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HOW IMPORTANT IS LOWERING THE NATIONAL DEBT?

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P R O C E E D I N G S

MR. WESSEL: Good morning. I'm David Wessel, I'm director of the Hutchins Center on Fiscal and Monetary Policy. I'm glad to see so many of you here today.

I think we are at a moment when it's important to reexamine conventional wisdom when we think about whether the answer we gave to an economic policy question a decade or two ago is still the right one. I mean I was trying to imagine what people who were in this room 20 years ago would think if someone told them that the big problem that central bankers face today is how to get inflation up. They probably would be startled.

Now when we launched the Hutchins Center two years ago we agreed that we were going to try to avoid getting mired in what sometimes I think is a very sterile debate about fiscal policy, when people take a position, dig in, and then spend the next years defending the position they took without regard to changing circumstances. We also agreed that we would try to avoid judging every fiscal policy issue only by what it would do to the projected debt to GDP ratio. I mean, after all, how we get to debt to GDP ratio matters. Are we borrowing to finance consumption, are we borrowing to make investments that will pay off in the future. And we're pursuing our mission, better fiscal policy, better public understanding of it, in a variety of ways. In April, for instance, we're going to launch a computer game in which we'll ask the players to make spending and tax choices that will reduce the projected debt to GDP ratio 25 years from now while also trying to reach non fiscal goals of their choice, reduce inequality, strengthen national defense, stuff like that. No computer game today though, I'm sorry; you have to wait for that one.

But today we're going to take a fresh look at an old question. What is the optimal trajectory for fiscal policy in the long run? And I think it's time to take a fresh look. I mean we've known for quite a while, 70 years or so, that we're going to have the aging of the baby boom and their retirement, but we today confront circumstances that are different than those that we confronted a decade ago. We have one heck of a lot more debt for one thing, but there's also a growing consensus that we might be in an era in which interest rates are lower than normal for a long time. So we ask today, what does that mean to fiscal policy?

And we're lucky to have two of the best minds in this business presenting today, Doug

Elmendorf, the former Director of the Congressional Budget Office, now the Dean of the Kennedy School at Harvard, and my colleague, Louise Sheiner, who is the Policy Director of the Hutchins Center. Now they have been thinking about these issues for a very long time. If you look at the references at the back of the paper you'll see a 1990 paper by Louise, David Cutler, Jim Poterba, and some guy named Larry Summers. And you'll also see a 1999 paper on these questions that Doug and Louise wrote.

So today they've set themselves an extraordinarily ambitious task. This is not one of those narrow econometric papers that proves beyond a statistical doubt that if it rains you're feet are more likely to get wet. And it's not a simple minded exercise that says if you run big deficits you're likely to owe more money. Instead it's really a sweeping reexamination of the macroeconomics of fiscal policy, an important attempt to frame the questions and propose a few answers to the economic logic that ought to underlie the policy debates we have this year and in the future. I look at it really as the beginning of a conversation, not the end of one. And I think it's a good time to have this conversation. Congress is not going to make any meaningful progress on long run fiscal issues this year, on that I'm sure. And from what I've seen so far I doubt we're going to get much insight in the presidential debates if they're anything like the ones we've seen lately. But the new president is going to have to decide on what his or her objectives for fiscal policy and it's important that the budget wants to whom he or she turns are grounded in solid macroeconomics. And that's what we're trying to do today. Now, as you'll see, like most thoughtful economic analysis, the right answer is, it depends. So be prepared for that.

Louise and Doug are going to present their paper, which is already on our website, and then we're fortunate to have two very distinguished discussants who also have been thinking about these issues for a long time; Alan Auerback, the Robert D. Burch Professor of Economics and Law at Berkeley, and Olivier Blanchard, now the C. Fred Bergsten Senior Fellow at the Peterson Institute for International Economics across the street, and before that the Economic Counselor at the IMF.

After Louise and Doug present and Alan and Olivier give their responses they'll join me up here and we'll have a little discussion and we'll have time for some of your questions.

So thank you very much. Louise.

MS. SHEINER: Thank you so much, David. So, as David said, the issue of what to do about the federal debt has been something that's been getting a lot of attention recently and for very good

reason. So if you look at this chart as the projection -- history of projection of federal debt as a share of GDP. And what we can see is a few things. One is that, as we all know, the federal debt has surged recently to a level that really hasn't been seen in the post World War II era. So at 75 percent of GDP it's higher than we've seen. And as David mentioned, we've long known that we're aging and we've thought about it, but now we're actually right on the precipice, right, so the aging is beginning. The thing we've been thinking about for so long is finally here. And we never imagined that we'd be starting the process of the baby boomers retiring with the 75 percent debt to GDP ratio. So from that perspective many people say look, aging is starting, we already have way higher debt than we ever have before, we ever anticipated, it's really time to start focusing on the debt. It's time to make those changes, it's time to get our fiscal house in order. On the other hand the other thing that's way different than we would have thought just five years ago, eight years ago, is that we have extremely low boring rates for treasuries. So government is boring at extremely low rates and that's also very different. And so many people are saying, hey, let's not worry about the debt. With these boring rates that's just not an important issue. So that's kind of the impetus of our paper.

So how do we think about that? So, you know, on one hand we're aging and our debt to GDP ratio is very high. On the other hand, debt doesn't seem very costly. So where does that leave us? And the other thing that we really wanted to try to think through because we were confused about it and were interested is, okay, so why are interest rates so low and is the reason that interest rates so low important for thinking about what federal debt policy should be? Does it matter or should it be just like well low interest rates tell you something or does it matter why they're low? So that's the basic purpose of our paper.

So let me just give you a highlight of our conclusions. So some of our conclusions are consistent with conventional wisdom. The federal budget is on an unsustainable trajectory. Eventually we're going to have to reduce spending, we're going to have to raise taxes. The desire to smooth consumption through time and also the desire to create some fiscal space argues for making those changes sooner rather than later. So that's sort of the conventional wisdom. On the other hand, we think that on balance the persistently low interest rates means that those changes should be smaller than they otherwise would be and later than they otherwise would be. And in addition, especially that those low

interest rates really do argue strongly for government investment being a very important policy priority. And when we talk about investment we're not just talking about things that might sort of physical investments like road, so those need to be considered as well. But really investment is anything that we can do now that's going to boost output in the future, and even that's going to make kids, you know, do better in school, have a better education, you know, have better health. All those things are things that we think of as investment in this context.

So let me step back now. We're going to talk about aging from a macroeconomic perspective. Why a macroeconomic perspective, right, why do we want to do this? So the reason that we like the macroeconomic perspective is we always go to it when we're trying to answer this question as, you know, we think of federal debt policy as basically a way of thinking about how to intertemporally transfer consumption over time. We have an aging population. We have to decide do we want to raise taxes now or do we want to raise taxes later, do we want to start cutting benefits and saving now or later. Those are questions that are transferring resources across time and how do you think about that? To think about that you sort of need a policy maker who is -- you need to decide what it is that's in their utility function so they can make those choices in a way that's systematic and we can see how different phenomenon in the economy might affect those choices. So we start there.

And as David mentioned, in 1990 way, way long ago, we first started looking at this question and the answer to this question back in 1990 was actually quite surprising. So from a macro perspective with a social planner, like a benevolent dictator trying to decide what the path of national savings should be, the answer was even though we are aging we actually should not increase saving, we should actually reduce saving in light of aging. Why was that? That was basically because although the baby boomers weren't retiring yet we were on the beginning of a change in the labor force growth rate. The labor force was slowing. So if you try to boost the capital stock while the labor force was slowing you were really going to get not a very good return on your capital. And so this sensitivity to, you know, what should we do and how does the rate of return capital matter to what we should do is key to this whole thing, which is why we were sort of thinking about in the context of low interest rates.

So in 2000 Doug and I looked at this again, saying is this still true. So we look at it again and we found yeah, even in 2000, even though we were closer to the demographic transition, it still wasn't

really clear that we should be increasing saving. So we thought, well how about now; now the baby boomers are actually starting to retire. And the answer is now yes. The model finally says time to save.

So let me just show how to think about aging from a macro perspective. So I'm going to show you -- this is a closed economy model with a social planner. So some who is deciding every year how much consumption there is, how much saving there is. What does aging do? From a macro perspective what aging does is it increases the ratio of people to workers. So people are living longer, we've had a change of fertility. The ratio of workers to people is going down. What does that mean? That means for any given level of output per worker there is less consumption possible because there are basically more mouths to feed from any one worker. And so I'll show you what happens -- on the X axis is your capital labor ratio, so the more capital you have the higher your income, but with declining marginal returns, that's why it's curved. And then what aging does, it says for any given level of capital per worker you have less consumption. So you go from the dark blue line to the light blue line. So then how should a social planner respond to that, what do you do? So we have two different sets of long run steady state possibility frontiers and you have to decide what to do.

So let's go back here, and you can do a million things. There are many, many different paths that will get you from steady state to another. And that's what you sort of need, the social planner utility function for, which one should you choose. So before we do that let's just think of two kind of extreme responses. One thing you could do is say I really, really want smooth consumption. I want people alive today to sort of suffer as much from aging as people in the future, to make the same kind of adjustments, and so I'm going to make that one time consumption adjustment starting today that will get me back to the frontier eventually. So that says go from point A to point B. We drop consumption. We drop consumption even though aging is just beginning. So consumption falls before it sort of needs to, which means that saving starts to increase. Saving starts to increase, we're moving along that black line from B to B prime because we're increasing the capital stock, we're saving more and we're increasing the capital stock. So that's one thing that a social planner can do. And what does it do? It smoothes consumption, but it increases the capital stock, which is going to be bringing down that rate of return. For every dollar of savings that we do, we're going to get less of a return for it. And so that's the tradeoff. Do you want to do that? Another thing you could say at the other extreme is no, I really want my rate of

return. I'm not going to save if the rate of return falls below a certain level. And so what do you do? You just sort of do a pay as you go response to aging. As that frontier shifts, because it's going from the dark blue line to the light blue line as a gradual process, we just kind of follow it down and we follow it down that dash line from A to C. So those are sort of two extremes of what one could do.

