Dr. Chamberlain: Well, thank you very much. One correction – I actually started at the state with Franchise Tax Board, and I actually worked there for 19-20 years before I went to Department of Finance. So I bet that's how I learned a lot about taxes was at the Tax Board. Before we go into the presentation which--where I'm going to talk about how we forecast tax revenue, I want to talk to you a little bit about jobs with the state, particularly with the Department of Finance. It's--I guess that I've worked for the Franchise Tax Board for about 20 years. I've been now with the Department of Finance as a chief of the Revenue Estimating Unit.

The name of the unit is the Financial Research Unit, but we're basically in charge of doing forecasting revenue. And I can say that both the--working to both places, and I had many positions at Franchise Tax Board, but very interesting, it's sort of--it's not pure economics. It's applied economics, definitely, and you're doing a lot of stuff that is other than economics. In fact, right now, in my current position, I feel like I'm probably doing the least amount of economics that I've done in my career. I do a lot of legal analysis. I--you know, I drafted legislation. I'm coordinating with other people. So I'm sort of coordinating with the people that do the economics. But it's still a very challenging job, intellectually stimulating. It's an important job. It--you know, the work that we do affects--well, it affects you guys because it affects how much money there is to fund the CSU system as well as a lot of other programs. So, I've found that a very rewarding career.
As Freddy pointed out, I've--I did spent some time at the federal government. It was--there, I was working with for the Federal Trade Commission. The work was interesting, but I didn't--I actually had a goal to get back to California and I didn't see a way of doing that, continuing in that line of work. And then, I also spent some time in the private sector doing consulting, which actually ended up--turned out being very similar to the work that I did for the State of California. The difference is that, if I came up--it's not that I would fudge my results when I was working for the private--for the consulting firm, but if they didn't like the results, they just wouldn't see the light of day, whereas working for the state, generally, I come up with a result and it gets presented, and whether people like it or not, it's accepted, so.

So [inaudible] guys, I've had those various experiences and I found working for the state to be very interesting. And the general path--the path that I took, which is going to grad school, getting a PhD, that is probably the most direct way to be able to do economics for the state, to do economics work. However, it's not the only way. In fact, my new boss -- she became my boss about half a year ago -- but she doesn't have a college degree and she's now in charge of me, a PhD economist, another PhD economist who runs our economic forecasting unit, as well as the PhD in demography, and she's also in charge of the CalTrans budget. So there are ways to work in the state without getting a graduate degree.
You would have to—you're going to start out at a fairly low level and you're going to have to be careful about, or sort of judicious about, the jobs you take and find a way to work into a position that allows you to do economic analysis, but it is possible to do. So the general path is to go to a graduate school, get either a PhD or a Master's degree. And really--and, you know, a little bit about the Department of Finance. We tend to hire—if you don't have state experience, we hire, generally, only people with a Master's or above. The Master’s can be in economics. It could be in public policy, public administration. It could be an MBA, maybe in statistics or political science. But something, you know, we generally are focused--are looking for master's students or people with master's degrees. The exception is if you've worked into the state and you've had some experience doing budget analysis, then that's the way to get in as well.

So, I would encourage you all to -- I'm not sure what your career plans are, but at least consider working for the state. We need good people. And I would especially encourage you to consider the Department of Finance or the Franchise Tax Board. And there's a packet that you should all have or, if not, we could get you one. And it gives some information about the State of California, the various organizations that you could work for that--so--and my whole career has been focused on taxes. But clearly, we've got—if you're interested in energy economics, there is--you know, there is the Public Utilities Commission or the Energy Commission.
If you're interested in health economics, we've got various departments where that would be useful education. So there's a variety of places where, if you're interested to different economic policies, that you could get into.

The general way to get in as someone with a bachelor’s degree--well, the first thing you have to do is get on the list with--state is different than the private sector and that rather than going for an MBF, you get on the list. And in their packet, there's a--they give a website that you can look at. You can take--you take an exam online, get on the list.

Now let's get into Department of Finance. We have a second sample which you have to take a writing and--a writing and a math test in order to qualify for an interview. Once you've done that, then you take an interviewee. For other departments, generally, you just take the exam once you're on the list. You start looking for job openings, apply for them, they'll call you for an interview and, you know, eventually get hired. And then--and I would suggest to--for working for the state, particularly if you don't have a graduate degree, take any job and then--because I've seen a lot of people who know how to work and put themselves in positions.
In fact, you know, my boss is one where she's--she found positions to there were--she always worked a little bit harder than she needed to and she--but she got into positions that were important and set her up for her next position and made her visible to the next job she wanted. So I would recommend doing that.

