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New Brookings Study:
THE ECONOMIC EFFECTS OF LONG-TERM FISCAL DISCIPLINE

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MR. WILLIAM G. GALE: The purpose of today's meeting is to present a paper that Peter Orszag and I have just completed on The Economic Effects of Long-Term Fiscal Discipline.

I'll present the first half the paper, probably talk 15-20 minutes. Peter will present the second half of the paper. Then we'll open it up to questions and we'll go presumably until the questions are done unless you have an enormous number of questions.

The last two years have seen a marked deterioration in the long-term federal budget outlook. The projected ratio of net debt to GDP for 2011 has gone up by one-third of GDP since January 2001, since President Bush took office. That's roughly a $5 trillion increase in net debt projected for 2011 in the last two years.

Some people have raised concerns that this change in fiscal status is irresponsible, that it reduces future income, that it raises current interest rates. The Bush Administration is notably not among those people, and in particular the Chairman of the Council of Economic Advisers, Glenn Hubbard, recently stated, "I don't buy that there's a link between swings in the budget deficit of the size that we see in the United States and interest rates. There's just no evidence."

This is not an isolated comment on Hubbard's part. In a series of speeches, articles and interviews he's ridiculed the notion that deficits matter. He's called it Rubenomics, called it nonsense, and so on. So this is part of what appears to be a pretty concerted Administration effort to downplay the cost of budget deficits, and in particular to try to justify a new round of tax cuts, and looking backwards, to justify the previous round of tax cuts as well as arguing that the change in fiscal status is not a concern.

Let's go to the next slide.

The Administration is not the only one to have an opinion on budget deficits and interest rates, and I want to emphasize that although this can be presented in a partisan way, it is not fundamentally a partisan issue. And on this slide, which is taken from Box 3 in the paper that you have, we list some of the prominent organizations and individuals that have argued that deficits matter for interest rates and for economic growth.

The quotes are actually in the Box 3 in the paper. I'll just list or mention some of these and highlight some of these.

First of all every CEA since the Reagan Administration, including the first Bush Administration and the Clinton Administration has argued the opposite of what Hubbard claims. Every CEA since Reagan has argued that deficits do affect interest rates, that credible reduction in deficits reduces interest rates. So this is certainly not a partisan issue as far as prior CEAs are concerned.

The Chairman of the Federal Reserve Board, the Congressional Budget Office, the General

Accounting Office, have all stated on numerous occasions that deficits raise interest rates so it's not a partisan issue as far as government agencies are concerned. And in the academic world Professor Martin Feldstein at Harvard University, a prominent Republican economist; Gregory Mankiw at Harvard, who's often mentioned as a possibility for the CEA; John Taylor at Stanford University who is currently a Treasury official -- all of them have written in no uncertain terms that deficits affect interest rates, that they reduce prospects for long-term growth.

So this is not a bunch of namby-pamby liberals we've got on this page. These are very solid, credentialed Republican or conservative economists. So this is not a partisan issue. This is an issue on which there's a long trail of evidence and we will present a variety of types of evidence in just a minute.

In terms of what we want to do in this paper, essentially we're looking at the relations between long-term fiscal discipline and economic activity. We want to emphasize two main results.

The first result is that the effect of deficits on interest rates is a little bit of a sideshow. Just a little bit. It's important, but the main point is that budget deficits dissipate national savings, and by doing that they reduce future national income. When people talk about mortgaging our future what they have in mind is when the budget deficit gets bigger the debt payments that we have to make in the future rise and that puts a burden on future income.

That effect is true regardless of whether budget deficits affect interest rates. The link between budget deficits now and lower national income in the future is a matter basic economics that occurs regardless of whether interest rates go up or not.

The second point is that from a variety of perspectives it is nevertheless true, or appears to be true, that higher budget deficits do raise interest rates. Let me specify right now to be clear about that, higher *expected future* budget deficits raise interest rates. Financial markets are forward-looking so it's the prospect of future deficits that raise current interest rates.

So in terms of quantitative results, based on our review of a variety of literatures, we think that a long-term sustained reduction in the projected budget surplus of one percent of GDP will raise long-term interest rates by about 50 basis points in the first year and 100 basis points or more after ten years.

Before I turn to that analysis let me just emphasize, this is a paper that focuses on the long-term effects of budget deficits. In a slowdown or a recession the short-term effect of a temporary deficit can have different effects than the long-term effects of sustained budget deficits. So we're not talking here about tax stimulus or spending stimulus. We're talking about long-term impacts on economic activity.

So let's first turn to some very simple macro-accounting identities. Accounting is always a problem, it's boring, but keeping a couple of key relationships in mind makes everything work a lot better.

One relationship is that national saving is just public saving plus private saving. Public saving occurs when governments run a surplus, whether it's the federal government, the state governments or

local governments. Public saving is negative if governments run budget deficits.

Private saving occurs when the private sector consumes less than its income. That's one link. National saving equals public plus private.

The second link is that national saving has to equal domestic investment and what's called net foreign investment. That is, saving has to be used somehow. Domestic investment is simply investment that takes place in the United States. Net foreign investment is how much we invest overseas less how much they invest here. So if we invest more overseas, net foreign investment goes up. If they invest more here, net foreign investment goes down.

So the implications of the identities are pretty straightforward. An increase in the budget deficit reduces public savings by definition. Unless private saving responds 100 percent of the way to offset that reduction in public saving, then there's a reduction in national saving.

So for example if the budget surplus over the next ten years goes down by a trillion dollars, national saving falls, unless private saving rises by a trillion dollars over that period.

Most estimates, in fact the overwhelming majority of estimates in the economic literature suggest that the private saving offset is nowhere near 100 percent. The range of estimates is between 20 and 50 percent. I wrote a paper recently where I found that 31 percent of the decline in public savings due to the 2001 tax cut would show up as an increase in private savings.