A social planner wouldn't do either of them. A social planner would do something in between. They'd say yes we care about consumption smoothing, but we also care about the rate of return and we don't want to save a lot if the rate of return is really, really low. And so they do something in between. So that constant capital, the dark blue line, is kind of going down the dash line from before. The gray line is that consumption smoothing. You drop consumption down and then it stays where it was forever, at your new level. And the light blue line is what we calculate as the optimal path. So the optimal path is somewhere in between. You increase saving now, but not so much as to not have to keep on reducing consumption over time. So consumption declines over time and eventually ends up at about 12 percent lower than it would be without aging. Now that's not 12 percent lower consumption because this is taking place over time, there's productivity growth. So really it's just relative to what it would be. It's still higher than today, it's just 12 percent lower than what it would be.

And let me show you something too. So even in this constant capital line doing nothing is not what you do. So even with this constant capital line, you start reducing consumption today. Why is that? Because if you kept consumption at today's level you would start reducing the capital labor ratio because we're already aging. So these adjustments -- we're right now in the aging process -- so these adjustments have to be going on right now.

Now that's a closed economy. We don't live in a closed economy, obviously. So if we live -- let's think of this -- we lived a small open economy, we're a small economy, what we do doesn't have any effect on interest rates hypothetically, and interest rates were going to be fixed in the rest of the world. Imagine that situation. In that situation there's no worry about driving down the return to capital. So you can save as much as you want in this hypothetical and nothing is going to happen to your rate of return on capital, and so what you would do is you'd do that one time consumption drop that I showed you before. There's no reason for people not to smooth consumption. But the world is aging so we don't expect world interest rates to be unaffected, and we're not a small economy. So for both these reasons

we don't think thinking about the small open economy is the right way to think about it. And what we did instead is to say well imagine there are two economies in the world, us and everybody else. And imagine that we're both making these optimal consumptions and responding to each other and there's one world interest rate, then what happens. Well, what's interesting is -- and we didn't know this beforehand -- is what we do is we calculated these support ratios, which is the ratio of workers to people basically here and in the rest of the world. For the rest of the world we just took demographics country by country and we weighed it by GDP and we got the changes in support ratios over time. And we were sort of surprised to learn they look very much like the U.S. So the world is aging in a way that looks quite similar to the U.S. and what that means is that the answer that we get from the two country model looks awfully like the answer that we get from the one country model because it's almost just like two United States and so nothing changes. And so these are the U.S. optimal paths under two comparisons, one where we're just the one country model, that's the dark blue line, and, two, the two country model. So the two country model changes a little bit, and the way it changes is to say we're going to actually have higher consumption -- this is consumption that I'm showing you -- we're going to have higher consumption in the short run and end up with lower consumption in the long run, but not that different. And so instead of being 12 percent lower we're 14 percent lower than we otherwise would be. So it's almost the same answer. So considering the fact that we're an open economy doesn't really change your views -- doesn't change our views anyhow.

Okay, now let's switch. That's the macro perspective. Now let's think about the optional budget policy. So another way that people always think about aging is well aging is really bad for our entitlement programs. It makes them unsustainable. Also we have a much higher debt to GDP ratio. So how do I think about the budget policy in terms of the macro that I just showed you? Well, so one of the reasons we talk about and care about deficits and debts, it's just right in there, which is we talk about oh, we don't like high debt because it crowds out investment. What does that mean? It pushes down our capital labor ratio in ways that we may not want. If we want to increase saving, if we want to save for the aging of the baby boomers by cutting taxes or spending now, we'll be reducing the deficit, we'll be increasing our capital stock -- it's really the same logic. So that logic basically applies.

There's another way to think about the debt that doesn't really come from our model at

all, and this is this question of fiscal space. So what's fiscal space -- it's this worry that high debt could really raise boring costs if all the sudden lenders feared default. They said, oh my god, your debt to GDP ratio is going so high we don't think you're going to pay it off. You're either going to default or you're going to inflate it away, which is another form of default, and we're going to really charge you very high interest rates. So the fear of that is something that doesn't come from the model, but it's something that you do need to think about from the perspective of budget policy. How important that is is a controversial question, especially for the United States. You know, some people say we're just like Greece, but it's a different question. And so it's just something -- it is a risk and we're not really sure how important a risk is and at what level of debt that risk actually starts.

So one thing that we wanted to make clear is a lot of times people say, okay, when we're thinking about the problem of aging we look to the CBO long-term outlook. And it doesn't look that bad, so maybe aging isn't that bad, okay. So one of the things that's clear is that the CBO long-term outlook, it's not a criticism at all, it's the way that they're supposed to do it, and it makes sense to do it, is it's a very current law framework. They try to figure out what the budget outlook would look like if there are no changes in loss. So there are assumptions not just about aging, but there are assumptions about what happens to revenue and what happens to other spending besides aging, and that has an influence. So we try to look at an aging only projection. So we assume that everything else stays the same. So discretionary spending stays the same share of GDP and revenues stay the same share of GDP, and we're just going to allow aging to affect the budget deficit to try to see what does aging alone do to the deficit outlook. And we assume no excess cost growth in healthcare as well. So we're really just stripping out everything except aging.

And these are the primary deficit projections that we get. So we say because of aging the primary deficit is starting about one and a half of GDP, it's going to rise about two and a half percentage points of GDP to four percent by around 2036. It stays around there for then and then starts to drift up over time. It drifts up over time because we expect people to continue living longer and you're always going to have increasing pressure from that under any kind of constant law framework. So then let's think about that same logic - it's not exactly the same but it's parallel, which is -- okay, there's two ways we could respond to that. We could do those two extremes, we could say let's cut spending and

raise taxes today by enough so that by 2060 -- and you could choose any date, you know, but we chose 2060, your debt to GDP ratio is no higher than today. So we're basically going to smooth through. That would be kind of like that constant consumption drop that we did before. The other thing you could say is I don't want to smooth, I'm just going to sort of do it as a pay as you go. I'm just going to let the debt to GDP ratio stay the same every year. I'm going to make those adjustments necessary just to keep it from rising every year. So if you do that the light blue line is the change to make the debt to GDP ratio 74 percent in 2060. It's what you would have to do today and sort of in theory never have to do anything again to make sure your debt to GDP ratio was 74. And that's at about 3.4 percent of GDP increase in taxes or reduction in spending or some combination thereof. The dark blue line shows you sort of what you would have to do just to keep the debt to GDP ratio at 74 every year and that would be saying as aging is imposing greater challenges you're going to have to make more adjustments, and so you make more adjustments over time. Now, we don't have a model on this, but the logic of the macro model says you want to do something in between, right. You don't want to deal with the pure consumption probably, you don't want to do no consumption smoothing, you probably want to make some adjustments.

Now let me just show you that the aging only deficits are much higher than the CBO baselines. So looking at the CBO baseline it's going to underestimate just the effects of pure aging alone. Why is that? So there are a number of things. So the CBO projection assumes that there are no law changes. So what that means is that tax brackets are indexed to inflation, they're not indexed to real GDP growth. So as we get richer more and more people are in the higher tax brackets. That boosts revenues, that's in the CBO long-term projection. There are other things like that on the spending side. There are spending programs that depend on poverty rates and that are indexed to inflation. As GDP grows those are going to get smaller. And as well they have a reduction in discretionary spending over the next 10 years, that's according to current law, that we don't have. On the other hand, they have higher healthcare costs than we do and that partially offsets it.

So how do we think about this? So, you know, if the CBO baseline really just represents scoring conventions and not really something we've agreed on, then the aging problem is bigger than we thought. We have more choices to make still. You know, we're still going to have to figure out what to do because we have these things written down, but when push comes to shove maybe they won't happen.

On the other hand, you know, even though these things are sort of just a convention they are current law and we are going to be facing big deficits. So it's not a crazy thing to think that people will allow the increased revenues and lower spending that are arising from current law to actually happen. So then what does that say? So imagine that we said, yes, these things are really happening, let's bank on those changes in taxes and spending out in the future that are in the baseline. Now if we wanted to say well we really want to do a flat change in consumption, we want to say every generation pays the same, we have to do a lot now because the CBO baseline already has a lot of cuts out in the future. It doesn't have a lot now. So that would say do more now if that's what we wanted. If we didn't want to do that, if we just wanted to follow the path, then it doesn't really make a difference. We just have small policy changes for now.

Last thing, so what we haven't talked about is the level of the debt. So what do we do about a high level of debt? The same kind of analysis applies. So if we wanted to smooth consumption completely we wouldn't want today's people paying more to pay off the debt than tomorrow's. We'd want everybody to be paying the same amount. We leave the debt where it is and just have consumption fall, taxes increase or spending go down every year by enough to keep the debt at 74 percent of GDP. On the other hand, if we worry about rates of return and if we worry about this high level of debt, it's pushing the rate of return in a way we don't like. It's pushing the rate of return up beyond where we want it, which could either be that's happening now or because we're fearing that at some point people are not going to lend to us. Then you want to do something to create some fiscal space and then you would say let's do something now to lower the debt and bring it down from 74 percent of GDP.

Now nothing I've talked about has mentioned sort of how any of this depends on what's happening with interest rates and for that I turn to Doug.

MR. ELMENDORF: Thank you. I want to talk as Louise said about our thinking on interest rates and I wanted to start with this picture. This shows the nominal yield on 10 year treasury notes, and you can see a very sharp ongoing decline for the past few decades. Of course the decline between 1980 and 1990 maybe can attribute to a decline in inflation and then an expected inflation. But even in the years since 1990 interest rates on treasury debt have fallen almost without break, not quarter to quarter perhaps, but as you look across the years we see an ongoing decline. And our question is

what to make of this in thinking about optimal fiscal policy. Now we don't know whether this will continue exactly. The downward trend is quite clear, it's gone on for a long time. Various analysts have done estimates of how much they think interest rates will be lower in the future or higher in the future than they've been in the past. And they now, since that we're aware of, suggest interest rates are likely to be much lower in the future. And in fact financial markets seem to be looking for interest rates that are a good deal lower than the analyses of the Federal Reserve or CBO or other would suggest. There is a fair amount of evidence that interest rates are likely to be a good deal lower in the future than they've been in the past few decades. That's not guaranteed. And because adjustments to fiscal policy of large adjustment are best made over time, we think it's important for current fiscal policy decisions to incorporate the possibility that interest rates rise considerably. That does not seem most likely. The most likely outcome seems to be persistently low interest rates. And that is really a sea change in the background for fiscal policy decisions. Our question is, what to make of that sea change.