And as far as while you're still in school, as far as interns, you know, that's something you might want to think about. I have--personally, I've been managing people for about 20 years now. I don't think I've--you know, I only had an intern one time and he was really doing clerical work. And this was really his father's way of making sure he didn't goof around during the summer. But as far as actually doing sort of economic work, I think that is possibly--it's unlikely to be a paid intern or, I would say, it's much more likely if you're willing to work unpaid, but certainly contact me. I know that I'm not the--as I mentioned, I'm not the only economist in my unit. We've got an economic forecasting unit. I know that the new chief economist is looking for--hiring interns. Now I think she's maybe focused more on graduate students. But if you're interested in working--and that job would be particularly doing macro forecasting. You know, contact me and I can put your name in and see what we can do. But I think that's it as far as jobs, unless there's some questions or--OK. All right.

So let's talk about forecasting revenue for--I'm calling it for California's tax revenue system because the California budget is based on a variety of different revenue sources. So I'm going to first talk about the tax revenue system
to give you a sense for where it is that my group fits in to this whole picture.
So--and the data I'm going to give here is for the 2011 to 2012 fiscal year, and the fiscal year just-runs from June--I mean July -- so this one is from July 2011 to June of 2012. And--so all the data I have is going to be for the '11-'12 fiscal year which will be--that's the latest year for which we have the actual data and not just projections. OK.

So, in the 2011-12 budget, the total amount of revenue that was raised was 201 billion dollars. Of that, the majority of that 61 percent came from taxes and fees, and another 39 percent came from federal funds.
Now, if you look--so obviously, I'm not forecasting the federal funds, so I'm just looking at taxes and revenues. So if you look at taxes and revenues, they're divided into two groups. One is general fund. And that general fund is where most of the spending comes from that, where all the spending for K-12 education, that's where the spending for the CSU and the UC systems and the community colleges come from, spending for corrections. So most of the state spending comes from there.

Special funds or things like--we have special funds set up for transportation. There is a special fund set up to provide revenue to local governments. There's a special fund part of the income tax, it goes to a special fund for helping local mental health service programs; that was Proposition 63 in 2005. So basically, these two different groups, special funds of all taxes--for all taxes and fees, general fund makes up 72 percent and special fund is the remainder. OK.
So, my particular unit focuses primarily on general funds, so let's look a little bit closer at where the general fund money comes from. And again, this is for '11-'12. Personal income tax makes up the majority of that money—majority of that revenue. Sales tax makes up the second amount for the 22 percent, corporation tax 9 percent. And then other taxes, which I'll talk about later, is 8 percent. Now, that 61 percent is likely to be higher in the coming fiscal year. Anyone know why?

**Audience member:** [Inaudible Remark]

**Dr. Chamberlain:** Yeah, exactly. Proposition 30. Proposition 30 raised taxes on high income taxpayers, single returns over $250,000, joint returns over $500,000. And so, it also included an increase to sales tax; both of the increases are temporary. But the increase from the sales tax is expected to bring in about -- somewhere between half a billion and a billion dollars a year, whereas the personal income tax is expected to bring in 6 to 7 billion dollars a year. So, that percent that's coming from personal income tax is going to be even higher.

**Audience member:** May I ask you a question about table 6?

**Dr. Chamberlain:** Sure. About what?
Audience member: Table 6.

Dr. Chamberlain: Oh, OK, you're jumping at—
Audience member: It's called [inaudible] general fund. It looks as if it's increasingly regressive.

Dr. Chamberlain: Well, no, it's actually—that's an interesting question. Why do you say that?

Audience member: [ Inaudible Remark ]

Dr. Chamberlain: No--OK, but red is the personal income tax.

Audience member: What's the sales tax here?

Dr. Chamberlain: Oh, I'm--no, they are--the two are coordinated. So, yeah, on--so on--yeah, I'm sorry, that was-- Yeah. Yeah. So on the--and I don't know how to make this go back. What do I--
Audience member: [Inaudible Remark]

Dr. Chamberlain: Previous, OK. OK. So, yeah, I didn't color coordinate it. So for the pie chart, the red area is for sales tax, it gets flipped on the next chart. I wasn't even thinking about that, so.

So let's move on to the next chart.
Now, this chart shows that same information on the pie chart but gives it historically back to 1950-51. As you can see, back in ’50-’51, the majority of revenue came from the sales tax. And then actually, we had--the next biggest was corporation tax, and then personal income tax was the smallest--or was the third biggest. You can see over time, the sales tax has dropped as a share of total and the personal income tax has grown. And so--

**Audience member:** [Inaudible Remark]

**Dr. Chamberlain:** Red, the--

**Audience member:** Oh, it's dark blue, OK. OK.

**Dr. Chamberlain:** No, the--

**Audience members:** [Inaudible Remarks]

**Dr. Chamberlain:** Oh, I'm sorry. Yes, yes. Sales tax. Personal income tax, corporation tax, and then estate tax, which has gone away, and then these are all other taxes.

