocks and bonds. Therefore, on balance interest rates may remain higher than otherwise, and stock prices lower, resulting in higher costs to invest. Thus, investment may be dampened in several ways.

Leigh discussed his findings in relation to other related papers at the conference. Two papers presented at the conference focused in particular on the role of financial markets' support of risky ventures that have potentially large payoffs, such as bold research and development projects. Because technical progress is one of the main contributors to long-term economic growth, any stunting of R&D due to slack aggregate demand could have severe long-term consequences.

Comment [WTD1]: This is the opposite of what they say Jeff. Higher inflation induces more output with sticky money wages. It's a standard LR Phillips curve argument. In fact they cite my paper with Akerlof and Perry on this. What I had here originally was correct. Stronger demand => higher inflation => higher output in the long run.

⁷ International Monetary Fund, *Word Economic Outlook: Sustaining the Recovery*, October 2009.

Counter-intuitively, some argue that downturns might be a good time to conduct R&D because firms have excess capacity that could be put to experimental use on product and process innovations. But Christina Steiger argued this will not occur if the firm cannot afford to *finance* the investment in R&D. She presented a growth model in which firms may be constrained in their access to credit. In her model, negative shocks to the economy, such as a banking crisis, *permanently* retard the level of technological development and thus GDP per capita.

Phillipe Aghion, David Hemous, and Enisse Kharroubi produced similar results in a model addressing related issues. Firms that face lending restraints finance innovative R&D projects out of their profits—their retained earnings. But if recession is deep and prolonged, the ability to finance these investments is limited by the reduction in profits. The consequences for the economy are significant in the long run.

There are other counter-arguments to our theme, however. One line of reasoning is that recessions winnow out less productive firms and make more room for more advanced and productive firms to take their place. Another argument often made about the salutary effects of downturns is that the need to cut costs rapidly may stimulate investment in and experimentation with labor saving techniques that would not otherwise have been undertaken. Thus, in theory, the relationship between short-run downturns and long-run growth could be either positive or negative. What does the evidence say?

Evidence

We have thus far presented the theory on how short-term downturns can affect long-term growth. Now we look to the evidence. The strongest evidence of a linkage between fluctuations and long-run growth can be found in an examination of banking crises. The chapter of the *World Economic Outlook* discussed by Leigh at the conference examines 88 banking crisis that have occurred around the world since 1970. Leigh and his co-authors find that output, investment, employment and the level of technological progress remain, on average, below pre-crisis trend projections seven years after a financial crisis.

In their paper, Felix Rioja, Fernando Rios, and Neven Valev examine closely the impact of the financial crisis on investment. Using similar data, but an entirely different methodology from that used by the economists at the IMF, these authors reach a similar conclusion – the retarding impact of crisis on investment continues seven to ten years beyond the initial onset of the crisis. Stefan Mittnik and Willi Semmler compare the response of the economy to shocks in periods of recession versus periods of normal growth. They find that shocks to output are felt for a longer period of time when the economy is in recession than during normal times. This again suggests that economic downturns can have long lasting effects on the economy.

On the other hand, Tara Sinclair found mixed evidence on the relationship between long-term and short-term components of growth. Both her paper and another by James Morley and Jeremy Piger, found that business cycles are asymmetric – that is, at least some negative shocks tend to be more severe and pronounced than positive, constructive influences on the economy. Sinclair also found that some recessions were associated with long-run losses of output, but she found no correlation between the long-run component of output growth and her measure of sharp temporary contractions. There

was no obvious pattern to which recessions were and were not related to long-run losses. Further, the failure to find a relationship between sharp permanent contractions and output in the long-run could have been a consequence of the particular way she modeled the sharp downturns.

Exploring R&D more deeply, Aghion, Hemous and Kharrougi tested the predictions of their model. First, they identify industries with a high level of intangible capital as ones where R&D is important (since intangible capital includes things like the value of patents, and the knowledge embodied in the firm's workforce). They then note that industries that rely on external funding in good times will be the ones that will be most adversely affected by a tightening of credit standards during a downturn. They therefore predict that output growth will be faster for industries with a high proportion of intangible capital and a high level of reliance on external financing in countries that pursue aggressive fiscal policy for economic stabilization versus those countries that do not. Their findings corroborated their model's predictions.

Rioja, Rios and Valev showed that the financial crisis had a long-lasting effect on investment. One way this may work, they found, is that the damage of a financial crisis is worse in a country that has experienced multiple earlier crises, suggesting that investor confidence is more fragile over time in such countries. Thus, preventing or ameliorating crises would raise confidence over time—or at least damage it less. This may allow capital markets to function better in the future. Their statistical work showed the financial sector, indeed, appears to be less efficient at distributing capital for many years after a crisis.