Now one way to see just how large this change is is to look at the revisions to CBO's projections over the past decade. This picture shows the gap between CBO's projected growth rates and interest rates. And you can see a very sharp downward revision to the point where interest rates have been projected to be above growth rates for most of the past decade and earlier in fact in CBO's projections, but now interest rates are projected to be just about in line with growth rates. So what does that mean? Well, the first implication of this directly is just that the debt dynamics are much more favorable. For any given path of non interest spending and revenues and any given projected growth rate for the economy, lower projected interest rates improve the outlook for debt considerably. And based on some sensitivity analyses that CBO has published, it looks like the downward revision to interest rates over the past several years has lowered CBO's projection of debt in 2040 by almost 40 percent of GDP. That's a very large difference.

But our question here is not just how much the outlook for debt has changed for any given set of policies, our question is should we be aiming for a different level of debt because of lower interest rates. And it appeared to us at first glance that it did matter, but we tried to dig more deeply. And we tried to dig into a number of different explanations for why treasury rates may be persistently lower than they've been in the past, and to trace through the effects of those different interpretations of lower

interest rates for fiscal policy. And we tried to cast a wide net here. We think it is very unclear what the right explanation or set of explanations is for persistently low interest rates. We tried to consider all the explanations that we could think of. We undoubtedly had missed some. We then tried to group them into a small enough number of buckets that we could think through the implications. And we've look at four hypotheses, which I'll describe in a moment. I want to emphasize though that this grouping may not have been the right grouping. And even within some of these groups the implications for fiscal policy may be different depending on which sub hypothesis one believes. And having learned some already from Olivier's and Alan's comments, which you will see shortly, I think now we believe that some of these pieces are in fact even more complicated than we thought they were, and there are even more branches of the tree, even more different reasons why interest rates might be low, and different implications from that for fiscal policy.

But I'll tell you what we think at this point. We looked at four hypotheses of sets of hypotheses. One, the marginal product of capital will be low, the second is that the risk premium may be high and thus treasury rates will be depressed relative to rates of return on private capital. Third is that there is a high demand for treasuries not just because of their risk properties, but for other institutional reasons, and I'll explain more what we mean. And the fourth hypothesis is that there has been an increase in savings, domestically or from overseas located in this country, and that savings glut has faced an elastic investment demand.

Let me talk first about what we think the evidence is regarding each of these hypotheses, although we do not read a clear conclusion. And then I'll talk about the implications of each of these hypotheses for fiscal policy.

So the first hypothesis is that the marginal product of capital may have declined. And when I was at CBO one thing we did was analysis of a whole collection of factors, some of which we thought were pushing down the marginal product of capital, some would be pushing up the marginal product of capital. On balance we thought a substantial decline in the marginal product of capital (audio interruption). One thing that's puzzling about that conclusion, which I was part of, is that it's not that we've seen a tremendous amount of saving in this country by most people's likes. So this picture shows gross and net domestic business investment as a share of GDP. You don't see some surge in capital

investment that has occurred. And you don't see that surge even though in fact private borrowing costs have fallen a lot and have been quite low now for a number of years. This does not prove that the marginal product capital explanation isn't right. For example, it might be that rates are low now but people expect there to be an accumulation of capital relative to the size of the labor force, which as Louise noted is growing more slowly. So it's a prospective view. It's a view maybe perhaps focused on the capital labor ratio. (Audio interruption) glance at least at that what we've seen is a decline in the marginal product capital because the capital labor ratio has somehow gone off by a lot, we just haven't seen the level of investment that would be I think the strongest, clearest indication of support for that view. But as I say, one might still think that there's a lower marginal product of capital. One point might be that the price of investment has been declining. So even if nominal investment has gone up particularly, with declining prices real investment has been rising to some extent.

A second possibility is that there are a variety of new businesses that don't require much capital and therefore the return to investment has declined, not because we have so much more capital, but because we need so much less capital. There are certain examples to point to here, and we point to WhatsApp and others. How quantitatively important this is is not obvious. Jason Furman of the CEA noted that all of these applications that many of us access that don't seem to use much capital directly, like WhatsApp, are in fact being communicated over a rather capital intensive collection of infrastructure that delivers our wireless services to us. Some people at Goldman Sachs did some estimates of how important these industries were in the country as a whole and the economy as a whole and concluded not very important. But this is an issue. So it's possible the marginal return has been declining and will decline more going forward.

A second set of hypotheses we looked at is maybe the risk premium is higher, so the return on treasury securities is depressed relative to the return on private capital. That story seemed initially appealing. Certainly we've been through a period now of very bad shocks to the U.S. economy and the world economy that make the economy look much riskier to me say than I would have said if you had asked me in 2007. And if you look for example at the spreads between say BAA bonds and treasury securities, you see a widening over time. But if you break that spread down into the spread between higher and lower rated private securities and then higher rated securities and treasuries, what you see is

mostly a widening in the spread between higher rated securities and treasuries. So the darker line here is the BAA to AA spread, and certainly this is up in the last half dozen years, but not up to something out of line where it had been a few decades earlier. What is striking is the lighter line, which is the spread between the yield on higher rated private securities and treasury securities. And that is really -- that gap has widened a lot. So it's not obvious that this set of indicators is pointing to higher risk in general, or higher demand for treasury securities in particular. And I'll come back to that.

And the fourth hypothesis we looked at is the idea of a global savings glut with inelastic investment demand. Think about that this way, we have an aging population of people maybe saving in advance of their own retirement, we have an increased inequality which has shifted more income to people with higher savings propensities, we have an end to the great moderation -- people may be worried about that risk and trying to save more, and people overseas may be sending more capital here because for all of the issues that we see with our economy it may appear to them much safer than their own economies. So those factors could have increased the supply of saving considerably and we show that in this rightward, downward shift in the saving line. But maybe investment hasn't responded very much, maybe investment is not very sensitive to changes in interest rates. In that case what would have happened is what we show in this picture, which is not much change in the quantity of savings and investment, consistent with the picture I showed you earlier, but a large decline in the return and a large decline in the debt return is what we're seeing in interest rates. A large decline and return to equity would be consistent with the high priced earnings ratios that we see.

So four rather different explanations with different interpretations of what's going on in the world, and different implications for future fiscal policy. Let's begin with the lower marginal product of capital. The idea that the return to saving may have declined. If the return is declined because of changes in certain behavior by Americans, for example, our rate of time preference is lower, we are more patient, so we want to save more, or expect that future growth is lower, which it is to come extent, and we want to save more because we think we will be less well off in the future that we had previously expected. Those changes in Americans preferences would lead Americans to save more privately. That should basically lead the government to move in that same direction, to do more saving, which means tighter fiscal policy. On the other hand, if what's happened here is more a flow of capital from overseas into this

country rather than a change in Americans desired saving, then the situation is actually more complicated. The lower margin product, the lower return on our saving says that the price of future consumption is increased -- this is a point we stress in the paper -- and therefore you're less interested in saving for the future. It's also true that if we are as a net debtor as a country, which we appear to be, then the fact that foreigners are lending us money and we will pay them a lower rate of return makes us richer. So you might think about an income effect, moving in the same direction as the substitution effect. Both those factors suggest higher consumption down, looser fiscal policy, than otherwise. Again this is not all the considerations that matter, this is the role of this consideration.

On the other hand, if you're trying to do some consumption smoothing, if you're trying to do some savings for your future well being, then the fact that you can do that only at a lower rate of return makes it harder to save for the future, and that would lead you to save more. And where these factors come out on net depends on the model one uses and the parameters one puts in and we don't have that part of the analysis at this point.

From a government budget perspective, and as Louise noted, we're trying to go back and forth here between the macroeconomic perspective, which we think is the right starting point because it tells us what we're trying to accomplish through fiscal policy, which for this perspective is really about moving resources from now to later or from later to now. We're trying to go for the macro perspective to budget perspective which is similar but not identical. And we wrestled with these connections in this paper we wrote 15 years ago and we're wrestling with them now. And I think Alan and Olivier will help us.

From a government budget perspective, the fact that they have lowered debt service I want to emphasize really does help you. The government owes less on the debt it has accumulated, which is quite a bit at this point, and it is easier -- so less needs to be done today to achieve some given budget situation in the future. So we should want to smooth less and that means that we don't need such tight fiscal policy today.

The last thing I want to say on this hypothesis before I move on is to emphasize the implications for government investment. As Louise said, we need investments in infrastructure but also in education, training, R&D, a whole set of ways in which the government can use resources today to strengthen the economy in the future and hopefully accomplish other social goals as well. If the rate of

return on private investment has fallen, unless the rate of return on public investment has fallen commensurately then we should be doing more public investment than we would otherwise. So some of the factors that are bringing down the return on private investment might also be bringing down the return of public investment. We have slower labor force growth, we need fewer machines for workers, we also need fewer highway lanes to get those workers to the office at 7 o'clock, 8 o'clock, 9 o'clock in the morning.

But other reasons why they're turning to private capital may be lower don't imply there's been some corresponding decline in return to public capital. So if you talk about foreigners sending resources to this country, if they're investing in private capital in a way which is bringing down that return, they're not directly investing in public capital. They may be taking out our debt, but they're not -- their inflow of capital is not affecting the amount of public investment being done directly. So for that sort of view the return to private capital does not match -- there is not commensurate return in the decline to public capital. We should do more public capital investment.