**Audience member:** [Inaudible Remark]
Dr. Chamberlain: Yeah. So--and just--your point then is, is that the taxes, it has become much more progressive because the sales tax, of course, it tends to be a less progressive tax. And excuse me if this is something you already know, but a progressive tax is just a tax that--for which the higher income tax--higher income households pay a higher level of tax. So sales tax, of course, everyone pays sales tax. There are some exemptions in the sale--built into the sales tax to make it less regressive. For instance, food, you don't pay tax on; housing, you don't pay tax; on medical care. So sort of the necessities you don't pay tax on. But nonetheless, empirically, low income people tend to pay a greater percent of their income in sales tax than higher income people do. And so, you've got a diminishment in the amount of sales tax being paid and an increase in the personal income tax. A personal income tax is progressive, of course, because your rates--the rates go up as income increases. So the tax structure as a whole has become more progressive. Although, I do--I recall a study done--it was within the last five years, but suggesting that the overall tax structure is still regressive, overall regressive in California.

Audience member: [ Inaudible Remark ]
Part of that is, like 2000-2001, that was at the end--OK. That was at the end--that was--yeah. No, that--I'm not positive. I mean I know the overall trend, in which I'll get into a little bit later, but the overall trend has been that taxable sales as a percent of personal income has been dropping. So--and that's revenue down. Now--and the thing is about, any one of this particular years that the personal income tax revenue has been very volatile, particularly, you think back to the dot-com era in the late '90s, OK, personal income tax revenue rose dramatically during that time period. It was growing, you know, 15 to 20 percent a year. So if you're taking these snapshots, you may happen to pick one of those years where it's before the bubble burst, and then the next year, it's going to go down.

Now, part of what's going on also, which is--you know, if you really want to understand the tax system as holistically, the sales tax, the portion of the sales tax was--so when you go out and buy a hat and you--you know, and you pay about five dollars, the sales tax on it or whatever, that's going to be divided up and that the sales tax is going to go to different funds, OK.? Twenty years ago or 30 years ago, probably most of it was going to the state general fund. Now, about half of it it's going to go to the state general fund and the rest of it is going to various special funds.
So--and in fact--in just the time that I've been in the last--you know, in the last two and a half years that I've been in my position at the Department of Finance...In 2011, we took the sales tax and it just dropped from 6 percent to 5 percent. If you remember, the sales tax was 1 percent higher for a couple of years; that was under the Schwarzenegger administration. And then it dropped down to 5 percent. And now, what we did is we took that 5 percent rate and split it up and gave 1.06 percent to fund local governments. And we also--we gave the local governments some additional responsibilities along with that, but then we gave them that money.

So you look--so when you now look at sales tax revenue, it's not always an apples to apples. So, if we were to--I mean a better picture, but I don't have all the data to do it, would be to all state and local taxes and throw a property tax in there and throw the local portion of the sales tax in there as well, and that would be a lot more--give you a better picture of what's really going on. But my focus is always on, you know, state revenue. OK.
So this is the list of all the revenues that my unit is in charge of. Now, we have--have any of you ever looked that the governor's budget summary? OK. It's not a real popular document, not a lot of good reading in there. But it does have a lot of good information if you're interested in budgeting and taxes and spending.

But in that report, there's a six-page table showing all the different revenue sources for the State of California. Well of that six pages, my group has the first half of the first page, which are these revenue sources listed here. So, we've got a--as far as the number of revenue sources, we handle a small number of them, but it makes up the majority of the revenue for the state budget. So the revenue sources we look at are the personal income tax, the sales tax, corporation tax, insurance tax and insurance tax.

Insurance tax -- it's just a tax if you buy an insurance policy, the insurance company is required to pay a 2.35 percent tax on your premium.
Alcohol tax, that's, again, is a tax paid by the wholesaler on alcohol. Cigarette tax is paid at--I'm not sure if that's paid at the retail level or by the wholesaler. But cigarette tax, motor vehicle fuel, vehicle registration, vehicle license fee, special penalty fees, that's--if you ever get a speeding ticket, you're going to get--there's the base ticket and then there's penalties on top of that. Well, one particular aspect of those penalties is what we estimate here. And similarly, there's a DNA fund which is an additional penalty fee that is collected that we keep track of.

And then finally, the last one is pooled money interest. And that's just we earn interest on the cash that we have in this--if we have extra cash, we'll invest it and then we earn some interest from that, and so that's what that is. So these are all the revenue sources that we are in charge of monitoring and forecasting. And then we provide--our forecast then becomes the basis for the budget because that tells the other units how much money they have to spend on education, health and various programs. OK.
Now that I've presented sort of the revenue structure for the State of California, I want to talk about what happens in revenue estimating. So this is sort of our general revenue estimating methodology. And as you can see with those 10 different or roughly 10 different items, they all used a different methodology, but here's the basic methodology.

