

Fiscal Multipliers in War and in Peace

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1 Introduction

Should the government attempt to “stimulate” the economy at the onset of recession? The range of opinion on this matter is unfortunately wider than one might hope for. In part, this is because available data is inconclusive; it is subject to different interpretations. As a consequence, opinions are shaped largely by beliefs about how the macroeconomy functions. These beliefs, in turn, are to some extent based on the theories of long-dead economists.¹

Current debate appears to be centered on estimates of the so-called “fiscal multiplier.” The concept of a “multiplier” is rooted in an old theory which asserts that “autonomous” changes in either private or public sector spending determine the level of GDP in the “short-run.” The fiscal multiplier is essentially the answer to the following question: If the government was to take a dollar out of the nation’s pocket and spend it on something the nation produces, by how much would national income rise? Several prominent economists believe that the fiscal multiplier is a number much larger than one; at least, in a time of deep recession.

One of the most vocal proponents of fiscal stimulus is J. Bradford DeLong, of U.C. Berkeley. He believes strongly that fiscal stimulus “works” and has the evidence to prove it. For example, in a recent column, entitled *A Guide for the Perplexed on Great Depression Fiscal Policy*, he writes:²

But when fiscal boost was tried on a large enough scale, it certainly did the job. And it is reasonable to infer (with all the caveats provided by the CBO) that what is true in the very large will be true in the merely large as well. Eugene Fama says that it is theoretically impossible for

¹“The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.” J. M. Keynes

²<http://seekingalpha.com/article/119825-a-guide-for-the-perplexed-on-great-depression-fiscal-policy>

fiscal stimulus to boost output: World War II proves him wrong. Robert Barro says that the multiplier is zero: World War II proves him wrong. Benn Steil says that Jacques Rueff in 1947 conclusively proved that fiscal policy could not boost employment: World War II proves him wrong.

DeLong is not the first person to use wartime evidence to “prove” the existence of a large peacetime fiscal multiplier; and nor will he be the last. What are we to make of such arguments? Does this wartime experience justify such a strongly held belief? What implicit theory is being used to map from wartime experience to peacetime prediction? What peacetime evidence can be brought to bear on this question? Does the concept of a “fiscal multiplier” even make sense? And even if it is conceptually sound, should the desirability of any fiscal stimulus be dictated primarily by the size of its multiplier?

As I have already mentioned, much of what people believe to be true about the desirability of any government policy is shaped by their preferred theory of how a macroeconomy operates. In this essay, I describe two competing theories that may be used to interpret the data. The first is one that is commonly used by proponents of fiscal stimulus. The second is one that takes, I believe, a more agnostic approach. I examine both wartime and peacetime data in the light of these two theories, and critique the manner in which proponents of fiscal stimulus justify their strongly-held beliefs.

2 Model Economies

In this section, I present two highly-simplified models that capture the main elements of two competing theories of resource allocation. The first model is a version of the “Keynesian cross;” commonly taught in undergraduate macroeconomic courses. In this model, there is a representative household that, conditional on a level of income y , desires consumption according to the rule

$$c = \alpha + \beta y \tag{1}$$

where $\alpha > 0$ and $0 < \beta < 1$ are parameters. There is a government that behaves according to no pre-set criterion; it’s behavior is exogenous and is characterized by a demand for output $g \geq 0$. The income-expenditure identity for this economy is $y = c + g$. This identity, together with the behavioral rule in (1), determines an equilibrium level of GDP,

$$y^e = \left(\frac{1}{1 - \beta} \right) (\alpha + g) \tag{2}$$

According to this theory, the business cycle is driven largely by “autonomous” changes in private sector spending, as captured by the parameter α . These sudden changes are brought about by alternating waves of optimism and pessimism

driven by mass psychology (“animal spirits”); as opposed to changing sentiment based on economic fundamentals. It follows that the business cycle is socially undesirable; and that fiscal policy should be used to stabilize the economy (using changes in g to offset changes in α). In this simple model, the fiscal multiplier is $\Delta y^e/\Delta g = 1/(1 - \beta) > 1$.