If there's a higher risk premium, this is the second of those two hypotheses that I started with, there's the higher risk premium, so that treasury securities are more favored because they are less risky. Then we think there should not be change in U.S. fiscal policy as a result, unless the federal government's relative ability to bear risk has increased. Essentially, although there may be greater demand for treasury securities because of greater worry about risk, on a risk adjusted basis there's been no change in the price of present consumption relative to future consumption, which should not change the amount of debt in the economy. There may be no difference between the return to private investment and the return to public investment relative to the past. So (inaudible) want to adjust for risk. So again there is not strong argument for changing government investment based on this hypothesis.

The third hypothesis is an increased institutional demand for treasuries. The idea that people are really wanting to hold treasuries more, not particularly because they are less risky, but maybe because capital requirements have increased, and one way to meet capital requirements is to hold more treasury securities or other institutional factors. Now everyone needs to keep in mind here, though there are those changes in capital requirements and other factors that have led to increased demand for treasuries, there has also been a huge increase in the supply of treasuries over the last half dozen years.

This argument would be that there's been a larger increase in the demand, which we would see in the lower interest rates as we see them. I won't go through the details of this, except to say that if what's happened here is there's a particular demand for treasury securities, then the treasury has become a more favored borrower and the logical thing on our behalves is for the treasury to borrow more and to do more investment with that borrowing. Again, if it's just a matter of risk, then on a risk adjusted basis there isn't a strong case for more borrowing or more federal investment. But there are other factors that aren't just about risk, but are about institutional reasons why treasury securities are particularly highly demanded. Then there is a strong case for the treasury taking advantage of those lower borrowing rates by doing more borrowing and by doing more investment.

For the last hypothesis, the implications of a global savings glut with inelastic investment demand, this is as I said is the case where there's been an increase in desired saving, but investment has not responded very much because investment demand is inelastic. So the market is equilibrated through lower interest rates. In this case the government should increase public investment. Again, the government can take advantage of being able to borrow at a low rate and unless there has been some large decline in the return to public capital, which we don't see evidence for, then the government should take advantage of those lower rates to do more public investment. Moreover, because we are a net debtor the low interest rate is a net positive for our income, consumption should increase, so the debt should be higher.

The last point I want to make is about the zero lower bound. In the last three recessions the Federal Reserve has cut interest rates by five percentage points or more each time. Given the FOMC's own outlook for interest rates, and the point is even stronger if you look at the financial market's outlook for interest rates, the Federal Reserve will not have five percentage points of room when the next recession hits. It may not have four, it may not have three. It will be greatly limited in what it can do by cutting the federal funds rate relative to what it has done in each of the last three economic downturns. So how might we respond to that? Well, there are a whole variety of ways that are not about fiscal policy. There are discussions about possibly raising the target inflation rate, because this is a nominal interest rate problem, there are discussions about way to relax the zero lower bound. A number of central banks around the world now have their policy rates below zero. We don't try to tackle that in our paper, viewing

what we're trying to do as broad enough. From a fiscal policy point of view, one implication is to have higher debt on average, because higher debt will tend to push up interest rates, it will give the Fed more room. Another very important implication is to have more powerful automatic stabilizers. And when push comes to shove, stronger discretionary fiscal stabilization that will be much more important for fiscal policy to play a counter cyclical role if the Federal Reserve's capacity is limited.

So to conclude, from Louise's and my perspective, from the perspective of the analysis in this paper, the current trajectory for federal debt is unsustainable. Debt cannot rise indefinitely relative to GDP. It will probably do that under current law, based on CBO's projections. Therefore changes will be needed. And the force of population aging will actually require a lot of changes, some of which are, as Louise noted, built into CBO's projections, but maybe not built into the views of the body politik. At the same time though, persistently low interest rates are a very important change relative to discussions we all have been having about this topic for the last few decades. And those lower interest rates imply a variety of possibilities, depending on exactly which hypothesis or hypotheses one favors. But on balance, in our view, imply that we should add higher public investment, smaller and more delayed changes in policies to reduce the debt, and stronger automatic stabilizers.

Thank you. (Applause)

MR. WESSEL: Alan?

MR. AUERBACH: I'm going to speak without slides. I felt the desire to keep my options open. Although Louise and Doug have been very faithful to their paper in their presentation, so I won't deviate from what I was planning to say. It's a very useful paper. I think you have a pretty good idea from the presentation of the richness of the analysis and I think it's a very useful antidote to the simple conclusions that people have reached, other people have reached, in drawing out the implications of low interest rates. So you might say there's sort of a common conclusion that lower interest rates mean we don't have to rush as much on undertaking fiscal consolidation and we should feel freer to engage in an expansion of public investment projects. And while Doug in his conclusions there reached those same results, I think there are a lot of qualifiers that and certainly the case that it depends why interest rates are low.

In my comments I want to amplify some of the points in the paper, take issue with some

of the other points in the paper, and touch on points that others perhaps have made more than are made in the paper, but I think are out there in the discussion. And I'll just go through several individual points.

First, confronting you might say the very central point that the argument that since interest rates are low our fiscal problems aren't as bad, so we can go easy on fiscal consolidation. I think there are two things wrong with this argument, the first of which I think is not something that was emphasized in the paper, although it's implicit in the discussion of consumption, the sort of division as the authors noted on the one hand looking at the budget side and then looking at the consumption side.

The second point is a point that was made in the paper, but I want to come back to it. The first point is that when we think about the sustainability of fiscal policy, looking at the rate at which national debt accumulates is not the correct way to think about it. It's part of the story, but it's not the only story. If we want to think about sort of the long run government budget constraint and whether we're on a sustainable path it's helpful to think about deficits as coming in three components, past deficits, current deficits, and future deficits. Past deficits being the accumulation of national debt to debt today. Current deficits are what the deficit is the share of GDP is under current policy in the short run. And then future deficits, in particular what's going to happen under current policy to annual deficits as a result not of changes in policy, but of changes in the economy, in particular demographic changes. And simply put the U.S. fiscal problem is a past problem and a future problem, not a current problem. That is it's the debt that we've accumulated so far and the very large growth in primary deficits we're going to have in the future that are where the real problems are.

And thinking about what low interest rates to do that, they help one of those problems and they hurt the other. That is we accumulate debt at a slower pace given the existing stock of debt we have because interest rates are low, but it also means it's going to be more expensive to fund the very large future liabilities we have. As a way of thinking about this imagine asking state and local pension officials how happy they'd be to assume a lower interest rate on the accumulations they have to undertake to fund their unfunded pension liabilities. It's the same problem that we have with the unfunded Medicare and Social Security liabilities, which according to the recent trustees' estimates are roughly five times as large as the publicly held national debt. So if that's such a large problem relative to the problem associated with national debt, it suggests that low interest rates in terms of meeting the government's

intertemporal budget constraint are at best a mixed blessing.

The second point I wanted to make on how good low or bad low interest rates are for us is a point that Doug mentioned in his comments, which is if the world is riskier and we do risk adjustment, committing to use future resources to pay for current liabilities should involve an adjustment for risk. And if the world is a very uncertain place, then the fact that interest rates are low doesn't mean that we need only to worry about committing only a small increase in resources in the future if we defer making those payments today. Now I agree it's a conundrum that the big increase in the spread has been between treasuries and corporate bond and private securities rather than between high and low grade private securities. On the other hand, I would just ask us all to remember that during the global financial crisis there were a lot of AAA-rated securities coming out of collateralized debt obligations, and not all of them turned out to be as safe as the rating agencies thought they were at the time they gave them that rating. And so I don't have a simple answer for why the spreads have taken the pattern they have, but I would just suggest caution.

Now, on the issue of public investment and undertaking more public investment, if the rates of return on public investment are high and the borrowing cost is low, two caveats here. The first one is to remember that government investments don't generate tax revenue directly. Now, they may generate it indirectly. That is if you're thinking about undertaking a public investment that gets people to work faster, allows them to be more productive at work, that's going to generate higher returns in the private sector, that's going to generate more tax revenue. On the other hand, if we're investing in something that increases the well being of individuals, increases their enjoyment of life, that certainly may be a very valuable investment, but it doesn't necessarily generate additional tax revenue. Now, why does that matter if it's well being that we care about? Because we need money to pay off the debt and the interest and principal on the debt. And that money has to come from tax revenues which have distortionary effects on economic activity. And we need to take into account the additional cost beyond the revenue, what economics call the excess burden of taxation, in thinking about how productive these investments have to be. A second is that government investment, like private investment, is largely irreversible once it's undertaken. If we decide to invest a lot of money in schools and it turns out that the school age population isn't as large as we thought it would be, then we may end up having a lot of

stranded capital. Now, this is always a problem, and it's a problem in the private sector, it's a problem in public sector. I think it's a bigger problem in the public sector because there are certain kinds of -- most private assets are assets that if they can't be used in the U.S. might be assets that could be purchased either by other companies or people in other countries. I think that's probably less true for certain kinds of government capital. Maybe that public school that isn't needed can be used as a private school, it maybe can be converted into an apartment building, but I think a lot of public investment does not have that character. I mean you can think of this as a variation on the theme of the roads to nowhere, but in this case it wouldn't necessarily be a road that we knew in advance wasn't going to be very useful, but one that turned out not to be very useful in the future.

A third point I wanted to make, which I don't think is discussed in the paper, is that another one of the serious problems we have today, inequality, raises the economic cost of servicing our national debt. One of the ways that we are starting to deal with inequality in this country, certainly in the last few years in terms of our fiscal policy, is by moving toward a more progressive fiscal system. We've had tax increases under the Affordable Care Act with the resolution of the Bush tax cuts that have largely held harmless people lower down in the income distribution and raise taxes at the top. And then that is arguably the appropriate thing to be doing given the underlying economic inequality and increase in that that we've seen in recent decades. If we're going to continue in that direction, and obviously this depends very much on the outcome of elections in 2016 and beyond, then we need to realize that the taxes that additional taxes that collect to service the national debt are going to come with greater economic costs, because they are going to be associated with higher marginal tax rates than would be present under a system that's less progressive. That's not to say that's the wrong tax system to have, it's just saying that we need to take account of that as we raise additional taxes.