So think of a range of 20 to 50 percent, maybe 25 to 30 is right where the majority of the estimates are.

So point one is that an increase in the budget deficit reduces national saving. The only exception to that is what's called Ricardian Equivalence which is a view that people look ahead and, that people are saving more now because of the tax cut because they know the tax cut's going to impose higher tax liabilities on their children. I don't know anyone that behaves like that. I don't know many people that look beyond the next year, much less worry about the tax liabilities that their children face. And econometric evidence overwhelmingly rejects the notion of Ricardian Equivalence.

So point one is the increase in the budget deficit reduces national saving.

Point two, the reduction in national saving must correspond to a reduction in national investment.

If we can go back to the previous slide for a second.

We're calling, for shorthand purposes, domestic investment plus net foreign investment, we're calling that sum national investment. That's sort of in quotes. But since national saving has to equal national investment, a decline in national saving has to show up as a decline in national investment.

The third point then is that the decline in national investment reduces future national income

because it reduces the capital stock owned by Americans. Therefore it reduces future national income.

So that's the link between budget deficits and national income. Budget deficit reduces national saving, the lower national saving turns into lower national investment, the lower national investment turns into lower future national income.

Next slide.

All of that is pretty straightforward, and that's the effect of budget deficits on national income.

The second issue is, given that you've got this reduction in national saving due to the budget deficit, how does saving and investment come back into line? There's two ways to do that. One is you can get capital inflows from overseas, and if capital inflows finance 100 percent of the difference between saving and investment then there's no change in interest rates.

The other way to do it is to have interest rates rise, and what that does is increases saving a little bit, reduces investment a little bit, and gets them back equal to each other.

The key point though is regardless of which mechanism occurs, future national income falls. In the case of interest rates going up, future national income falls because domestic investment falls. In the case of capital inflows, future national income falls because net foreign investment falls, and so our net capital income falls.

The next slide shows this in sort of graphical form. Just to review this, and this should be in your handout and it's Figure 1 in the paper. Just to review. There's a budget deficit. If private saving rises by 100 percent of the change in the deficit, then there's no effect. National income stays the same, interest rates stay the same, future national income stays the same. That's the channel that I've argued that there's abundant econometric evidence against, and the evidence suggests that between 20 and 50 percent, maybe 25 or 30 percent of the increase in the deficit is offset by an increase in private savings.

So on this channel on the right, once you know that private savings do not respond to 100 percent in the reduction in the deficit, you know that national savings falls and you know that future national income falls.

The only question left is how are saving and investment equated, again, and that's point C, either it's all financed by international capital flows or less than all of it is financed by international capital flows.

The evidence suggests that between 25 and 40 percent of that decline in national saving is finance by international capital flows. Then we move to Part C which is the rest of it, between 60 and 75 percent of the adjustment is due to changes in the interest rate.

So this is the basic mechanism. Two important points. One is the deficit reduces future national income as long as there's not 100 percent private saving offset; and second, it raises interest rates as

long as there's not 100 percent international capital flow offset. Those are very standard assumptions. My understanding is that even the Bush CEA uses them to some extent.

Let's move to the next slide.

I want to give you an example of the impact of this on future income. We're basically working through Step A in the chart here.

Between January 2001 and August 2002 the projected ratio of net debt to GDP in 2011 rose by one-third of GDP. Again, that's a little over $5 trillion in that.

Let's say that 25 percent of that decline is offset by a rise in private saving. That means that the net assets owned by Americans in 2011 falls by 25 percent of GDP. If the net rate of return on capital is six percent, which is lower than some estimates, then GNP in 2012 falls by 1.5 percent.

That translates into about $1500 per year per household in the United States. So that's a significant effect and that's the pure effect of the change in the fiscal circumstance that we've had since January 2001.

So far all we've talked about is the budget deficit or the budget surplus and changes in it, without thinking about how the money is actually used.

Obviously if the government cuts taxes that increases the budget deficit, but it also gives people incentives to work more. A full analysis of budget deficits needs to look not just at the pure effect of the change in the deficit, but also in the effect of what the change in the deficit is used for.

So up until now I've just been talking about the pure effects of deficits. What I want to do now is add in the fact that deficits get used for some purpose. The example I want to use is the 2001 tax cut.

The 2001 tax raises future national income by reducing marginal tax rates on labor supply, human capital, private saving and investment. And when people talk about taxes and economic growth, that's the part that you always hear about. That's where the patriotic fervor about working harder and entrepreneurial activity and all that comes from.

But what that leaves out is the second part. The second part is that the increase in the budget deficit has a negative effect on future national income by reducing the capital stock owned by Americans through the channels that we talked about before, and by raising interest rates.

So for example the 2001 tax cut rates for entrepreneurs, but it increases the budget deficit and that raises interest rates. So the net cost of capital, the net investment cost for entrepreneurs, by my calculations, actually went up because of the 2001 tax cut, because the increase in interest rates dominates the reduction in tax rates when you determine the cost of capital.

When you try to figure out the effects of policies that affect the budget deficit, you need to look

at both the positive effects and the negative effects. The negative effects are the ones we just discussed before.

It turns out there have been several estimates of the net effects of the tax cut. I won't go through them, but all of them come to the conclusion that (a), the impact on growth is tiny and possibly negative; and (b) the impact depends crucially on the national saving part. To put it differently, the reduction in national saving due to the tax cut is a very important component of the impact of the tax cut on economic activity.

That sort of summarizes the first part of this talk which is the relation between deficits and national income.

What I want to turn to is a brief introduction to the second part of the talk and then turn it over to Peter which is on how future budget deficits affect current interest rates.

There's two things to think about here. One is because financial markets are forward looking, this year's deficit is not likely to have that much effect on interest rates. But a sustained change in the deficit or a sustained change in the surplus over time is much more likely to have an effect on current interest rates because markets are looking ahead and trying to anticipate what conditions will be in the future.