Implicit in this Keynesian view of the world is that decentralized market economies are prone to “coordination failure.” In the language of game theory, there are multiple equilibria; so that there is no unique outcome associated with economic interaction. To put things another way, the economy does not necessarily possess a “self-correcting” mechanism. A sudden wave of pessimism that depresses private sector spending can become a self-fulfilling prophesy. The coordinated effort of a large centralized agency is needed to “kickstart” the economy out of its doldrums.

Let me now describe a somewhat different view of the world. The approach that I am about to describe focuses on how the physical properties of an environment impinge on desired outcomes; the role of institutions in governing trade is ignored. Society is viewed as solving a resource allocation problem. The the solution to this problem will reflect the upper limit of what may be achievable by any given institution. Even the most efficient institution, whether market or planner, will have to respect and respond to changes in the physical environment. Now let me describe the model.

There is a representative household with preferences defined over three types of goods, labeled c, h and g . Assume that these preferences can be represented by the utility function

$$U(c, h, g) = (1 - \theta) [\ln(c) + \lambda \ln(h)] + \theta \ln(g) \quad (3)$$

where $0 < \theta < 1$ and $\lambda > 0$ are parameters.

The household is endowed with one unit of time; and this time has two competing uses, labeled n and h . Thus, there is a time constraint

$$n + h = 1 \quad (4)$$

Time devoted to h confers a direct utility payoff. Time devoted to n is used to produce goods c and g ; both of which confer a direct utility payoff (so time devoted to n confers an indirect utility payoff via its use as a factor of production). I assume that there is an identical linear technology for producing c and g ; this implies a resource constraint

$$c + g = zn \quad (5)$$

where $z > 0$ is a parameter.

The efficient allocation maximizes (3) subject to constraints (4) and (5). The

solution to this problem is given by

$$\begin{aligned} n^* &= \left[\frac{1}{1+(1-\theta)\lambda} \right] & c^* &= \left[\frac{1-\theta}{1+(1-\theta)\lambda} \right] z \\ h^* &= \left[\frac{(1-\theta)\lambda}{1+(1-\theta)\lambda} \right] & g^* &= \left[\frac{\theta}{1+(1-\theta)\lambda} \right] z \end{aligned} \tag{6}$$

This is an environment for which the second welfare theorem holds; so the efficient allocation can be implemented as a competitive equilibrium. On the other hand, the efficient allocation may also be implemented by a benevolent government planner. The theory is not sufficiently rich to determine institutional structure; but for the present purpose, I see this as an advantage. In particular, I am free to interpret the efficient allocation as the outcome of a “mixed” economy; for example, with (c, n, h) determined in a competitive market, and g determined by a central government (with access to a lump-sum tax instrument).

In what follows, interpret c as private sector purchases and g as government sector purchases of output; and interpret n as the aggregate labor input (so that h represents time spent in home production). The GDP in this economy is then given by $y = zn$; and the income-expenditure identity is given by $y = c + g$.

One advantage of this over the latter approach is that it makes explicit the trade-offs involved in allocating scarce resources across competing uses. These trade-offs are evaluated (by citizens and the government alike) according to a well-defined criterion; i.e., the utility function (social welfare function). Note that the households in my model economy are assumed to value government services; and the government, conscious of this desire, delivers to them an optimal level of government services. This is in contrast to the common approach of treating g as exogenous and assuming that such purchases are generally wasteful.