A fourth point I wanted to discuss is the issue of using fiscal policy more aggressively because monetary policy is hard to conduct. And I'm sure this is something that Olivier will talk about because this is something that he has talked about in the past, the idea that -- on the one hand I'm very sympathetic to the idea of using fiscal policy more aggressively, particularly in recessions. That some of my own research in recent years has suggested the fiscal policy can be particularly effective in recessions whether or not we're facing a zero lower bound in terms of monetary policy. On the other

hand, trying to come up with fiscal solutions to deal with constraints of monetary policy brings back a bad memory in my mind, and that is a memory of the discussion in early 2001 when many people, including Alan Greenspan, argued that we needed to have a tax cut because we were running out of treasury securities. And we wanted to make sure that monetary policy could be conducted and having a tax cut was a good way to make sure there was an ample supply of treasury securities. Well, that is a signal success. (Laughter) But I think in that case, as well as in the present case, looking for fiscal policy solutions to monetary policy problems is not the place to look. Central banks have become creative in terms of paying negative interest rates on reserves. I think a higher inflation target is certainly another option. And in general I think coming up with solutions to monetary policy using monetary innovations in monetary policy is more appropriate than using fiscal policy.

And, finally, on the issue of whether there is something special about treasury securities, which is another point that the authors make, I think that's an interesting hypothesis. And others have made it arguing that the U.S. should supply more treasures because there's a very, very strong demand for them for whatever reason. I think that is an interesting point. It may be a valid one, but let's keep in mind what it says and what it doesn't say. And as Doug said, I think in the end, in talking about the implications, it's the suggestion that the government should issue treasury securities and invest in private assets. It's not an argument for running larger deficits net of the assets being purchased. Now, there are some procedural problems. I mean thinking about the government going out and issuing debt to buy private securities would make a lot of people uncomfortable. And so one might think that there are sort of constraints on our ability to do that. On the other hand, if you think about what the Fed did during the global financial crisis, when it expanded its balance sheet quite substantially and went beyond its tradition of purchasing treasury securities to purchasing private securities as well, that's basically the same thing. And that was quite a very large balance sheet expansion that the Fed undertook. Now you might say that was in a crisis, it would have met a lot more political resistance in normal times, and that may be true. But I guess I would say that we should certainly contemplate that as a potential policy approach without simply concluding that it's not something that the federal government could do. I mean there are various ways to accomplish the same outcome that wouldn't perhaps be as transparent as simply going out and issuing bonds and then using the proceeds directly to buy private securities. It could be done through

trust funds rather than directly by the treasury, for example.

So let me wrap up. I think this is a very interesting paper. I've only touched on some of the points and less on the discussion that Louise was talking about at the beginning about the appropriate path for consumption. And I agree that it's important to go beyond sort of simply looking at measures of national debt and looking at the underlying distribution of consumption and well being of individuals and thinking about what the appropriate policy responses are. But, for me anyway, a bottom line of the paper is that it is far too simple to look at low interest rates and conclude that things are okay, the pressure is off, and we don't have to worry very much about undertaking fiscal adjustments. I think actually there is very little impact on the need to undertake such adjustments resulting from the fact that interest rates currently are quite low.

Thank you. (Applause)

MR. BLANCHARD: This is a fascinating paper. It is an incredibly ambitious paper in terms of the number of issues it tries to deal with in a very intellectually honest way. Unfortunately it's also an incredibly difficult question, so that in the end there are still I think many issues left standing. The reasons is that when we think about fiscal policy, when we think about debt, there are various dimensions of the problems, each of them very difficult to understand, which interact in very complicated ways in the current environment. So I've made a list here.

One approach is just to think in terms of intergenerational redistribution coming from debt, and that's kind of a standard approach, safe from the (inaudible), shifting income across generations. There's another one which ignores this generational aspect and is about tax distortions and how you use debt to basically smooth taxes which goes back a long way, but more recently to borrow. And the in the current context you have other things which come in, which are probably as important in the current context. The first one is because the interest rates are so low the old issue of dynamic inefficiency comes again and we have to think about it. Then the fact that the interest rate, the safe rate, is so low suggests that there is something about the liquidity of public debt, something which has been discussed, which cannot be ignored. And then we have the short run effects, which is as Alan mentioned where you have an environment in which monetary policy basically cannot be used, so that some of the things that we might want to do in normal times, such as reducing deficits, have much bigger short-term

implications. And so for each issue you have to basically keep track of all these things, and it's very difficult. So the statement that the bottom is not just false modesty, but it is really difficult.

So let me make a few points. The first one is going to sound trivial, but I don't think it is, which is what is the right objective function when we want to think about the optimal path of debt. And it's clearly to maximize the expected present discounted value of utility in some form, subject to an intertemporal budget constraint. Now, why do I make this remark, which -- well, because the problem is incredibly difficult to solve. And so what happens very often is that the focus becomes the focus on the intertemporal budget constraint and becomes more fiscal accounting exercise than a true economic exercise. Too hard to know what debt should be, but we don't want it to explode, we don't want it to implode, and just see what we need to do in order to get it flat. And we forget all the reasons why in the first place we may have wanted to do something for that. I took an example which is not -- I mean it comes from outside the paper, but doesn't come from outside I think this building because there was a paper on this, on debt management, which is, you know, when the Fed was buying long bonds and decreasing the rate then the Treasury thought that the way to decrease the cost of borrowing was to issue long bonds. Now, from the point of view of the Treasury this was perfectly reasonable, minimizing the cost of debt management, which is exactly what they think about, but it was just upsetting what was probably something very useful for the economy, which was the intent of the Fed. So the fact that we stabilize debt or we minimize the cost doesn't mean it's good for welfare. We just have always to think about the distinction between the two. So the issue is when is it that we can focus very much on what I would call the accounting approach and when will we have to go away and think about intergenerational issues, whatever else. And clearly I think that we have to think about it because this is a criticism of the paper, which is what I said was not the next track but is some very concrete criticism of a paper, which is if you look at the discussion of aging that Louise gave, it is schizophrenic in the sense that it starts with the (inaudible) approach, derives the path of consumption, which is the best path given the objective function. It doesn't take the step to debt, but it could and it should, but it doesn't. And then it changes 90 degrees and then it goes to an accounting approach in which we basically think about the way in which debt should be stabilized and then look at value paths. The connection between the two, the fact that presumably there was an optimal path of debt from the first part which may not be exactly the same as

what you do in the second part. So because the problem is so complex, kind of basically shortcut, but this shortcut I think is a bit dangerous. So clearly in general you should, you know, take into account everything at once, but that makes for a very difficult problem.

So let me now go to the study that I had started talking about which is when is it that it makes sense to focus on what I would call the accounting approach or the fiscal approach. And I think it makes more and more sense the more intertemporal budget constraint is in doubt. The intertemporal budget constraint cannot be satisfied with 100 percent probability. It's a statement about how likely it is that we'll be able to sustain debt. And clearly as debt increases or as political space, fiscal space decreases, then the probability becomes higher and higher that debt will not be sustainable, and then that becomes the focus. So how do we assess whether we're far away from that, whether the other factors matter, or we just can do basically accounting because you see it's kind of the urgent thing to do. The tool there, which is used at the Fund, and I would like to see used more elsewhere, is stochastic debt sustainability analysis, which is you basically look at the path of debt on the various contingencies and you see what proportion of cases give you a level of debt which is unacceptable. Now, this being said it's hard to do because you have to decide what the contingencies are, but that's very much like stress tests for banks. It can be done. There is an issue of what you do with the really crazy contingencies, like pandemics or nuclear terrorist attacks. And you may want to say that in those cases there will be debt restructuring, there will be something, and you ignore those. But I think that's a very useful approach to have. Now when you do this, if you were to do this for the U.S. today, I think you would not be terribly worried. I mean if you did this for Japan you'd be terrorized. If you did for Europe, you'd be very worried. But in the U.S. at this stage there is still what, you know, we call informally fiscal space, so that for the moment we could focus on some of the other factors without just wanting to decrease debt at all costs because that may not be needed.

So I see that time is going fast and I have a lot of stuff, so let me just go forward. I'm going to take two issues, the first one is aging and debt and then the other is this marginal product of capital low safe rate environment and the implications it has.

So, on aging, the point which is made in the paper which was not made by Louise when she presented, is that the issues are quite different conceptually whether it's longevity or whether it's

fertility. And the argument of the paper is the fertility part is largely gone and we're now in longevity, which is people are going to live longer and therefore have a lower level of consumption per year if they don't work longer periods. So the question is let's focus on the intergenerational aspect for the moment, what is it that we want to do if in the future basically the ratio of workers to population goes down, therefore consumption per person goes down. You can think of this as an adverse shock to the production function in effect. I mean that's a shortcut, but that's a simple one. So what can we do in order to make life better for those which are going to live longer? Whether we want to do this or not is not clear because I mean they live longer. That has some value in terms of utility, but if we care about consumption we may want to do something. Well, what the animal we have does is it tells us the way debt works is by affecting capital accumulation. Debt doesn't work directly, but it basically changes the behavior of people, changes capital accumulation. So what you want to do is decrease debt for the time being to capital accumulation increases, and then when the more longevity cohorts come they have more capital to deal with.

Now, here I'm going to go fast because of the time constraints, but what we can do for future generations is actually quite limited. I think that's a message of the paper, that's a message of this (inaudible), which is that suppose that we reduce debt by 10 percent and increase in some (inaudible) capital accumulation by 10 percent, for the rest of history that's not a whole lot. That's the kind of gift we can give. If the world is going to be worse later we can help, but we can't make a big difference.

So there's another way of thinking about aging which was also emphasized, which focuses on the second factor I had on my first slide, which is tax distortions. So if there are lump sum taxes that's not relevant, but if there are distortionary taxes, then given that basically transfers will have to be bigger and taxes have to be stronger. In this case you want to decrease debt before. I think that's a much stronger argument than the intergenerational argument. So if you longevity increasing you may want to decrease debt until it happens and as it happens in the beginning.