The first thing is that we find an economic series which correlates well with the tax series that we’re trying to forecast.
General Forecast Methodology

- Find Economic series which correlates well with the tax series that you are trying to forecast. For examples
  - Taxable wages correlates very well economic wages.
  - Cigarette consumption is a declining percentage of the smoking age population. So, we just grow cigarette tax revenue by growth in the smoking age population, with an adjustment for the decline in consumption rate.
  - Taxable sales correlate somewhat well with Personal Income.

- Update models for any new tax year data provided by agencies (example: PIT Sample or taxable sales).
- Update with revenue collection data provided by agencies.
- With each forecast models are updated with new U.S. and California economic forecasts provided by the Economic Research Unit.
- Regressions run and output checked for soundness.
- Results adjusted for new legislation or proposals impacting revenue.
- Results broken into fiscal years for budgeting.
  - FY results broken into monthly estimates for purpose of cash management.

So--and then let me back up a little bit that we get--when we do our--we do our forecast twice a year, once in December for January 10 when the governor's budget is released.

And then, again, in fact, my next three weeks are going to be involved in this, we're going to be doing our--what's called the May revised forecast. And that's really the forecast. And then--so we do our May revised forecast that comes out--I think May 14th is when it's released. And that's the basis on which the budget will ultimately be--that the legislature adopts will be based on. So we do this--so we did those forecasts two times a year.

Before we do our forecast, though, the unit I mentioned before, the Economic Research Unit, they will give us a forecast. Now, their forecast comes from--they get a forecast from a macro economic consulting group called Global Insights which, you know, sells their forecast. So every month they'll get an update. And then twice a year, they will update, they will take this forecast and then evaluate it, determine whether it's reasonable, whether it fits California, and maybe accept some things and not accept others. And then they will do a California forecast based on that economic forecast they get from Global Insight. And Global Insight would only do the national forecast, and so they would have to--the economic research unit would tailor to California.
And just one of the--one of the difficult things that we've had to deal with lately is figuring out how the federal government factors into the forecast. The first question we ask when we get the forecast, "Well, what did you assumed the federal government is going to do?" You know, last--they gave us a forecast last November. At that time, you know, we had the--President Obama had been reelected, still works here. So it's going to be dividing governance, so it wasn't clear. Are we going to go up to fiscal cliff? Was the sequester going to hit? So there's--and these questions are very important for California because they're--well, they're important for the economy and therefore important for California because they could have an impact on the economy.

And in fact one thing that we did -- we assumed that the payroll tax cut--there was a payroll tax cut in place from 2010 that was due to sunset, to expire, at the end of 2012. So the question was is that payroll tax going to be extended? Well, the economic forecast that we based our forecast on assumed that it, in fact, would be extended. Well it turns out it wasn't. So that means, right off the bat, our forecast, you know -- we're dealing with a faulty forecast. So our numbers are going to be awesome. Now, that will be -- that's why when we have the May revise, we'll be able to fix it in May. But those are the sort of things that we have to ask ourselves. Does this assumption make sense? Does the assumption that Global Insight is making, does that makes sense? And that's what our--that's one of the things that our economic fore--
Audience member: Can I ask you a question?

Dr. Chamberlain: Yeah, yeah.

Audience Member: [Inaudible Remark]

Dr. Chamberlain: Well, I'll get there. Yeah, we'll get there. So--but that's all the Economic Research Unit, that's what they do. They give us--then they give us an economic forecast and it has about 50 different variables that they grow out. They give quarterly projections out for like, I think, like 10 years, OK. Yeah?

Audience member: [Inaudible Remark]

Dr. Chamberlain: Yeah. In fact--yes. And in fact, I can give that as an example. This year, the forecast we got from Global Insight assume that we would not go off the fiscal cliff. In other words, that all tax rates would be maintained at the lower level.

Audience member: That would be a higher projection?
Dr. Chamberlain: Right. And so, we--and we said, "Well the President has said he would not accept that." And since our administration is the same party as the president's, to say that we sort of--we're--we don't think the president is serious...And the fact that that would have exaggerated our revenue, we said, "OK, we're going to assume that at least taxes for high income do not state that they go back up." So we did build that in that assumption.

And it is--I wouldn't say there's bias towards being--too under--yeah. Right, right. And--yeah, this case, there was a whole bunch of things pointing to we really should assume that the tax rates don't go down for high income, yeah. So, we get this economic data and these projections of economic variables, and we're trying--we try to find how they correlate with our tax variables, because they're not projecting items off the tax return. They're projecting things like overall wages. They're projecting corporate profits. Those things all fit into the tax returns but they're not the same thing. So we're looking at--for tax variables, we're--and we're looking for their correlates for things that are correlated with them in the economic data. So for instance, taxable wages correlates very well with economic wage, and that's fairly easy.
Cigarette consumption, OK, we—as I mentioned, we forecast cigarette taxes. Cigarette tax is very easy. If you tell me what consumption is, I'd know what the rate is. I can figure out what cigarette taxes are. So what our model does is we take—i.e. we simply take what's the smoking population which I think is, you know, 18 and older. I'm not sure what—I think that's the population we use. So the 18 and older population, how is that growing? OK, so that's the first step. And then the next step is we know that over time, in the last however many years, cigarette consumption per capita has been declining. So then we build in a decline in the cigarette consumption.