3 War...

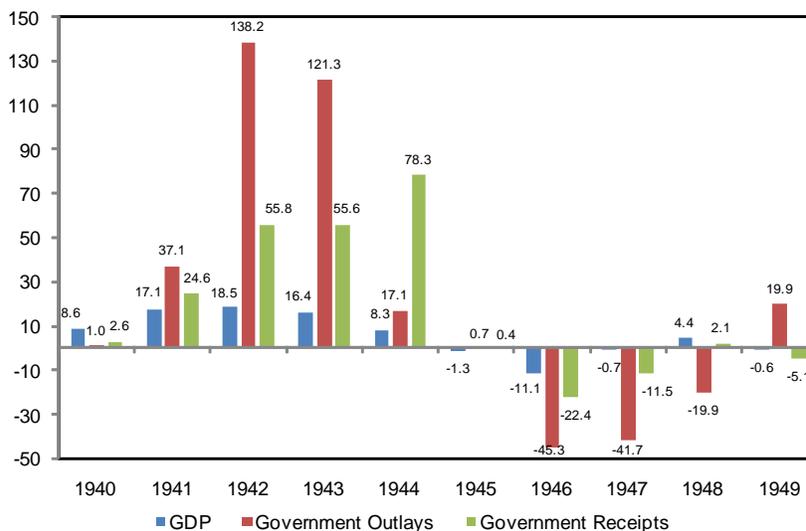
Figure 1 plots the annual percent change in real GDP, real federal outlays, and real federal receipts for the period 1940-49 in the United States. This is the type of evidence that DeLong uses to “prove” his case. Whether this data offers conclusive proof is a matter of debate, but the evidence seems compelling enough. Even the arch-conservative, professor Robert Barro of Harvard, estimates fiscal multipliers in the range of 0.60-0.70 during this wartime episode.³

Viewed through the lens of model (2), the interpretation is straightforward. An exogenous increase in desired government purchases stimulates “aggregate demand;” the increase in demand stimulates employment and incomes, which serves to further increase demand, ultimately culminating in a higher level of GDP.

³<http://online.wsj.com/article/SB10001424052748704471504574440723298786310.html>

FIGURE 1

GDP and Federal Government Outlays and Receipts
Percent Change in Real Values from Previous Year



Source: Historical Statistics of the US/Office of Management and Budget.

Let us examine the consequences of war in the context of model (6). In the present context, interpret g as expenditure on military goods and services. Unlike Barro and others, I do not view changes in g as exogenous events. While the event of war may be exogenous, the resources a society devotes to national security is endogenous. It seems natural in the present context to model the event of war as an exogenous increase in the parameter θ . In words, society now attaches relatively greater utility weight to military goods *vis-à-vis* other types of goods and services.

How does this model economy react to an exogenous increase in θ ? The answer is recorded in (6). As one might expect, the optimal response entails an increase in government purchases. Associated with this increase in g is an increase in output and employment. Private consumption, however, declines. The economic intuition for this reaction is easy to understand. In a time of war, resources need to be diverted away from personal uses to military buildup. This means economizing on personal pleasures like food and leisure; it is a time to work hard to generate the resources needed for national security.

What is the fiscal multiplier in this model? There is a sense in which this question is not even well-defined here. The very idea of a fiscal multiplier assumes a direction of causality from exogenous changes in g to endogenous changes in y . The model here, however, does not assume that g is exoge-

nous. Nevertheless, for a given exogenous change $\Delta\theta$, we can compute the ratio $\Delta y^*/\Delta g^*$. While this turns out to be a number between zero and one (consistent with Barro's estimates), it would be wrong to conclude that “ g caused y ” (or the other way around).

Let us think about this in another way. Imagine that a nation finds its security threatened in some manner and that there is no central government to coordinate national defense. In this case, g must be supplied by the private sector. This might take the form, for example, of voluntary local militias, or private armies contracted by the business sector to defend corporate interests.⁴ Even if the private sector response to the national security threat may be less efficient than a coordinated government action, the basic point remains in place: we would expect to see an increase in output and employment, along with a substitution of output away from personal goods and services toward military expenditure.⁵

In light of this discussion, I think some caution should be exercised in asserting that events like World War II prove anything about whether fiscal policy “works.” Of course, a reasonable case could be made that U.S. fiscal policy during World War II did “work” in the sense that the government helped mobilize resources in a critical area and in a manner consistent with the nation's heightened demand for national security (and its associated willingness to sacrifice personal living standards). But this does not mean that the government's fiscal stimulus “caused” the increase in output and employment (and the decrease in private consumption); instead, it was the war that was responsible. Moreover, we have no *a priori* reason to believe that the optimal reallocation of resources in response to a war is necessarily the same as it is in response to a peacetime recession.