So the first thing is that the right way to do this is to look at expected future deficits and look back on their impact on current interest rates. It's not particularly enlightening to look at the effect of past deficits on current interest rates or even current deficits on current interest rates.

The second issue is very important too. That is lots of things affect interest rates. So you'll hear people say, well deficits and interest rates don't move in lock-step. Therefore, deficits don't affect interest rates. The first part of that is right. They don't move in lock-step. Lots of things affect interest rates. When the Federal Reserve reduces the federal funds rate by hundreds of basis points, that affects interest rates regardless of what the deficit is doing. But the fact that there are other determinants of interest rates besides deficits still leaves room for deficits to affect interest rates. So we're not trying to explain all interest rate variations. We're trying to say that there is an effect of changes in deficits on interest rates. And oftentimes a good way to see that is to look at the differential between current short-term rates and current long-term rates. Because an increase in the projected budget deficit should affect long-term rates relative to short-term rates.

The next two graphs will show you why this is important.

This graph shows nominal and real interest rates over the last 40 years, the red dotted line, is the nominal interest rate. Long-term nominal interest rates right now are very low relative to historical patterns. So people who think that deficits don't affect interest rates look at that and say well gee, how can deficits affect interest rates if everybody's refinancing their mortgage right now? The answer is two-fold.

First you need to look at real interest rates. One of the reasons nominal interest rates are low right now is that inflation is low. So the blue line shows you real interest rates and you can see they aren't at all-time highs but they're certainly not at all-time lows either. They're about their average over the period right now.

So one is, you want to look at real interest rates.

The second issue is again, you want to look at the difference between short-term and long-term interest rates.

The Fed has complete control over the federal funds rate. They can set it wherever it wants. So if the Fed is pushing it down, it's basically going to push all short-term interest rates down. But if the deficit is going to have an effect or if the deficit's having an effect, you should see an increase in the differential between short-term and long-term rates since January 2001. That's exactly what you see on this graph. This graph goes from 1992 to the current period and it shows the differential between the ten-year rate and the three-month rate.

Two things are notable about this. One is that surpluses rose over the course of the 1990s. You see this differential generally falling. It's not exact, they don't move in lock-step, again, because lots of things affect interest rates. But the general pattern, is the differential coming down as surpluses rose and then the minimum of that curve occurs in January 2001, and in the following year the differential between those two rates rose by over 400 basis points.

So in the year from January 2001 to 2002, the differential between the ten-year rate and the three-month rate rose by 400 basis points. That's what you'd be looking for if you think that deterioration in fiscal circumstances affects interest rates. It's come down since then, obviously, but again, the issue is not that every up-tick and down-tick in interest rates is due to deficits. The issue is that over the long haul significant changes in fiscal positions show up as significant differences in short-term versus long-term rates.

By typical Washington accounting my 15 minutes went to 25. Now Peter's going to give you a real 15 minutes on the evidence on deficits and interest rates.

MR. PETER R. ORSZAG: I get to try to make up the time deficit.

Recently there have been many assertions made about the connection between deficits and interest rates. The Wall Street Journal, for example, has claimed that the argument that deficits affect interest rates is fiction and that there was no empirical evidence to support it when Mr. Rubin, the Treasury Secretary in the Clinton Administration, trotted it out and there still isn't.

Similarly, Kevin Hassett an economist at the American Enterprise Institute has argued that almost every recent study has failed to find any link between deficits and interest rates.

On the other hand, as Bill had mentioned, there is a substantial amount of support, and I want to emphasize that this is not a partisan issue, a substantial amount of support even from conservative economists for the notion that deficits affect interest rates.

John Taylor who is currently the Under Secretary of the Treasury for International Affairs writing that lower budget deficits will lower real interest rates. And Greg Mankin who is mentioned as possibility for the Chairmanship of the CEA writing that deficits also raise interest rates.

I think it's important, though, to move beyond proof by assertion and the kind of he said/she said kind of debate and actually look at the facts because the facts are what is going to tell us what is true and what's not.

There's four types of evidence on the relationship between deficits and interest rates that one can look at. The first type of evidence, going to the next slide, just plots projected deficits against the interest rate spread. This is showing you the projected deficit from the Congressional Budget Office. This is for the past 20 years 1982 to 2002, relative to interest rates. What you see is that larger projected deficits are associated with larger interest rates or higher interest rates. This is not conclusive proof but it's at least quite suggestive.

It's also the case, going to the next slide, that if you look from one projection to the next, that increases in projected deficits are associated with increases in interest rates.
Again, not conclusive proof but quite suggestive.

Another approach that people have taken, or economists have taken, is to apply sort of simple economic models. I said back of the envelope because a lot of these things can literally be done on the back of an envelope.

For example, the Council of Economic Advisers in 1994 applied something called the Solow model developed by Nobel Prize winning economist Robert Solow, and the results from that exercise suggest that the deterioration that we have witnessed in the long-term budget outlook since January 2001 would raise real interest rates in the long term by more than 200 basis points.

Similarly, Ball and Mankin applied a somewhat different methodology. Their results, applied to the current deterioration, would suggest that real interest rates in the long term would go up by 112 basis points. And also, let me just be clear about what a basis point is. A hundred basis points means one percentage point, so 100 basis point increase is like moving from six percent to seven percent.

Interestingly, despite his assertions that there is no evidence that deficits affect interest rates, Glenn Hubbard, the current Chairman of the Council of Economics Advisers has actually written or stated that repealing last year's tax cut would reduce interest rates by 35 basis points if the repeal of the tax cut reduced the projected budget deficit.

I want to just emphasize that Mr. Hubbard uses a methodology that's actually basically the same as what Ball and Mankin do, but he focuses only on the tax cut not the entire fiscal deterioration

including the spending side and some technical measures, and he also assumes that the tax cut would actually sunset in 2010 so repealing it doesn't save very much money because you assume that the whole thing would go away in 2010 anyway.