Now, to answer your question, it's going to be very dissatisfying. We have a long-term average. That's what we use. We look—and then we look at data. So we have a long-term average. I think it's something like 1-1/2 or 2 percent per year. Now that's what we use. And then we're looking at the most current cash data on tax receipts, to say, "OK, this year—it looks like this year maybe is a little bit higher or a little bit lower, and so we'll adjust the cash." But that's how—essentially, we just have a long-term. We don't try to estimate every year was going to—now we do—one thing that is a little tricky there is we have to look at are there changes in the cigarette taxation? Because, clearly, if cigarette taxes go up, consumption is going to drop. At least empirically, that has been the case in the past.
General Forecast Methodology

- Find Economic series which correlates well with the tax series that you are trying to forecast. For example
  - Taxable wages correlates very well economic wages.
  - Cigarette consumption is a declining percentage of the smoking age population. So, we just grow cigarette tax revenue by growth in the smoking age population, with an adjustment for the decline in consumption rate.
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So for instance, if we knew that the federal government—in fact, in the president's budget, he proposes an increase in the cigarette tax. So if that were adopted, we would say, "OK, we're going to have a drop in consumption," so we would build that in and we would adjust our sort of normal decline rate by that.

And then as a final example, taxable sales correlates somewhat well with personal income. It correlates with auto sales. It correlates with unemployment. There's a variety of things. And so I'm actually going to talk in a little more detail about taxable sales and about that forecast. OK.

So we're out there looking for correlates. We've got this—all these nice economic data that's the—and that's forecasted in the future. And we're trying to find something that will correlate well with the tax data that we're trying to forecast. So knowing that personal income is going to grow isn't particularly—isn't directly helpful for figuring out what's going to happen to sales tax or what's going to happen to corporation tax. So you need to find something in the economic data that will correlate with, you know, for sales tax. We're interested in taxable sales for corporate taxes. We're interested in taxable profits, you know, cigarette taxes, whatever. So we find that correlate.
And then we have models for each-for each of our revenue streams. These models vary in complexity. You know, I sort of described the cigarette tax, it's fairly simple model. The personal income tax model is very complex because it actually takes the population and does a--essentially, a micro simulation of the population. And also there's a lot more calculations going in to the personal income tax. So a variety of a degree--various degrees of complexity in these models.

But--so we update the models with any new tax year data provided by agencies. So Franchise Tax Board administers a personal income tax. And two weeks from now, I'm going to be getting a bunch of data from them. Unfortunately, it would be nice if it was on the returns that are being filed on Monday. Unfortunately, that--we will get--what we will get from that is cash data but what they're giving us is data from the 2011 tax year. On two weeks from now, they will be giving us some detailed data on that. So there's a bit of lag but--so we get that data and we update it. So now we know what we'll be able to put into our model, all the 2011 for the personal income tax model. We'll put in what the wages were for 2011, what the mortgage interest deduction, et cetera. We'll have all that updated data. And then--so that's getting the tax return data.
And then we update our models with revenue collection data. So others--what's the cash that's coming in? Where is the cash going? So that we care very much about. The cash that's going to be coming in on returns, you know, we're expecting 15 billion dollars in April just from the personal income tax. So, you know, is it going to come in high or low, and that's going to give us indications. OK.

And so--then we'll--once we've got--we've input the cash data, we've input the tax return data, then we update our models with the new economic forecast that we've received. Then we run the regressions to find--OK, we now know, for instance, for personal income tax, we'll have 2011 and we'll know exactly what those variables are. Now we run the regressions to figure out, OK, our economic research unit said wages are going to grow up 5 percent a year, let's say. So now, we will grow wages 5 percent a year. Interest is going to grow by 2 percent, or whatever, you know. And we'll have all those different growth rates and then we will grow all the items out to the later years.
And then we obviously check to make sure that the results we get are reasonable. We're getting good growth rates. Once you've got that projected data in there, then you can calculate the tax for the later years. So again, go with personal income tax. So now we would calculate personal income tax for 2012, 2013, 2014. Then--but of course, that isn't really helpful from a budgetary standpoint because budgetarily we don't care that 2012 brought in 60 billion dollars. What we care is how much shows up in '11-'12, how much shows up in '12-'13. So we then need to break it out into fiscal years and say, "OK, if 2012 is going to bring in 60 billion dollars [inaudible], how much is going to come in through withholding?" And so, we break it out into withholding, into estimated payments, into refunds, into the various components. And then we flow it out to the various fiscal years that way.