4 ...and Peace

In 1929, the United States entered a deep recession that was to last until the end of 1933. According to popular accounts, this unusually long recession came to an end only when newly elected president FDR implemented his famous “New Deal” policies in 1934. This fiscal stimulus was in marked contrast with the contractionary policies of the outgoing “do nothing” president, Herbert Hoover.⁶

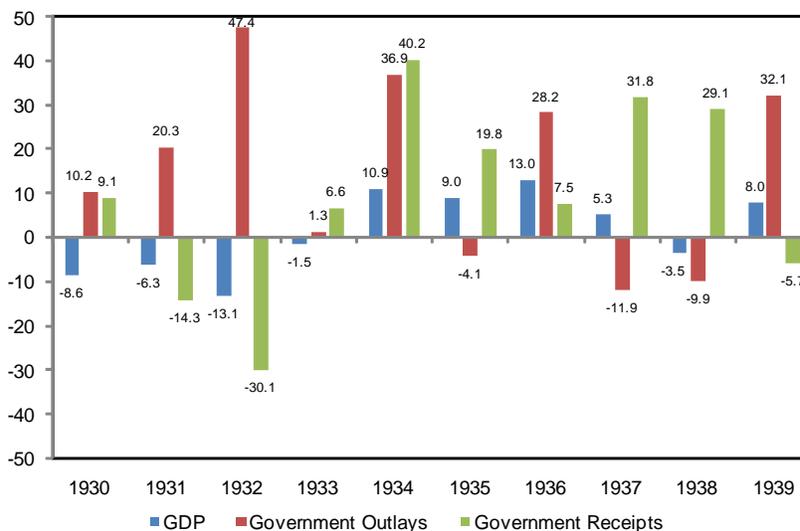
⁴This is not an hypothetical scenario. Private companies operating in Iraq today (and presumably elsewhere) do precisely this.

⁵In a somewhat different context, consider the fact that prior to the founding of central banks, coalitions of private banks regularly banded together in times of financial crisis to perform many operations that today are associated with central banking. This was a common practice, for example, during the U.S. National Banking Era 1863-1914.

⁶Herbert Hoover, a man of humble origins, rose to become the world's preeminent mining engineer. At the start of WW I, he organized the repatriation of 120,000 Americans stranded in Europe through a coordinated volunteer effort. Based on this same principle of volunteerism, he subsequently organized the Belgian relief effort, literally saving millions of Europeans from wartime starvation. After the war, as a member of the Supreme Economic Council and

FIGURE 2

GDP and Federal Government Outlays and Receipts
Percent Change in Real Values from Previous Year



Source: Historical Statistics of the US/Office of Management and Budget.

The evidence recorded in Figure 2 does not square with the folklore surrounding Hoover's presidency. There was in fact a massive growth in (deficit-financed) federal government outlays in the years 1930-32. I am not sure how the multiplier theory can be consistent with this evidence; except to say that things would have been much worse absent the fiscal stimulus. It is true that the GDP experienced a rapid recovery under FDR's administration (interrupted briefly by recession in 1938); but whether this was because-or in spite- of the continued growth in government spending remains open to debate.