The benefit of this kind of approach is that it's simple and transparent. The cost is that it basically ignores the important factor that Bill Gale mentioned which is the existence of forward-looking financial markets. Financial markets are not figuring out what interest rates would be just based on today's deficit, but that's what these models basically assume. They do not take into account expected future deficits and therefore they underestimate the effect of permanent tax changes or spending changes on interest rates.

Moving to a somewhat more sophisticated setting, another type of evidence comes from the large-scale macroeconometric models that are used by the Federal Reserve and the Congressional Budget Office and others to make their macroeconomic projections and to do analysis of macroeconomic policies.

One of the great things about these models is they pay a lot of attention to trying to explain the level of interest rates. They try to get the level of interest rate in the model to be consistent with what you observe in the real world, and after doing that, after paying so much attention to trying to explain the level of interest rates, you can then change the path of the deficit that's projected and see what happens to the interest rates in those models.

Table 1 of our paper that you have gives you the results for ten different macroeconometric models that are in widespread use by major government agencies and commercial forecasting firms. I've just picked out a selective sub-sample that is fairly representative of the results in this chart.

What you see if you focus on the second column from the right is that if we increase the budget deficit by one percent of GDP the estimates are suggesting that in the long term or after ten years interest rates would go up by 2 basis points according to the Congressional Budget Office, more than 200 basis points according to the commercial forecasting firm DRI, something like 140 according to another commercial forecasting firm, MacroAdvisers, and then according to the Federal Reserve model, between 20 and 70 depending on the form of the increase in the deficit. But all of them are finding quite significant effects.

In fact if you average across all of the models what you find is that an increase in the deficit of one percent of GDP would cause an increase in interest rates of 50 basis points after one year and 100 basis points after ten years.

That's averaging across all of the models and averaging across tax cuts and spending increases.

If you look just at the models that have examined tax cuts specifically and you even include the scenarios in which a temporary or short-term tax cut, say for five or ten years, is balanced by increased taxes over the longer term to make sure that the debt doesn't explode which will tend to produce a smaller effect on interest rates, and average across just those tax scenarios, ten-year interest rates would

rise by about 40 basis points after one year and about 60 after ten years.

To get some sense of the orders of magnitude here, let's take that 60 basis point estimate for tax cuts of one percent of GDP. And I would just again emphasize, this is a very conservative number because it includes models that balance a short-term tax cut with long-term tax increases, but let's just take it for what it is anyway.

We can look at repeal of the sunset of last year's tax cut. If we repeal the 2010 sunset on last year's tax cut, the estimates suggest that the cost of reduction in revenue would amount to between 1.5 and 1.9 percent of GDP with that range depending on interaction with the individual alternative minimum tax.

So if we have 60 basis points for one percent of GDP, then we need to scale it up for 1.5 to 1.9 percent and you get an estimate for the effect of repealing the sunset on long-term interest rates of between 90 and 115 basis points. Let's call it a round number, 100 basis points.

To get a sense of what that means for American families, an increase of 100 basis points on a 30-year, $200,000 home mortgage would increase the mortgage payment per year by about $1500.

So we're again not talking about trivial amounts here.

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In addition to the evidence from the structural or macroeconomic models, we can also look at the empirical econometric literature which tries to examine the connection between deficits and interest rates in the historical data.

This is very difficult to do because there are lots of things moving around that are affecting interest rates and deficits at the same time and you kind of have to tease out the connections between the two after controlling for everything else that could be affecting the relationship.

As Bill has noted and as I'm going to emphasize in a moment, it's very important in this kind of exercise to take expectations or projected deficits into account, and that's something that many papers have not done.

So what we do is we update a survey that was conducted in 1991 with papers that have been written on this general topic since then and we find 58 papers as a whole.

If you look at the papers as a whole without taking into account whether they incorporate projected or expected deficits in the analysis, you find 28 having a positive significant effect from deficits on interest rates; 11 finding mixed effects, by which we mean sometimes it's significant and sometimes it's not; and 19 finding an insignificant effect. So again, not taking into account projected deficits, you could say taken as a whole this is sort of mixed evidence for the notion that deficits affect interest rates.

I'd note that's not "no" evidence. That's mixed evidence. So even including the mis-specified studies that don't take into account expectations, at best you can say that there's mixed evidence. The statement that there's no evidence that deficits affect interest rates is simply inaccurate.

Going back to the previous slide for a second the literature surveys reflect the sort of fact that taken as a whole the studies are all over the map. With Elmendorf and Mankin writing that the literature is just not very informative because it is all over the map. And Bernheim writing that it is easy to cite a large number of studies that support any conceivable position on this issue.

The fundamental thing that I want to emphasize though is you absolutely have to take into account projected deficits in doing this kind of analysis. What we know is current long-term interest rates are not determined by this year's deficit alone. They reflect expected future deficits. Ignoring the effect of future deficits on interest rates would be like claiming that a firm stock price would not react to the announcement that it's about to pay $10 billion in liabilities the next day. You would just ignore that. You would then look the next day when it actually paid that amount. Obviously the stock price is going to react when that announcement is made.

Similarly when there's an expectation that the deficit next year or the year thereafter or thereafter is going to be much larger, you'd expect that to affect interest rates today, and looking just at the current deficit is going to be misleading.

None other than Marty Feldstein, Professor at Harvard, chairman of the Council of Economic Advisers under President Reagan, stated, "It is wrong to relate the rate of interest to the concurrent budget deficit without taking into account the anticipated future deficit."

A large share of the studies that have been conducted to date commit this error. They do not take into account anticipated future deficits.