And then beyond doing fiscal years, we also break it into months. So we do--we end up with monthly forecast. That way, we can monitor each month how well is our forecast doing. Now, we only--regardless of how good or bad our forecast is doing -- we don't do any adjustments until it's time to do the new forecast. So, like I told you, you know, we knew going into this--by the time the governor released his budget, we knew that we had one assumption wrong that the payroll tax cut was gone. But it's too late to change to that point, but we know we're going to--you know, we'll be able to change in May.
So I’m going to talk in detail now about the sales tax forecast. So, as I mentioned, you look for correlates with our tax return data which is taxable sales for—so for sales tax, all we care about is taxable sales. If you got taxable sales, then you know that the tax rate right now for the general fund is 4.19 percent. And so you have taxable sales, you just multiply it by the tax rate. And so, through a variety of—through searching for different economic correlates, the four that we found fit the data the best are wages that is a coefficient of 0.14 and you can see with that—wages, unemployment, the number of housing permits, and the car sales. So we look at taxable sales on a quarterly basis.

Now, obviously, if you buy anything, you’re going to be paying the sales tax when you make that purchase. The retailer is going to remit to the state depending on how big they are, you know, but they’re going to be—they’re not going to report that actual sale to the state until the end of the quarter. So if you make a purchase right now, today, that you paid sales tax on, that retailer will file a return telling the Board of Equalization, which is the agency that oversees sales tax. They will file that tax return in July to say this is the amount of money that came in. So we tend to break up—we do break up sales tax into quarters. So, that’s the regression equation we found fits best. The process we use in doing our sales tax forecast is—the first thing is we update actual quarterly taxable sales. So, the Board of Equalization will, a year after the fact, tell us what taxable sales actually were. So they’ve got all the data and they will—they’ll let us know a year later what taxable—yes?
**Sales and Use Tax Forecast Methodology**

**Regression Equation**
Taxable Sales = (Wages, CA Unemployment Rate, Housing Permits, Car Sales)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>0.140</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-1.387</td>
</tr>
<tr>
<td>Housing Permits</td>
<td>0.019</td>
</tr>
<tr>
<td>Car Sales</td>
<td>1.193</td>
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</tbody>
</table>

**Process**
- Update Actual Quarterly Taxable Sales
- Run regressions using most current data, including "estimates"
- Update Gas Forecast (gallons and price)
- Back spending on Gas out of forecast
- Apply Tax rate
- Determine Cashflow allocation
- Incorporate Legislative Changes/Court Cases

**Common Issues**
- Cash is King
- Confirm accounting or cash reporting issues
- Most difficult is trying to determine how partial quarterly data will translate into a full quarter

Audience member: How did you like go about selecting variables that fit the data the best? So you just have like a ton of variables and you just do a bunch of combinations until you find out what works the best? Oh, like--and what is the process to select them--

Dr. Chamberlain: Yeah. Good question. And the first thing--the starting point is theory, you know, it doesn't make some sense. And you know that you're not ever going to get everything that explains it. But--so it's simply a matter of--theoretically, you have bunch of things that you think should work. You plug them in. You see the results. You add another one. Does that help the--how does that change the fit of the regression line historically? If you add a variable, it improves the fit quite a bit, then you would adopt it. Interestingly, because one of the first things I thought is, "Well, how about consumer confidence?" Because particularly, when I started, in late 2010, consumer confidence was very low and I said, "Well, why not include consumer confidence?" Well, they had tried that already and they tried it again, and it just is not a good explainer for taxable sales. But, you know, yeah, that's essentially what we're looking for empirically what explains well [inaudible].

Audience member: [ Inaudible Remark ]
Dr. Chamberlain: Yes, yeah.

Audience member: [Inaudible Remark]

Dr. Chamberlain: I'm not familiar with it. OK, so we get taxable sales, we get actual taxable sales for a quarter from a year ago. And then, obviously, we want to have taxable sales because what we're going to be doing is growing taxable sales on to the future. So we want to have the most current taxable sales data we can. So what we do is we sort of back in to what taxable sales are given the receipts. Because if you have receipts, your tax receipts, you should build the back in to what your taxable sales are. So we--these aren't the official taxable sales but they're pretty good estimates of taxable sales. So we bring our taxable sales as current as possible.
We run our regressions using our most current data. And when I say data, I am including their estimates--our estimates of taxable sales. So we used those as data points to run the regressions on. It gets a little complicated because all of our taxable sales series includes gasoline. A couple of years ago, we removed the sales tax from gasoline. You may not have noticed it because at the same time we increased the excise tax. So--and there's a--it makes budget logic to do that. But essentially, we took away sales tax, which is a tax on the value you pay, and changed it for an excise tax which is a tax on the quantity you buy. So excise tax is just the number of gallons you buy, you multiply by the excise tax the sales tax, how much did you pay, and you pay a tax on that. We swapped out a sales tax for a gas tax.