Let me move to the second issue, which is what if we are in a world in which for marginal product of capital is greater than the growth rate but the growth rate is greater than the safe interest rate, the interest rate paid on debt. Now again there is a whole discussion as to whether this is the right way of looking at the world, but I think it is. I think the marginal product is still fairly high and higher than growth,

and then the safe rate is either just below or around G. So I think that's the configuration that one should be focusing on. This implies that we have dynamic efficiency because the marginal product is greater than the growth rate, but that the rate that is paid by the government is less than the growth rate. Now, in that environment what should debt policy be, and this is what Doug was largely about. Now, there is something incredibly appealing about that world, which is that you can issue debt and you never have to pay it back because basically decreases relative to GDP even if you do nothing because the interest rate is less than the growth rate. So it looks like you have a free lunch, but you have a free lunch in terms of debt, but you don't have a free lunch in terms of capital, which is when you do this you increase debt and you decrease capital accumulation. So the initial generation is better off, consumes more, but the later generations are worse off. So there is no free lunch in terms of what we care about, which is consumption. You can use this to transfer consumption across cohorts, but the fact that you have a free lunch for debt doesn't mean that you have a free lunch in terms of making everybody better off.

So let's go a bit more into the issues here and let me first leave aside public investment, which I think is a big issue and I'll come back to it. So the first point is even if you can issue debt and never pay it back you may not want to do it. However, there are other elements which come in and again they come from the list of factors that I gave at the beginning, which is if the cost of servicing debt is lower than at a given level of debt then you need less taxation. There is distortion, which means that the equilibrium when you work it out is probably a slightly higher level of debt and slightly lower level of distortion than you had before. So I think on those grounds, on the grounds of smoothing taxes and tax distortions, you probably want to have lower debt when interest rate is low.

Then the other dimension is that public debt can do things that may be are not captured in the simple (inaudible), and that was a discussion that Doug had. Maybe it comes from low risk, but I think it may come from higher liquidity of the TBO market, which is very special in its own way, it may come from the fact that the state has taxing power, so it's less risky than the private sector, it may come from institutional constraints, which here may be good or bad. Actually Doug seemed to think they were good, but they could be bad. I mean there could be financial repression. So if this is the case then clearly, take the liquidity aspect, then it may make a lot of sense to have more T-Bills in circulation because they basically are liquid and are useful; they move a production frontier out. But then we come

to the point that Alan made, which is this is a statement about gross debt, which is you increase gross debt but there is no reason for net debt to actually be increased. And what the government should be doing is issue more and then use that to play its financial intimidation role and buy other assets. But there is no reason at all that I can think of for higher net debt.

Now, all this was without public investment, so we now come to it and I'm going to repeat the points I think have been made here both the speakers and by Alan, which is clearly you should invest in the cost of capital to the state is R, not anything. So basically there should be public investment all the way to where the social return is equal to the interest rate. Now, the issue is should it be financed by debt, and that's exactly the point that Alan was emphasizing. If it's projects which have a financial rate of return it's fine, but most of these projects presumably are largely public because they have a social rate of return and a very low financial rate of return, in which case if you finance it by debt you'll have to find the money somewhere. And that gets you to various issues, which is tax smoothing, tax distortions. It gets you to issues about the intertemporal budget constraint being satisfied and so on. So I think there the answer is yes, there should be investment. Whether it should be fully financed by debt or not, the answer is no.

Let me just end with one slide. So this was a bit academic I thought in terms of, you know, there were a bit away from the answers that people in Washington would want to have. So this is what I believe in the end. I think the U.S. is in a much better position than many countries, but given the forecast levels it seems to me that we cannot ignore the intertemporal budget constraint. Basically if nothing is done it is going to be an issue and we have to do something about that.

The second point is if this is really a dominant consideration then the fiscal accounting approach is probably kind of mostly right. The purpose should be to decrease the debt to GDP ratio -- at least avoid the increase that was there in the forecast.

The third is that there is no urgency. At this stage basically I think the risk that the intertemporal budget constraint is not satisfied is very small. You can do it slowly and that's where the fact that the interest rate is less than the growth rate basically does it for you. You just do it for a while -- Doug gave this number, 40 percent decrease in debt in 2040. You can basically go a long way by just doing this. If you tried to do more, if you tried to reduce deficits at this point without monetary policy being

usable, then what we have learned from Europe is that it's likely to be catastrophic. And basically the arithmetic of deficit reduction in terms of output, in terms of debt reduction, is awful. So you really don't want to do it before you have monetary policy space to do it.

And then the last one is yes, I think there is a very strong argument for public investment.

Thank you. (Applause)

MR. WESSEL: So I hope that's clear to everybody and we can go to lunch. (Laughter)

Here's what I propose to do, because Olivier and Alan raise such interesting questions about the paper I'm going to suggest that, Louise and Doug, if there are a few points that you want to respond to let's do that first. Then I want to tease out a little bit more of the policy implications of this, and then we'll turn to questions. And we have about half an hour.

MR. ELMENDORF: So let me just say a couple of minutes' worth. Mostly we're very grateful to Alan and Olivier for such interesting and helpful comments, the ones you've seen and some they gave us before we came here today. And their insights into this in the past are ones we of course have drawn on in our own learning and for this paper, and we'll take more of these comments on board as we improve the paper. I think we agree with much of what they said, and in particular -- I will say a month or so ago Olivier mentioned that we had taken on a more ambitious project than he might have taken on, and that certainly scared us (laughter) and these comments in some way make the problems seem even more complicated than the things we're trying to tackle. And as David said earlier, we view this as a starting point. Our concern in doing this was that not a lot of careful thought had been given to how lower interest rates would affect desirable fiscal policy. We've tried to get that ball rolling, but we think it's important to think about all the issues together as best one can and Olivier and Alan pointed out places where we hadn't really knit the pieces together. So it is hard, but we think it is important to use pieces to together and we will try and others we hope will try to push this project further along and to delve into more of these issues that we haven't been able to resolve.

One specific thing I wanted to note -- maybe two -- one is on this question -- Alan you raised a number of points about the riskiness of public investments, the difficulty of recapturing some of the returns for the budget, the balance between fiscal and monetary policy, and addressing cyclical problems. And I think we agree with all those points. I would emphasize that what we were thinking

through was how the lower interest rates change the balance from you would have otherwise done. It's not saying that any public investment will pay for itself, and we were explicit about that in the paper, but relative to what one might have done with higher rates, we think these arguments shift in one direction. But that is important to -- mostly shift in one direction -- but it is important to understand that it is relative to what one would have thought otherwise. We are not arguing that all public investments are good, we're not arguing that fiscal space is unimportant, we're not arguing that aging doesn't matter, we're just saying there are additional important considerations.

The other thing that was touched on was the issue of distortionary taxation. There is actually a calculation in the paper about how much that matters. It turns out not to matter very much. So it works out that debt rate loss of raising taxes, little now and more later, or more comparably over time, quantitatively doesn't seem particularly consequential.

I mean the last thing I would is about this question of the government buying financial assets. So I first came to this issue in the late 1990s at the Council of Economic Advisors as the Clinton administration was considering investing the Social Security Trust Fund in private assets. And the analytic concerns were substantial and the political blow back was viewed as overwhelming. And I think you're just right about what the Federal Reserve effectively did, but the political blow back to that has been very powerful in a way that I -- I mean I think the Fed was exactly right to be buying assets on a large scale, but there was a political consequence. And I think we saw in fact that it's difficult to do that under -- during a crisis itself that seemed okay I think for a lot of people, but under conditions that were more normalized in financial markets, but still very bad for the economy as a whole, there was a lot of political opposition to buying assets. So in the paper we're more careful than I was in my comments about what you could do if you go that route, but I think as a practical matter it actually would be very hard.

MR. WESSEL: Louise?

MS. SHEINER: So Doug touched on most of the points. The only thing I think I would is just to reemphasize, when we talk about investment we're not talking only about school buildings and roads and things that are not transferrable, we really are thinking about anything that's going to boost outcomes for kids in the next generation, and things that could reduce inequality, which would have on

themselves incredible benefits, but we also think that would have benefits for attacking aging, attacking the problem of taxation. So I think that we're thinking that is really an opportune time to do those policies that can help people now, help them in the future. And my reading of evidence, is just that we are learning I think more and more that some of the views about the effects of interventions to improve outcomes are bigger than we thought. So better data, people following people for many, many years, sort of consistently comes up with this idea if you look at the cost of the Medicaid expansions, for example, a recent paper shows they more than pay for themselves without even going over a 50 year lifetime. So that kids who got Medicaid and end up doing so much better later in life. And I think that a lot of the recent evidence on interventions show that there are a lot of things that we can do that both will improve inequality and help us deal with our fiscal challenges. And now with interest rates so low, you know, this is the time to really be open to that.

MR. WESSEL: Alan, as I listened to Olivier, Olivier pointed out a number of weaknesses in the paper, largely the result of trying to tackle some really big questions, which as Doug said earlier, there are a lot more branches to the tree that they have managed to draw in the paper. But when you got to the end of Olivier's presentation, he said okay, despite the fact I don't like this, this, and this, let's be clear, don't ignore the intertemporal budget constraint, but for God's sakes don't rush to cut the deficit and debt now or you'll end up in the European catastrophe.

Alan, you described a number of things in the paper that you found unconvincing or looked at only one half of the picture. For instance, it was pretty persuasive when you pointed out most state and local pension funds would not be cheering that interest rate and returns are going to be low. It's not going to make their life any easier. But you come down, it seemed to me, much more cautious and much more aggressive on attacking the problem than Olivier, and I wonder if you could explain why.

MR. AUERBACH: I think part of it has to do with the politics and part of it has to do with the cost of adjustment. Politics being that given an opportunity to delay we will always delay. And so I sort of feel myself pushing in the other direction. The other is that when we undertake reform -- I mean in a model we can talk about cutting spending or increasing taxes, but since more than half of our primary budget now is Medicare, Medicaid, and Social Security, that's really what we're talking about if we're talking about the spending side. And making changes in this program is difficult and I think inadvisable if

one tries to do it very quickly. And so if one factors in the cost of adjusting these programs appropriately and thinks about the cost of individual well being, of trying to make rapid changes, I think that should push us more toward making adjustments gradually, even if we don't, you know, feel the capital market is pushing on us to do so.