When you look solely at the ones that do take into account projected deficits, whether they use CBO forecasts or DRI forecasts or any other measure of projected deficits, the picture changes substantially. What this table, which is Table 2 in your paper shows is that if you take the studies and you break them down by whether they include projected deficits or not, you find that of the 17 studies that did include some measure of projected deficits -- DRI forecasts, CBO forecasts, what have you, 12 find a positive effect and statistically significant; four find a mixed effect, and that's a generous interpretation of mixed. Actually many of them should be over in the positive side, but we wanted to err on the side of being conservative on this fact; and then only one finds an insignificant effect.

The preponderance of evidence suggests that when you take projected deficits into account, deficits affect interest rates, and this is striking because all the other things that are going on that affect both deficits and interest rates would make you think that you might not be able to tease out statistically a connection, and yet almost three-quarters of the studies that have properly taken expectations into account do find an effect.

Let me just give you a couple of examples of these studies. Doug Elmendorf, an economist at

the Federal Reserve, used DRI projected deficits, those deficits projected by the commercial forecasting firm DRI. He found that a one percent of GNP increase in that projected deficit raised interest rates by a little over 40 basis points. Canzoneri, Cumby, and Diba, three economists at Georgetown, use CBO projected deficits. They find that an increase of one percent of GDP raises long-term interest rates by 53 to 60 basis points.

I'd note, theses results are not compatible to the results from the structural macroeconomic models after one year, and when we said about 50 basis points after one year, that's sort of comparable to these numbers and they're in the same range, which is reassuring.

I would note Marty Feldstein's own estimate using projected deficits suggests much larger effects. So the numbers that we're using are in a sense in between Mr. Hubbard who suggests very small effects, and Mr. Feldstein who suggests every large effects.

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Turning to our conclusions, studies that incorporate some notion of deficit projections into their analysis find significant connections between deficits and interest rates. Of 17 papers that do this, 12 find statistically significant linkages, only one finds an insignificant effect. And we would just underscore, we basically think that the rest of the papers should be discounted because they don't take into account projections. But even if you don't discount them the story there is at best mixed. It's not "no" evidence.

Furthermore, the macroeconometric models used by the Federal Reserve, the CBO and others find substantial effects from deficits on interest rates, and a reasonable estimate is that one percent of GDP increase in the deficit raises long-term rates by 50 basis points after one year, and 100 basis points after ten years.

Given all of this evidence -- the scatter plots, the results from the simple models like the Solow model, the results from the properly specified econometric studies that incorporate projected deficits and the evidence from the structural macroeconomic models, we think the burden of proof should be on those who claim that there is no evidence that deficits affect interest rates. We think that's a quite compelling compilation of evidence.

I do want to return though to the point that Bill Gale made, which is in a sense this entire interest rate debate is at least partially a red herring. It's focused on the Point C (in Figure 1), whether the interest rate rises or not. That's an important question.

The real fundamental question is up at A. Do deficits reduce national saving? And almost everyone agrees that they do. And regardless of whether econometricians can pick up an effect on interest rates down at C, the fact that up at A deficits are reducing national savings means that they are necessarily reducing future national income.

So just to again emphasize that point, unless they are fully offset by increased private savings, and that's Point A, deficits will reduce national savings. The reduction in national savings just be – by an accounting identity, this is not a matter of dispute -- must manifest itself in some combination of reduced

domestic investment or increased borrowing from abroad. And either way -- all else equal -- either through reduced domestic investment or increased borrowing from abroad, budget deficits reduce future national income. And that reduction in future national income, not the debate over whether interest rates go up or not immediately, is the true cost of a failure of fiscal discipline in the long term.

I think now we will take questions.

QUESTION: I have a quick comment and a question.

The comment is that if there's no relationship between two variables, you'd expect to find an equal number of negative results that are significant as positive results that are significant. So the very fact that you're testing between zero and positive and there's no evidence of negative effects, suggests that the preponderance is towards the positive effects.

The question is, what is the Administration's explanation for the change in the term structure of interest rates that Bill Gale showed towards the end of his talk?

MR. ORSZAG: And if I could comment on that. I think what they would argue is that the term structure itself is affected by many things. Not just the projected deficit but also importantly the state of the business cycle, and you do normally see the term structure grow steeper when you enter a period of economic sluggishness as we're now in.

I think the point of Bill's chart though was just to say, you can debate how much is due to economic sluggishness and how much is due to the lack of fiscal discipline, but it's not possible to just dismiss the argument that fiscal discipline affects interest rates by looking at current interest rates. In other words, the term structure graph shows you that there is a debate to be had. And that's why we have to turn to the more sophisticated forms of evidence including the structural macro models and the econometric literature, precisely because it is so difficult to separate the effects of the business cycle and the projected deficits, etc.

MR. GALE: To put it in context, the term structure changed by 400-some basis points. If you look at the effect of the fiscal deterioration itself and our estimates, our estimates suggest it's about 100, maybe slightly more than that. But it leaves plenty of room for the business cycle to be having an effect, for other things to be having an effect. We're certainly not claiming the entire shift in the term structure is due to the change in the fiscal outlook, precisely because other things do affect interest rates. But there's plenty of room, given the evidence we have, there's plenty of room for those other factors to be at work, too.

QUESTION: I'm just curious, would you say your point of view is now the mainstream, what most economists believe? Or are you guys the outliers now and most people agree with the Administration that deficits don't --

MR. ORSZAG: I guess my opinion would be that most economists would say that deficits

reduce national income in the future. They have, if asked to summarize the econometric literature on deficits and interest rates, I think they would say what Elmendorf and Mankin say, which is the literature is uninformative and it's all over the map. I think that's because not enough attention has been given to separating the studies by whether they include projected deficits or not.

In writing this paper we have had interactions with academics who work in this area, and even people who have written some of those literature surveys were surprised by how striking the results are once you properly separate the studies by whether they include projected deficits or not.