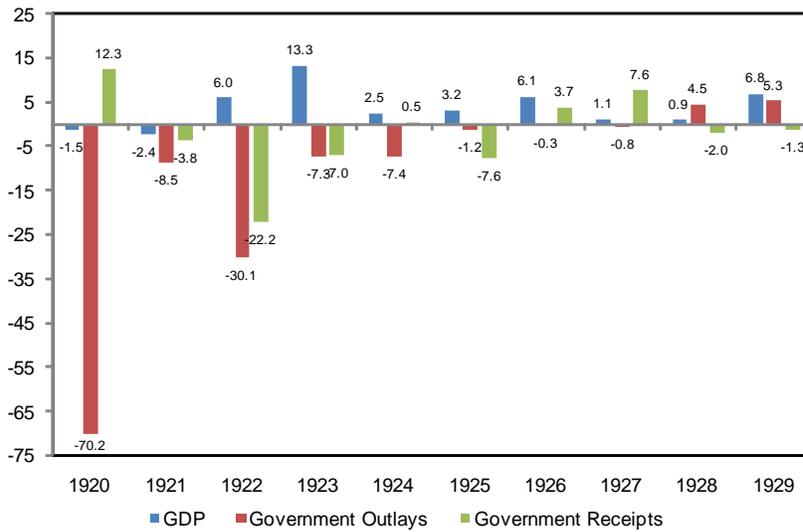
head of the American Relief Administration, Hoover organized shipments of food for millions of starving people in Central Europe. He used a newly formed Quaker organization, the American Friends Service Committee, to carry out much of the logistical work in Europe. This was followed by a highly successful stint as the U.S. Secretary Commerce from 1920-28. How this man of immense energy and activist tendencies became tagged as the "do nothing" president remains a mystery. Consider, for example, the following quote by one of FDR's early advisors (Raymond Moley, writing in Newsweek, June 14, 1948):

"When we all burst into Washington...we found every essential idea (of the New Deal) enacted in the 100-day Congress in the Hoover administration itself. The essentials of the NRA, the PWA, the emergency relief setup were all there. Even the AAA was known to the Department of Agriculture. Only the TVA and the Securities Act was drawn from other sources. The RFC, probably the greatest recovery agency, was of course a Hoover measure, passed long before the inauguration."

The task of identifying the impact of fiscal stimulus is complicated, in part, by the fact that economies have a propensity to recover “on their own” from recession. Consider, for example, Figure 3; which displays the evidence for the United States from 1920-29. The figure reveals a significant recession in 1920-21, followed by a strong recovery throughout most of the “roaring 20’s.” Two things are worthy of note. First, as a share of GDP, the federal government was much smaller at that time than it is today. Second, the growth in federal government outlays was significantly contractionary over most of this episode (save for the two years leading up to the Great Depression).

FIGURE 3

GDP and Federal Government Outlays and Receipts
Percent Change in Real Values from Previous Year



Source: Historical Statistics of the US/Office of Management and Budget.

What does model (6) have to say about how government spending should vary with the cycle? One characteristic of the business cycle is that the returns (either actual or expected) to broad classes of economic activity vary over time. The reasons for why this is so are not fully understood; but on the other hand, we have no *a priori* reason to expect these returns to remain constant. In the context of our model, we can interpret exogenous changes in the productivity parameter z as reflecting this phenomenon. In this case, the optimal allocation (6) suggests that government spending should be procyclical. The basic idea is that expenditures across all classes of goods should be sensitive to changes in income (brought about here by changes in productivity). A productivity boom should be met with rising government expenditures to meet the rising demand for g . This same logic implies that the government should tighten its belt in

recession in concert with other sectors of the economy.⁷

It is important to understand that this view of the world does not necessarily preclude a role for government stabilization policy. One might, for example, take the view that a negative productivity shock is the result of a private sector banking crisis; and that government intervention in the banking sector is necessary. But as long as an added government expenditure on goods and services has no positive effect on productivity, our model suggests that the appropriate government intervention should not take the form of a fiscal stimulus. While a fiscal stimulus (maintaining or increasing g during recession) may stimulate output and employment (while depressing private consumption), economic welfare for the average household is reduced. It makes no sense to proclaim that fiscal stimulus “works” based solely on the fact that it mitigates a decline in GDP.

5 Conclusion

Proponents of fiscal stimulus believe that such policies “work” in recession. To some, like Brad DeLong, our experience during World War II proves that fiscal stimulus works; and that what works in war can work in peace. What peacetime evidence does he bring to bear in support of his claims? In a column entitled *How Spending Stimulates*, he offers the following three examples:⁸

1. The 2003-2005 housing boom, facilitated by loose monetary policy;
2. The 1996-1998 internet boom;
3. The post 1982 boom following the easing of monetary policy, the Reagan tax-cuts, and increase in military expenditure.