In another paper presented at the conference, Min Ouyang examined how R&D investment by US industry changes during good versus bad economic times. She found that R&D investment does rise as output rises when the economy is weak—a confirmation of the impact of increasing aggregate demand during recession. . (She adjusted for a tendency for R&D investment to change because output by industry shifts over the course of a business cycle.) But she also found that R&D investment falls as output rises beyond previous levels. Thus, she found that both an economy that runs too hot and one that runs too cold could dampen R&D investment, contradicting in part the view of others.

Perhaps the strongest evidence for the view that recessions can *increase* productivity growth and output in the long run is the high productivity growth in the U.S. during the Great Depression. Previous work by Alexander Field argued that no other period in US history saw as rapid an improvement in the efficient use of productive resources as did this period. In the paper he presented at this conference, he identified three contributors to this good performance. First, manufacturing productivity advanced at as strong a pace as it had prior to the Depression—a fact he attributed to the maturation of a system of private research and development funding. Second, the development of a system of state and federal highways during this period led to the rapid advancement of productivity in transportation and distribution. Finally, in many industries – particularly railroads – the need to contain costs stimulated rapid improvements in the productive use of labor and capital. Field argued that the first two would have been likely to happen without the Depression, but not the third.

William Dickens, in his discussion of Fields' paper, however, pointed out that it is difficult to assess the counter-factual. What would have happened in the absence of

Comment [WTD2]: We should be consistent in capitalizing or not capitalizing Depression. I have set it all to non-caps, but I'm happy if you change it back to caps

Depression? He pointed out that improvements to the road system and the development of private R&D funding both may have occurred still more rapidly and produced even more productivity growth had there been no Depression. While acknowledging that the rapid expansion of the railroads after World War I may have left a great deal of room for improvements in efficiency (this could be an example of overly rapid growth leading to less improvement in productivity as suggested by Ouyang's), Dickens argued that rationalization of the railroads would have been forced on them by the drop in demand brought on by the switch to truck, car and airline transportation that began in the 30s and continued on through the 1960s.

Finally Lawrence Ball and Marc Hofstetter presented a paper looking at the effects of high unemployment on the labor market in less developed nations. They found that high unemployment due to business cycle downturns is typically followed by many years of persistent high unemployment even after GDP has returned to its previous levels. This persistence of unemployment has been found previously in Europe but it has often been blamed on generous unemployment benefits. However, the lack of any comparable unemployment benefits in the nations examined by Ball and Hofstetter belies such an explanation for their findings. They find that unemployment itself seems to beget unemployment, another indication of how recession can have serious long-term impacts.

Conclusions and Policy Implications

The preponderance of evidence from these papers suggested there are significant long-term consequences from recession and banking crises. The papers presented hypotheses about the channels through which these may occur and evidence of the damage done over time. The evidence wasn't entirely uniform. Several papers could find no such relationships and many questions remain open, and require further research.

There was also evidence showing that rapid policy responses did reduce the long-term damage. This was not a primary purpose of our conference. But the previously discussed chapter of the IMF's *World Economic Outlook* found that average medium-run losses of output were smaller in countries that took more aggressive fiscal and monetary policy actions to counter recessionary losses after financial crisis. On the other hand, a secondary finding was that nations that were in a better position to use fiscal and monetary tools –less debt and higher inflation rates -- before crises began fared better than countries that were not.

In general, not nearly enough analysis has been undertaken on this extremely important subject. A new research agenda can clarify some contradictions in the research that we have found, and also explore more deeply the mechanisms by which recession can have long-term damaging consequences.

In particular, we believe that another round of papers should address evidence on whether and how rapid policy responses have reduced such long-term impacts where they have been undertaken,

Based on what was presented at the conference we organized, we believe that there is enough evidence to begin to take the long-run impacts of short-run fluctuations into account in shaping policy. At the very least, predictions that counter-cyclical fiscal policy will necessarily lead to slower growth in the medium to long-run due to crowding out of private investment, as claimed by the CBO and others, must be qualified and

reconsidered. The accumulation of evidence of persistent losses to output and investment after a crisis, and the evidence that prolonged, depressed credit market conditions may interfere with research and development, should be significant inputs in such policy analysis. It may be too early to quantify these effects and to work them into forecasts in a systematic manner, but there is enough evidentiary support for these views to persuade us that standard long-run negative forecasts of the impact of fiscal stimulus may be overly pessimistic.