So the first point is I think there's general agreement that deficits reduce national income. The second point is, I would bet that, we're hopeful at least, that this paper will illuminate some understanding by many economists about what that econometric literature actually does and does not do.

MR. GALE: No one has ever cut the literature in these reviews the way we did in this paper between studies that focused on projected future deficits and studies that focus on current deficits. Some of the most well-known academic studies focus on current deficits. They're essentially backward-looking studies that use vector-auto regression, which we can talk about later if you want. But the point is they generate very very poor forecasts of expected future deficits and so their lack of ability to find an effect can be explained by the fact that their forecasts of future deficits are just completely off the mark.

QUESTION: -- deficits and anticipated future deficits. When do the deficits begin to matter? At what point? How many years ahead are you looking at when you're talking about anticipated future deficits? Two years, five years, ten years?

MR. ORSZAG: Most of the studies are looking at sort of the five-year range. Frankly it would be better to have as long, a far into the future as possible, but the long-term forecasts, for example CBO didn't begin doing ten-year forecast until the early 1990s. So there's just a limited amount of data that could be used.

It's possible that as more longer-term forecasts accumulate, that these results become even more striking. Because one could imagine that even looking only five years out is not quite enough to properly measure what financial markets will do.

MR. GALE: I thought you were asking a slightly different question which is we're saying short-term deficits aren't that big a deal, but long-term deficits are, and when does the short-term change to long-term?

Short-term and long-term here are a little bit kind of code for not very big relative to the size of the economy and big relative to the size of the economy.

So for example, over the last year, the current year deficit has changed by several hundred billion dollars, maybe $300 billion, something like that. Relative to the forecasting two years ago.

In a $10 trillion economy in a $35 trillion capital market, that's not a big deal. But at the same time, over the same past two years the ten-year budget surplus fell by $5 trillion. In a $35 trillion capital market that is a big deal.

So yes, if the current-year deficit fell by $5 trillion, in this year, I would think that's a big deal. That's half of GDP. But the point is that when you look in the capital market as a whole, looking forward, even what looks like big changes in a single year's deficit are not that big a deal in terms of the capital market as a whole.

So if you want to see effects in the capital market, it makes sense to think about these longer-term estimates. But it's really an issue of how big the change in the debt is, not whether it's short-term or long-term.

If you had a $5 trillion increase in debt this year, you would expect to see an effect on interest rates. And likewise if you had a $200 billion reduction in the ten-year surplus, you wouldn't expect to see much of an effect on interest rates. It's not the one-year versus ten years, it's the size that short-term and long-term is proxy for.

QUESTION: -- 16 years ago, but what is he saying now and what is Hubbard saying about -- I mean there's still an issue, regardless of interest rates as you're saying, between savings, national savings. What is Hubbard saying on the savings point if you're trying to dispute the interest rate?

MR. ORSZAG: Two things. One, Mr. Feldstein was at the Jackson Hole meeting this year when the Lanzoneri, Lumbi and Diba paper was presented, Mr. Feldstein also presented a paper. In that paper he has a footnote in which he says that he still believes that deficits affect interest rates in important ways, but that that doesn't mean we should repeal the tax cut. I'll leave it to him to explain how he reconciles that.

On Mr. Hubbard, I think there's just an important difference between the headline rhetoric. No evidence that deficits affect interest rates, and the actual calculations that have been done by his own staff and that he's given to reporters.

When you look beyond the headlines, what they're doing is the right thing to do. They are trying to compare the positive effects, as Bill emphasized, from reduced marginal tax rates against the negative effects from reduced national savings.

MR. GALE: And higher interest rates.

MR. ORSZAG: Yeah, and higher interest rates.

We can argue the magnitudes, and in fact Bill finds that the numbers come out in such a way that the net effect is about minus .7 percent in 2011 for GNP. But the important point is when he's actually doing the analysis, that's what he's doing and that's the right thing to do.

By his very own numbers Hubbard cites a plus .15 number per year for the benefit from reduced marginal tax rates on growth, and a minus .1 number from the reduced national savings and higher interest rates, which gives you .05 percent per year, which means after ten years you're talking about a plus 0.5 percent of the economy, totally inconsistent with the rhetoric that tax cuts will lead to an explosion in growth. That is within the range, and we can dispute the specific numbers, but the important point is beyond the headlines you're actually getting very very modest effects on economic output, despite the rhetoric that tax cuts will lead to an explosion in growth and that deficits don't matter for interest rates. By their own calculations.

QUESTION: -- done a good job of trying to quantify for a typical household the two effects, the loss of national income and the interest rate effects. Both, ironically, came down to about $1500 per household.

Would it be fair to add those together and make the argument that that could be an effect of these policies for a typical household?

MR. GALE: For a typical household --

MR. ORSZAG: With a $200,000 mortgage. Yes, you would add them together.

There would be a $1500 reduction in their income and then mortgage payments would be $1500 higher which means their after-mortgage income would fall by $3,000 per year.

QUESTION: I'd like to ask, you indicated that the net effect on national income out in a later year would be negative based on the accounting identities and other analysis. When you have that slide on the effect of the 2001 tax cut, I may be misreading it, but it seems like you're saying there's a small positive effect maybe from the effect on marginal tax rates, and then there's a negative effect on savings and the two of those net out to either a small positive or possibly negative.

Does that square with what you're saying about the effect on national saving, which sounded like you were saying that clearly is going to produce a negative result out there in the long term.

MR. GALE: Absolutely. This is in a National Tax Journal paper that I wrote in March of this year.

Basically we go through the literature on how taxes affect all these different type of activities get the responsiveness. We plug that into estimates of how the Tax Act changed people's marginal tax rate and we get the implied changes in labor supply, education, capital investment, private saving, and private investment. All that raises GDP by about one percentage point after ten years.