So now, we have to forecast what gas sales are and then back that out of our taxable sales forecast in order to get a number that's going to give us our general fund taxable sales. So we apply the tax rate and then we--after we apply the tax rate, we determine the cash flow allocation. Afterwards, we determine--even though--I mentioned the returns are remitted at the end of each quarter, but there are prepayments made throughout the quarter, so we figure out when those payments were going to be made, so we spread all those payments out over the months. Then the last thing we have to do is incorporate any new law changes, any court cases that may have affected the revenue.
Common issues that we run into – one is "cash is king". That's a term that I hadn't heard until I went to the Department of Finance because I didn't do forecasting when I was at Franchise Tax Board. But what “cash is king” means is your model maybe telling you one thing but you have to look at the cash that you come in. And if your model is telling you that taxable sales are way up here but cash is coming down here, you've got to look at cash and you--either you got to try to fix the model so it better reflects where you are. You say, "OK, we’re actually down here, are we ever going to get back to that model?"

We have to be very careful about the data we get. Sometimes, we get data that is incorrect, so we have to go back to the agency. So there’s a lot of sort of checking on the data that we receive.

And then the most difficult thing is trying to determine how partial quarterly data will translate into a full quarter. So for instance, when we do our May revised forecast, we are required to lockdown that forecast I think on May 1st, OK. Well, the April tax returns are due--the first quarter tax returns which are due on April are due on April 31st. So we’re not going to have that data until the fourth or fifth of May. So we're going to have to guess what the final quarterly taxable sales are or cashes based on what we've seen for the first two quarters.
So that's--it's always a problem is trying to guess. And again, we will--in between the time that we lockdown our number and the governor presents his May revised budget, we will know what the cash is and we may know that we missed it by quite a bit or we may know that we're right on. So it's always an uncomfortable part of this job. Yes.

**Audience member:** [ Inaudible Remark ]

**Dr. Chamberlain:** Well--and I'm not--if I'm not understanding your question correctly. But the general--the rule is we do not touch the model until the next forecast because there are so many things that change. Your--I mean, you know, as I said, going out the gate, you know you're wrong on some things. And then as time progresses, this thing happened you didn't expect, you know. Unemployment is higher than you expected. You know, there's bad economic report of various sorts. So there are all sorts of things that turn out differently. We don't want to be constantly revising our forecast.

**Audience member:** [ Inaudible Remark ]

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**Forecasting Revenue for CA's Tax Revenue Systems**

![Graph showing Total Taxable Sales](image)
Dr. Chamberlain: No. Generally, we get agreement. I mean--and I wasn't doing this job at the point. But in 2009 and 2010, when the economy was in serious trouble and when things kept getting worse and worse, we actually did do some intermediate forecasts. So--and I think it was pretty well agreed upon that we should do it.

I mean one--you know, an example of one of those sorts of extraordinary events, and this is actually a positive one, was the Facebook IPO last year. And based on their public documents, we could tell that there is going to be a bunch of tax revenue. OK. So we didn't do anything until the May revise. But when May revise came, we said, "OK, we're going to build that in." And we-- of course, you don't know what the stock price is going to be. That's the one variable. You know that there's going to be a whole bunch of shares, a whole bunch of income earned because people are exercising options, OK. But you don't know what the stock price is so you don't know what the value of that is going to be. So--and we made an assumption. We have a counterpart that works for the legislature, the Legislative Analyst's Office, and they're doing the same thing we're doing. And so, we communicate a lot. Sometimes, we disagree. And when we disagree, it's just, OK, we've got a different take on this and we're going to have different numbers. But--on this, we were in agreement that the public documents from the IPO were very clear that there was going to be this taxable event. It's just a matter of, is it going to bring in half a billion, is it going to bring in 2 billion. We were closer to the 2 billion. And that being about a billion and a half so--or a billion, 1.2 billion So does that answer your question? Yeah, OK.
So let me go through an example of sort of those issues that we have to deal with. So what this is, is our forecast for taxable sales. This was what we had--this is the one we used in the governor's budget forecast. And you see, it goes back to 2004 and it plots--the black line is actual taxable sales, and you see, we've got actuals out to here. The last couple observations there are estimated actuals. And then before we do our governor's budget forecast, we do a preliminary estimate just to sort of set things up and see what we think they're going to go.

So this--the blue line--shows where we were, what regression from our preliminary estimate was, OK. The green line is the final regression we used and then the red line what are our actual forecast was. So that just gives you sort of the big picture.
And this goes a little bit better and is more a close up. And this breaks it down. This is just where we were on the preliminary estimate. So again, what you see here the green line is the regression, the black line is the actual. And then this is the last actual estimated actual we had for the second quarter of 2012.

Now, for the third quarter, when we did this in October, we had two data points. We had two months of prepayments that had come in quite a bit lower than our forecast. Well, actually, than our forecast as well. But quite a bit lower than what the regression was suggesting the taxable sales should be.