MR. WESSEL: Doug, I think that Alan touches on something that I know you had to deal with at CBO, and I think the argument goes sort of like this: oh my God, you economists, you're falling into the Alan Greenspan trap. The political system does not want to deal with the long-term budget problem that you and Louise describe as unsustainable. If you give them any reason to delay they will never do it. So you're like a bunch of doctors saying, go out, smoke and drink now, just be sure you quit before you get sick.

But on the other hand we don't want to be in a position where you're economic physicians and you can't give the political system your at best opinion because you're afraid they'll abuse it. So how do you think about this and how do you work through the politics of good economic advice?

MR. ELMENDORF: So two thoughts I think. The first is that I do worry that our sitting here saying that you don't need to be as worried as you are will provide a license for not addressing this issue and that would be a mistake in my view. But at the same time I think as an analyst doing this sort of work, to just pretend that yes, interest rates are way lower than they have been in the past but we should not really think about that would be a mistake. I mean at CBO I never tried to present information in a way that would steer the Congress to one way or the other. I presented the analysis that my colleagues and I did as objectively as I could. And if the Congress used it badly, that really was their responsibility. And my responsibility with this group of analysts was to present the analysis. So that's my first view, which is that we just need to be honest we think about what the situation really is.

The second point I would make though is that in the discussions about debt being an urgent problem, the actual policy change that occurred was to put in place caps on discretionary spending that were damaging in the short-term because they reduced aggregate demand at a point when the Fed was still at the zero lower bound, and are damaging in the long run because part of what's been cut is federal investments. And in the narrow category of investments, as defined OMB, which is infrastructure, discretionary spending on education and training, and R&D. As Louise noted there's a broader category,

Medicaid and so on, but in that narrow category is basically half of non defense discretionary spending. So under current law, the caps that are in place, even with the loosening we've seen in the past few years, under current law that spending will fall to a lower share of GDP than at any point in more than half a century. So the sort of perceived urgency to address the debt has actually led to policies that are counterproductive in the short-term and the long-term. So there are risks of just trying to emphasize the message of you should still worry about the debt because that can go in very counterproductive directions.

MR. WESSEL: Olivier.

MR. BLANCHARD: I think your question has two parts. The first one is the eternal issue of how as an economist you want to influence policy and whether you want to state your opinion exactly as it is, move away from the other guys, you know, to come some compromise. And there is no simple solution to this.

But the other is that in the old days I think we would have taken as given, that the risk was that policy makers were going to just spend and have large deficits. And for the last eight years, until a few months ago, basically my fight was with people who wanted to do exactly the opposite. So the incentives of policy makers are more complex and different today maybe than they were in the past, in which case it's nice, we can be in the middle. (Laughter)

MR. ELMENDORF: One thing I think I would do at least, is I think it would be very useful to adopt a long-term plan to address entitlement spending and tax revenue and so on, and I think it's useful to adopt that soon. I would not have the actual fiscal tightening though take effect for a while, but I think it's consistent with Alan's -- I mean I think Alan is just right, that you don't want to make these changes overnight. The largest change that we've made in entitlement programs, in cutting them back, has been increasing the Social Security retirement age, which was enacted in 1983, is still being phased in, and we won't have phased out all the people under the old rules for another few decades from now. So the whole process will have taken I think almost 80 years by the time it's through the system. So I think it's very useful to start planning now and work out what we will do and to legislate that, but I don't think it should take effect in the sense of raising the retirement age now, or cutting Medicare benefits next year.

MR. WESSEL: Louise, you said a very comforting thing in your presentation. You said that aging is starting now. I was kind of relieved; I thought my aging had started quite a while ago. (Laughter) But you and I have talked and Alan has talked in the past about what do you do when you're uncertain about the future. And if you think about the arguments that you and Doug make in the paper, and you think about Olivier's chart, the marginal product of capital is greater than growth rate and the growth rate is greater than the interest rate, well, you know, four or five years ago you would have been laughed out of this room if you said I think we're going to have low interest rates for a long time. So how do you think about -- what advice do you give to the policy maker when you have to be honest with him or her and say look, we have good reason to believe interest rates are going to stay low for a long time, but I've got to tell you we could be wrong because we were wrong before.

MS. SHEINER: We had an event last year about that and Alan did a paper for us. And I think what he said was pretty compelling, which is that to the extent there's uncertainty you want to sort of not be as aggressive in anything that you do. You want to sort of mute it, you want to save a bit more in case you're wrong. I think that's clear. So, you know, all of the points that we're making aren't like oh, my god, everything is fine, we're done, there's no question, never worry about the debt again, and in fact we can let the debt rise indefinitely because you can always let it -- you know, with the projected rates it will draw down by itself and so there's no more issue. We don't say that. We don't say that one because we worry about things like fiscal space, but also because of course we don't really know what interest rates are going to be in five years or eight years, right. So these are all sort of like we want to make a nod towards things that take advantage of what is now. We know interest rates are low now; we can take advantage of them by doing things like investment that really good long run consequences. So the nice thing about public investment is it is precautionary saving at the same time, so that we're not making the future worse off by engaging in it. So those kinds of things, you know, they don't really change your calculus very much. The other things, yeah, you should be always be a little bit more cautious given how little we know.

MR. WESSEL: So, Olivier, you said you want to speak, but I also wanted you to explain how this stochastic debt sustainability analysis would work given the amount of uncertainty that we have.

MR. BLANCHARD: Well, I mean that's exactly what it tries to capture. But the point I

wanted to make is there is a fundamental asymmetry in the behavior debt to GDP ratios, which is uncertainty increases the probability that it gets very low, and increases the probability that it gets very high. We don't care much about very low, we care very much about very high. And so there is kind of the effect of a second moment on policy which really has to be included in the thinking about policy. It's just not that there is more uncertainty, it's that more uncertainty increases the risk that you're going to fail, and that's a big issue.

MR. WESSEL: So if you do this stochastic dynamic sustainability and you come up with this wonderful fan chart that says well, things could be worse, things could be better, what's the next step in that? How do you implement that as a policy maker? I mean Doug has talked about this. You know, the members of Congress are not interested in a fan chart, give me a point estimate. And if you give them a range the ones who want to do something take one end of the range and the ones who don't want to do it take the other end. So how would you see this working in practice?

MR. BLANCHARD: It seems to me that if you show that on the reasonable assumptions -- again I think the analogy we have a stress test is the right one. If you show that on the reasonable assumptions, the probability that the debt to GDP ratio exceeds 150 percent in 5 years say, then I think that you have the tool to go back and say we have to make sure it's to eliminate that part of a distribution. How you do it exactly, I think that's a big issue. I mean we're thinking about how to redefine fiscal rules in Europe. I think conceptually that's the right tool, but how you go from that to a set of numbers to a set of decisions, that's very hard. But conceptually it's straight forward.

MR. WESSEL: Alan?

MR. AUERBACH: I think that the problem as has already been talked about is that the U.S. does not face this immediate crisis. And the appropriate responses in the U.S. don't involve cutting discretionary spending immediately. It's a longer-term problem and at least on the spending side it involves much more restructuring of entitlement programs. And I think it's really hard to deal with that in any kind of fiscal rule, and I think it's also politically very hard to deal with that, as has been shown. The budget cutting -- I mean Olivier talked about the politics of budget cutting and perhaps being surprising, but the way we've been cutting the -- not only the time but also the way in which we've been cutting the budget is clearly not the right way if we're interested in long run sustainability. And I don't know how you

communicate -- I've struggled with this over the years in thinking about different ways of communicating long-term budget problems, but I don't know how one incorporates that in the policy process. We've certainly been a failure at doing it so far.

MR. WESSEL: Now, before I turn does anybody want to add anything else.

Okay, we have a lot of people here. Let's -- I'm going to take two or three questions at a time and then we'll -- Bill Gale here in the front, can we start with him? So tell us who you are and ask a question.

MR. GALE: Bill Gale, Brookings Institution. I want to make a very quick comment and then a question. Even in the low interest rate environment I think we're going to emphasize debt to GDP ratio is rising. Alan and I have done calculations that suggest that even if interest rates stay constant the next 15 years, debt to GDP ratio is something like 110 in 2040. If they rise half as much as CBO says we get debt to GDP around 130. So it's not like the problem goes away even if you're just looking at the debt to GDP ratio. There's a significant fiscal gap.

The question is the discussion of interest rates was fascinating and very in depth. I just want to ask one more question about that. It seems like interest rates can go up faster than the debt to GDP ratio can come down. So if we set debt policy based on low interest rates and then finally the Fed inflates the economy successfully to two or three or four percent, that's going to boost nominal rates a lot which will affect debt dynamics and stuff. And at that point if we've settled on a high debt to GDP ratio we might be in hot water. So I'm just interested in reactions to the uncertainty aspects of the rate of inflation.

MR. WESSEL: Maybe we should take that one. I just want to point in their defense that the first page of the paper says, "The federal budget is not on a sustainable path. Substantial reductions in federal spending, increases in federal taxes or both will ultimately be needed." What this is about is how much, how fast. It's not about whether. Now on the rates.

MR. ELMENDORF: Well, I think, Bill, you're just right, which is to say that the risks that rates can rise is one of the reasons why one should not go all in on whatever one would do if we could all figure it out, if rates were to stay low. That's part of why I think that -- and why we say it in the paper -- that fiscal policy should -- so think about the future world as having some probability of low rates and some probability of higher rates. But I think what is different now is that the probability of rates this low is

a lot larger in my post people's minds.

MR. WESSEL: Not this low meaning today's nominal fed funds rate, but you mean --

MR. ELMENDORF: No. That rates will stay --

MR. WESSEL: Lower than the (inaudible) average.