Then we couple that with an estimate of that the loss in public savings due to the tax cut, and that reduces GNP by about 1.7 percent over ten years. The net effect of that is a negative .7 that Peter mentioned.

But the point is, though, that because the tax cut did not do a very good job of simulating new activity, it didn't get a lot of the positive oomph from the labor supply, saving investment, etc., but it got all of the negative costs from the decline in national savings.

QUESTION: I want to revisit the short-term/long-term discussion. You're saying that the tax cuts will lead to deficits, most likely.

MR. GALE: Right.

QUESTION: And therefore will suppress national income, national investment, correct? Over the long run.

MR. GALE: Right.

QUESTION: In the short run can you address the issue of boosting the economy, economic stimulus, and so on? And is there a difference between the deficit that boosts the economy on a time-limited basis and then disappears when the economies recover? Versus long-term sustainability of economic growth?

MR. ORSZAG: Let me try it this way.

Over the long term what really matters, for economic growth is how fast the capacity of the economy to produce goods and services is expanding. That's why national saving is so crucial.

The problem right now in the economy, today, is that we're not fully using all the capacity that we have and that's a different problem and it leads to sort of the opposite set of policy tools to try to correct. So in the very short run you want to be getting back up to capacity, using all the capacity you have. But the crucial thing in the long run is to be expanding that capacity as much as possible. And that's why you can have differential effects that still emphasize that the effect of a short-term deficit right now, given current macroeconomic conditions, is different from the effects of longer-term deficits. It's because the crucial question switches from using capacity fully to expanding that capacity as rapidly as possible.

That would suggest the following: First, that if you're going to do some kind of fiscal stimulus to try to get back up to capacity, you want to do it only when you're not expected to be at capacity. In other words, do it this year or in 2003. But if in 2004 or 2005 you already expect to be fully using capacity, it doesn't make any sense to be adding more fuel to the fire then. You're using the wrong tool.

The second thing is that if you do have large out-year costs because financial markets are forward-looking, that can actually impede your effort right now to bring demand up to capacity by raising long-term interest rates.

So both of those things say if you're going to have a fiscal stimulus, limit it to the period in which

there is excess capacity around and then combine it with a policy of long-term fiscal discipline to get capacity growing as quickly as possible over the long term.

MR. GALE: Another more pointed way of saying that. A tax stimulus now, financed by freezing part of the out-year tax cut would both help short-term performance by getting us closer to using our existing capacity and it would help long-term performance by keeping interest rates down and not eroding national savings.

QUESTION: [inaudible]

MR. GALE: Right. A tax cut now financed by a freeze in some of the out-year cuts could have beneficial short-term effects, as well as beneficial long-term effects.

QUESTION: [inaudible]

MR. ORSZAG: It is true that in some cases households that base their spending decisions not on this year's income but on longer-run average income won't respond very strongly to temporary tax cuts. That's what lies behind Mr. Hubbard's argument that we should have permanent tax cuts so that households will actually spend more in response then.

There are two major flaws in that argument. The first is that it ignores what we've been talking about today which is that those permanent tax cuts reduce national savings, drive up interest rates, and cause economic costs in that way.

Secondly and quite importantly, there is a large chunk of the population, and whether it's 20 percent or 40 percent is something that we could debate, but a large segment of the population for which that argument just doesn't hold.

If you're living paycheck to paycheck in what our economists call liquidity constraints, then you're not basing your spending decisions on long-run averages, you're spending what you have. And basically that argument just doesn't apply to at least a non-trivial share of the population which is where a lot of the tax and other stimulus measures are directed, at least some of them I've been hearing about, are directed. Trying to target that very, basically the lower end of the income distribution where that phenomenon of liquidity constraints is more likely to be prevalent.

MR. GALE: You could say gee, if I give Warren Buffet a hundred bucks he's not going to spend any more, it's not going to affect what he does, right? Or a thousand bucks. But if you give that to a struggling family it very well might affect their spending patterns.

So it's true, I think it's a fair statement to say that other things equal a permanent tax cut will give you a bigger spending response than -- a permanent tax cut of say $100 a year will generate a bigger spending response than a one-time tax cut of $100. But that's controlling for who gets the tax cuts.

It's also true that if you give that hundred dollars on a temporary or permanent basis to a low-

income family, they're much more likely to spend it than if you give it to a high-income family.

MR. ORSZAG: And the comparison Bill made also, abstracts from the fact that the permanent tax cut would reduce national saving by more and increase interest rates by more.

MR. GALE: That's right.

QUESTION: I hope you guys can answer a better question than I'm going to ask. I've been flailing around for awhile trying to get this together. I don't think I have yet. But Hubbard made a point the other day at that [Tax Notes Anniversary], I don't think either of you were there, but he was urging people to have greater confidence in forecasters, our tools of measurement have gotten a lot better in the last 25 years. One of the specific points he made was we used to believe that there was no really demonstrable change in behavior and changes in corporate tax levels. And he says we're better than that now. We can measure this kind of stuff.

Your point earlier implies that about, the extremes of what they're finding out, the net impact of the tax cuts and the rise in deficits, it sounds like you credit them with doing an honest count, that they're doing a fair job of doing this analysis over an Executive Branch. That's a very different position we're in that you describe than during the worst days of the supply side stuff in the early days of the Reagan Administration. Rampant lying was going on about what the econometric studies showed,

And the narrow point is, is Hubbard right, that we're better at picking up what changes in tax policy have in the way of an impact on behavior, either corporate or individual? And a more general question, what do you feel about the state of the study of public finance? Is there A, more honesty than there was at one time. And B, are we coming to come kind of consensus about what behavior is, if you do one thing rather than another in public finance>

MR. GALE: There's no doubt there have been thousands of econometric studies in the last 30 years and data's gotten better, techniques have gotten better, identification strategies have gotten better. I think everyone thinks that we have much more reliable evidence now than we did 30 years ago.