He goes on to write:

These are just three examples of a general principle: each major business-cycle expansion we have seen has been driven by a leading wave of spending—by some group that became enthusiastic about their prospects and decided to greatly increase its spending. And that pulled employment and production up.

That the 1982 boom was fueled by an increase in military expenditure seems highly doubtful; but it is nevertheless interesting to note how he evidently views the peacetime buildup in armaments a socially desirable allocation of resources. Even more interesting is that his first two examples have nothing to do with fiscal

⁷In a dynamic model, the theory suggests that government purchases (and private consumption expenditures) should be smoothed over the cycle (but remain procyclical).

⁸http://www.theweek.com/article/ndex/93614/How_spending_stimulates

policy. The internet boom, evidently, had nothing to do with technology (an increase in z in model (6)). Instead, it was driven entirely by an “autonomous” increase in spending (an increase in α in model (2)).⁹

Proponents of fiscal stimulus are fond of highlighting wartime evidence and downplaying the peacetime evidence. I am tempted to conclude that they do so on the basis of a strongly held prior belief that the main workings of an economy are captured well by a model like (2). With such a firmly held belief, the peacetime evidence must either be ignored, or explained away in a less-than-convincing manner.

Japan’s seemingly ineffectual fiscal stimulus throughout much of its “lost decade,” for example, is interpreted by professor Paul Krugman of M.I.T. as evidence that such policies only work when they are done “properly.” Evidently, there was only one year in which this was the case for Japan.¹⁰ In a recent I.M.F. publication entitled *Fiscal Policy for the Crisis*, professor Olivier Blanchard of M.I.T. and his coauthors summarize the lessons learned about the effects of fiscal stimulus during past financial crises.¹¹ They argue that a successful fiscal stimulus should satisfy the following properties; i.e., it should be [1] timely, [2] large, [3] lasting, [4] diversified, [5] contingent, [6] collective, and [7] sustainable. They apparently arrive at this conclusion because of the little evidence in support of the notion that past fiscal stimuli ever worked in peacetime financial crises. Ergo, one or more of these seven conditions must have been violated. All of this may be true, of course; but I think an agnostic may be forgiven for not being fully persuaded.

A severe recession is typically characterized by a significant, though not disastrous, decline in average income. The focus on average income (GDP) hides the fact that some sectors of the economy are typically affected much more severely than others. While model (6) above abstracts from these distributional considerations, it is easy to incorporate them. A model extended in this manner would not affect the main conclusion concerning the desirability of fiscal stimulus in a recession. At the same time, the model would imply a positive role for redistribution policy that effectively insures unlucky households. The basic message is one of sharing the hardship of recession; it is desirable to have rich Peter pay poor Paul.

The standard “multiplier model” (2), by way of contrast, delivers a very different message. It is notable that this model too abstracts from distributional considerations; i.e., the imagined welfare gains from a fiscal stimulus do not come from improved distributional consequences. If the fiscal multiplier is greater than one (as is commonly asserted), then every additional dollar ac-

⁹The fallacy in this way of thinking as far as I am concerned is as follows. Private sector “enthusiasm” during a boom is likely a symptom of more promising economic fundamentals; rather than the cause of the boom itself. That is, the direction of causality runs from fundamentals to enthusiasm; not the other way around.

¹⁰<http://krugman.blogs.nytimes.com/2008/12/01/people-should-be-reading-adam-posen/>

¹¹<http://www.imf.org/external/pubs/ft/spn/2008/spn0801.pdf>

quired from the private sector and spent on government purchases (somehow) generates *more* than a dollar in average income. To put things another way, there is no need to share the hardship of recession; a fiscal stimulus can, in principle, make *everybody* better off. Such a message has an obvious political appeal; which perhaps explains its perennial popularity in policy circles. I am inclined to conclude, however, that the available evidence—and available theories to interpret such evidence—do not at this time give us the luxury of holding strongly held beliefs one way or the other.