MR. ELMENDORF: -- lower than they've been over the last few decades. Looks like a much higher probability today than many of us, including certainly I, would have said in this room even a few years ago, but certainly half a dozen years ago or 10 years ago. So the probabilities have shifted and if there are different implications of low and high rates, a higher probability of low rates, we should be shifting our policy in that direction. Now how much one shifts it, we don't even try to define in the paper. So that we don't know the probabilities, and we don't quite know what you would do, but I think directionally we think a lot of arguments go that way.

MR. WESSEL: Alice?

MS. RIVLIN: Alice Rivlin; Brookings. This is going to sound like the comment of an old budgeteer, which it is.

MR. WESSEL: That's why we invited you. (Laughter)

MS. RIVLIN: I found this a very interesting paper and it made me think about a lot of aspects of the problem that I hadn't thought much about before. But before I read your paper I would have said there is an enormous case for productive public investment right now to make the pie bigger later and because we may still have some slack in the economy. But there is a very strong case for taking action now to reduce the entitlement programs in the future. And as Louise said, aging is starting now in the sense the baby boom generation is here at the threshold of the big entitlement years. So I think it not only reinforces my belief in public investment now, but -- and this is not emphasized in the paper -- in taking action immediately because that's the only way you can do it to get changes in the entitlement programs out later as Alan has said.

MS. SHEINER: I mean basically Doug said this, which is that the paper is really about when the changes in taxes and spending occur and not when the decisions take place. So clearly if we need a lot of lead time we should be talking about that. I go on the politics of it though, then I worry on the other side too which is that talking too much about how we have to make changes might really induce

us to not do the public investments, to do more cuts in discretionary spending, to sort of not heed the other advice as well. And again you want to be an honest broker, you want to say yes, of course, you should think about how you're going to make those changes in the future now, but I do think there is a contingent who would say well, let's just cut right now, and I think that would be for the reasons Olivier said in terms of the state of economy, would be a bad thing. So on the other side you have that kind of question.

MR. ELMENDORF: You're right, Alice. We don't say -- in the paper I think we're not clear about the desirability of taking decisions now and having them take effect later. I think that is our view. And I think in fact the baby boomers are -- we've waited long enough that many of them will in fact escape significant changes.

MS. RIVLIN: And the number of voters in that age group is going to make it harder and harder to change the entitlements.

MR. WESSEL: Olivier.

MR. BLANCHARD: Just a remark. You made the list of changes today relative to 10 or 20 years ago I think one of them is the decline in public capital to GDP, which is what Alice is about. I would put this on the list. We're not starting from steady state.

MR. WESSEL: Right, right. Because the reaction of the system has been to attack just the wrong parts.

Let's take the mic to the back of we may. There's a gentleman -- yeah, that guy. I can't see who it is. Stand up. The woman -- is it a woman? Yes, thank you. Tell us who you are. We'll take a couple now.

MS. WU: Sharon Wu, Economics Department, George Washington University. So from a different point of view, from an international finance point of view, there are papers relating the U.S. deficit to emerging market high saving rate and their inability to produce sufficient financial assets. And also they observed that there's a difference in the components of capital inflows. For example, in emerging market countries they have more FDI inflows, and for the U.S. and UK, European countries, they have more banking inflows. So I'm thinking how much do you think that emerging market capital inflow matters for the U.S. deficit, both the (inaudible) deficit and the current account deficit in general?

And also especially how much does the components of capital inflow matter for the U.S. deficit and maybe the policy implications?

Thank you.

MR. WESSEL: Thank you. The gentleman standing in the back. Do you have another one? Okay, Olivier, do you want to take that?

MR. BLANCHARD: I mean I think there were many parts to many, many dimensions that we can talk about. But surely one which is relevant and related directly to a discussion is the attractiveness of T-Bills to the rest of the world, and therefore liquidity services that are provided with T-Bills. And I think that if indeed the T-Bill market is a special market then the U.S. has a special role in providing liquidity. And this explains why the current account deficit of the U.S. hasn't been a big issue, because people are willing to do it. But again I think that goes more in the direction of saying maybe we should have more T-Bills, but maybe we should not have more net debt. That's the point that Alan has emphasized. He says we should be more into financial intimidation but not necessarily have more net debt.

MR. WESSEL: I don't quite understand why that's the only alternative. The Treasury could issue fewer 10 year and 30 years bonds and more T-Bills, no change in the total Treasury debt, but just a different maturity. Wouldn't that accomplish some of this?

MR. BLANCHARD: As we know and as the paper that you commissioned six months ago says, this is something which can be done by Treasury in terms of changing the maturity, but it can be done faster by the Fed in terms of—because the Treasury works with stocks, right. The Fed can basically change the composition. But if you integrate the two, it's something which can be done by the Treasury plus Fed, and that's a service to the rest of the world and we should use it as much as the world wants it.

MR. WESSEL: The gentleman right here, and then on the aisle.

MR. ENGLISH: My name is George English. There are a couple of items you haven't mentioned. One, the fact that the dollar is the world's reserve currency. If we were in Europe now I don't think you wouldn't be worried about the problem of low interest rates because our currency wouldn't be very desirable. And secondly, there is such a thing called the gold market and it's gone up five percent in

this past week. So people do have alternatives to treasuries. And unless we get our fiscal house in order, pretty soon they're going to start thinking well maybe that's the only thing that's left.

MR. WESSEL: Thank you.

MR. CHECCO: Larry Checco. I mean I think that Alan said that inequality raises the cost of servicing the debt. What impact does it have on growth? I mean how much—you know what I'm saying? Thank you.

MR. WESSEL: Mark?

MR. GOLDWEIN: Thank you. Mark Goldwein. As I think you all know the CBO projects debt is going to grow about $10 trillion over the next 10 years, or 11 percent of GDP. Are you all suggesting more public investment on top of that, or are you suggesting that we just don't need to borrow as much less as we otherwise thought to pay for public investment.

MR. WESSEL: Okay, good questions. You want to take the inequality?

MR. AUERBACH: Sure. I think the evidence of the effects of inequality on growth are mixed and I think you really have to think about the sources of inequality. And I don't think there's any clear conclusion on that.

Let me just a point related. I think Doug or Louise pointed out the calculation in their paper that the tax smoothing argument isn't that big, but I think that was for sort of just a sort a tax as a share of GDP, that wasn't thinking about progressive rates. I mean if we were talking about really high marginal tax rates and getting the incremental revenue from very high marginal tax rates it might make more of a difference given that the excess burden of taxation rises with the square of the tax rate.

MR. ELMENDORF: Yeah, you're absolutely right in principle. I don't know. The effect was so small at the level of the tax rates we looked at that I don't know what it would do. We should check.

MS. SHEINER: Yes.

MR. ELMENDORF: Yes, I think that's something we're thinking about because it does concern me. I just think it's an issue we need to be thinking more about.

MS. SHEINER: I mean that's also thinking on the other hand that we're doing all the adjustment on the tax side which is not what we're going to do. And I don't know how to think about it, but

it seems to be cutting spending is a must have in some sense, some dead weight loss in a way that we don't know how to think about and we don't know if it's with the square, or I don't -- so on the one hand it may be an under miss, on the other hand it's an over estimate because we said it's all done on the tax side to do that calculation.

MR. WESSEL: Olivier, do you agree with Alan on inequality and growth? Do we have less growth because we have more inequality?

MR. BLANCHARD: It would be very nice if we could show that high inequality kills growth. I think the empirical evidence is mixed. And as Alan says we really have to understand there are 10 different ways in which it could happen depending on the origin of it. But we should worry about inequality because of inequality. And I think hiding behind -- well, you know, we care about inequality because it affects growth. I think it's a very weak reed to hold. Inequality is bad.

MR. WESSEL: You want to respond to Mark's question on investment?

MR. ELMENDORF: Yes. So I think what the paper says is that we should be less worried about the path of debt over the next decade than we would have been if interest rates were higher. And because we think interest rates are likely to be substantially lower we should be substantially less concerned about the increase in debt over the next decade. And I use the paired adjectives because we don't know how to quantify that.

My own view of this is that we should increase investment considerably relative to what it would be under current law, but I would make changes in entitlement benefits for the top half of the income distribution, and I would make some changes in tax policy to maybe offset the increased investment over the next decade, but to have larger effects in the decades beyond in order to put debt on a more sustainable trajectory.

MR. WESSEL: This new investment you want to do, do you want to finance it borrowing or do you want to finance it by cutting entitlements and raising taxes?

MR. ELMENDORF: Well, I think there's an argument for—with lower rates there's a good argument for doing more with borrowing. But I also am sensitive to the fact that we have a line tilted like this, eventually we have bring down. So the way that I would balance these in my own head is to let debt continue up, to not try to put it on a—make it flat right here, but to do so in a way that allows for more

investment. But the precise combination is not something the paper—

MS. SHEINER: Exactly.

MR. ELMENDORF: -- you can derive from the paper in any sense. My assessment.

MS. SHEINER: Right. Exactly. So then it's all just about from your gut of what the right thing to do is and --

MR. AUERBACH: Guts are okay.

MS. SHEINER: Yeah.

MR. ELMENDORF: And guys, briefly, the concern that all this borrowing will ultimately lead investors to turn away from Treasury securities is the concern that I think is quite legitimate, that we talk about in the paper, rates could rise by a lot. At the same time those words were uttered by me and others six years ago. The debt was a lot lower than it is today. And one of the very striking features is that this large run up in debt, really phenomenal increase over a short number of years, combined with gradual healing of the economy, has nonetheless left interest rates at incredibly low levels relative to where they've been in the past.

SPEAKER: Well, what about the class of banking systems in Europe? No one has mentioned derivatives (inaudible) that hangs over the whole world economy.

MR. WESSEL: I know there are issues. I know all four of these people here and failure to worry is not one of their genetic characteristics. (Laughter) So don't assume that becuase they didn't express a concern here that it's not something that they've thought something.

And with that, please join me in thanking Louise and Doug, Alan and Olivier, and all of you. An excellent presentation. (Applause)

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