What I'm not so sure we have is a consensus on what the impact is. The strong supply side view plays much more strongly in Washington than it does in academia. But I don't know that there's tremendous consensus about the responses.

MR. ORSZAG: If I can just add two things. One is, and I do have objections to the specific analysis that for example the CEA staff appears to have done. The rhetoric is much different. So I don't know that it's an improvement to move from rhetoric that's consistent with underlying flawed studies to rhetoric that's inconsistent with somewhat better analytical work at the staff level. But I'll leave that up to you to judge.

The second thing is, I do think it's important when we say the tools, I think we had used, have improved, there are some things where economists really haven't improved very much like predicting the turning point of business cycles. In fact the Administration itself and many people up on the Hill are

arguing that the ten-year budget forecasts are so uncertain that we have to shorten the window, even though I think it's fairly clear that the motivation for tact is not even primarily uncertainty, but rather the other effects that shorten the budget window.

That's a different issue from the analytical econometrics of what tax shifts do, but we should be careful of using the word forecasting in that statement.

QUESTION: How do econometricians take account of future deficits? Do they just sort of read what CBO says or do they do something econometrically to try to predict what deficits would be in the future?

MR. ORSZAG: There are two basic approaches. Let's say you have interest rates for 1986. What the flawed studies would do is try to relate that to the deficit in 1986. What somewhat more sophisticated studies do is relate that to the deficits that CBO projected in 1986 for 1987, '88, '89, and 1990. Or use the DRI forecast. That's one approach. You literally take the forecasts for it that were made in a specific year and you try to relate that, sort of like I did in the simple scatter plot, to interest rates in that year.

Another approach is to look at what happens to interest rates as major pieces of legislation or news comes out. That is embodying projected deficits because the legislation or the news affects expectations that predict deficits.

So another approach that people are taking is to say news stories that made the 1990 budget agreement more likely would be expected to reduce interest rates because the budget agreement would presumably reduce projected deficits. So they actually carefully go and trace what happens to interest rates on those days when news comes out that the budget agreement is more likely or less likely.

Those are the two basic approaches.

MR. GALE: It's a key question because how you generate the forecast of the deficit determines whether the procedure is any good. And not determining a forecast is also determining a forecast. It's saying we're going to ignore future deficits which sets the coefficient on it equal to zero, which is probably wrong.

QUESTION: My question has to do with, if you accept that deficits matter, what have the studies shown about effects on inflation and economic growth? The question would be if you have inflation at three percent relative to two percent, or economic growth at four percent relative to three percent, what's the -- Is there any conclusive evidence about what the impact would be on interest rates?

MR. GALE: On increased deficits?

QUESTION: Yes. If you were to say we think the economy's going to grow, instead of growing at three percent over the next ten years we think it's going to grow at four percent over the next

ten years. Has anyone said okay, with stronger economic growth what would the impact be on interest rates over the next ten years?

MR. ORSZAG: One of the problems is that those are two so-called endogenous variables. They're both being determined by other policies so it's hard to say faster growth leads to higher interest rates because there's also higher interest rates leading to slower growth and the connections are such that that's quite difficult.

What you normally want to do in these kinds of things is to think of something that is directly under the control of policymakers, or pretty directly, and then relate that to an economic variable. Instead the question you're asking involves relating two economic variables that are themselves affected by what policymakers are doing.

I'm not aware of anyone who has directly done that.

MR. GALE: I'm sure people have looked at it but it's a sort or different question from how deficits affect growth. It depends I guess on what's causing the increase in growth. If it's an increase in demand or an increase in supply. It seems to me you get different effects. But it's completely unrelated, I think, to the question of how a shift in the fiscal status affects growth.

QUESTION: From my perspective, the Bush Administration is talking about growth economics and the importance of growing the economy, trumping the impact that deficits will have. So to some degree I'm curious --

MR. ORSZAG: But let's just look at, again, move beyond the rhetoric and the headlines. Look at the actual numbers. What they're talking about is plus 0.05 percent per year. Even by their numbers which we think are flawed. But let's just take their own numbers. That's not going to get you out of a deficit hole. That does basically nothing to expand the size of the economy.

So when you go beyond just the flat assertions that oh, we'll grow our way out of that to actually looking at what any solid estimate, and you can object to the specific methodology, but actually writing anything down beyond there's no evidence, you get very very modest effects. And it's certainly not enough to make the deficit go away or pay for itself or even come anywhere remotely close to that.

QUESTION: [inaudible] What is the reason it drives a substantially different interest rate effect from spending the tax [inaudible]?

MR. ORSZAG: The short answer is that the spending increase in the long term causes output to fall and that mitigates pressure on interest rates.

MR. GALE: It's just different dynamics, too. The spending is a one-to-one increase in spending right then. The tax cut, only some of that goes into spending immediately. More of it trickles in, in later years. You just get kind of different dynamics.

QUESTION: [inaudible]

MR. ORSZAG: Oh, yeah. Absolutely. Again, thinking about the chart that Bill put up. The debate quickly goes down to Point C, but that's not actually where the debate should be. We do think that the evidence at C is being misrepresented, but the important point is up at A.

MR. GALE: The debate should be at A but there shouldn't be any debate about A. That's essentially an income accounting identity.

QUESTION: [inaudible]

MR. GALE: That's why I raised it.

QUESTION: [inaudible]

MR. ORSZAG: Yes, and in fact that's one -- I keep referring abstractly to some of the objections to the technical analysis that the CEA staff appears to have done. One of the objections is that they are effectively ignoring the impact from borrowing from abroad, which will reduce our national income. It does reduce gross national product even if it doesn't reduce gross domestic product. It's effectively mortgaging our future income. A proper analysis would take that into account.

MR. GALE: Like we did.

MR. ORSZAG: [Laughter] And with that, I guess we are done.

MR. GALE: Thank you very much.

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