So our question was, is that a--what do we do from here? Do we assume that, OK, the final payment is actually going to be really high and we're going to back on this regression immediately? Do we assume that this gap here between the regression and the actual cash, that will be maintained for this quarter and that it will continue all the way out? So in other words, you're running a parallel line underneath that regression. So the slope of the regression is fine. It's just that the intercept has slipped down a bit. Or, what we assumed for our preliminary estimate was that we would get back to the regression line but it would take a year before we did. OK. So that was our preliminary estimate.
Given that it was, we were able to assume that we would go straight to--or within one quarter, we would be back on the regression line and then we would just be tracking the regression line, the rest of the line, the rest of the way out. So that's the sort of decisions you have to make and you're working with incomplete data. When you get the new data, you try to revise. And then, this is really something, you know, we do it in taxes or you do it in every--any area of economics. You're generally working with incomplete data and you're trying to make assumptions and fill in where you're lacking that data.
And so, this is a summary of the sales tax. Between our preliminary forecast and the final that the GB forecast and for governor's budget forecast, our final forecast, we had--this table shows the change in economic variables. And you can see at the end here how that translated into millions of taxable dollars in our forecast. So that change in forecast just because of the new economic forecast, brought in about 200 million dollars. And additionally, as I showed, the fact that we moved quicker to the regression line increased revenue as well.

Well--so I don't--it's about 5--well it says it's about 4, but I'm assuming time isn't standing still, so it's about 5. So I've got some other slides but they're really--they're sort of tangential to this. They're more--bring up some interesting tax issues. What do you--

[ Inaudible Remark ]

**Dr. Chamberlain**: Well--

**Audience member**: It's Friday afternoon.
**Dr. Chamberlain:** It's Friday afternoon. I tell you what, I've got the slides in there, I'm happy to stick around and talk about them. Do you guys want to--and I won't be insulted if you want to leave. I understand it. I'm very--I'm impressed that this many people showed up for a Friday at 4 o'clock, so...

**Audience member:** Can you take a few more questions?

**Dr. Chamberlain:** Yeah, and if you have questions--why don't we take questions, then we'll go on if--so any questions? Yeah.

**Audience member:** [ Inaudible Remark ]

**Dr. Chamberlain:** About the what?

**Audience member:** [ Inaudible Remark ]

**Dr. Chamberlain:** We certainly will take that into account and it will affect our--

**Audience member:** [ Inaudible Remark ]
Dr. Chamberlain: How we forecast the stock market? I don't. We have--the economic research unit does that. So they give us a forecast for the S&P 500 and that we factor that into our--we factor that in. And that's one of the problems with doing the personal income tax, which is the biggest tax. The problem with doing that forecast is that--we can rely in the economics people to project wages, interest, business, and from all of those things, we get from the economic research unit. What they don't tell us is what is capital gains is going to be, because capital gains is not part of personal income, OK? So we have to do our own forecast of capital gains. We talk to the feds. We talk to other states to get an idea of what they're seeing. And it ends up being a guess. And that's one where, last year, we ended up having a very big difference with the Legislative Analyst's Office. We ended up having a forecast. We tend to have forecasts that are very close together. Last year, we had a very different forecast. And that causes a lot of angst because, you know, we're--my bosses are trying to defend my forecast against the Leg Analyst who's sayings it's--

Audience member: [ Inaudible Remark ]
Dr. Chamberlain: Yes. Yeah, the analyst. Yeah, this this chart just shows how much fluctuation you get in capital gains. The line here is the--that's the capital gains and the bars are the percentage change. So you can see, you know, having wild swings is sort of part for the course with capital gains, which is what's caused or contributed greatly to the volatility we have in our revenue, personal income tax revenue, generally. Yes, Michael.

Audience Member: [ Inaudible Remark ]

Dr. Chamberlain: Well, fortunately, we can't test that too well because the laws are always changing. So if you look back at my first forecast was governor's budget, '11-'12; if you look at that and we did a forecast--I'm not sure if that point, we did it, but we released it publicly. But we do a forecast out for--I think at that point, it was going out 16-17. So if you looked at that and compare it to what we got right now, it would be vastly different. But it's hard to do the comparisons because so many laws have changed. Both, you know, corporate tax, personal income tax, and sales tax. There have been massive changes to those laws. So that it's wrong, but you can't blame it just on my forecast. But--and that's an interesting question. Clearly, I would guess that we're not too far--we would not be too far off. I mean the problem is when you've got a business cycle.
So if you’re projecting the economy suddenly growing like back in 2007, everything is looking good or at least everything is looking like or at least going to continue to be OK for a while. And then you've got a down term. Well, obviously, your revenue is going to keep going like this and the actuals are going to drop. So it really--I think if you’re able to back out all those law changes, I think we would be relatively good. Obviously, there would be--we would be right on, but it would be relatively good. It's just when you have the business cycles where we can be way off. Yeah?

**Audience member:** [ Inaudible Remark ]

[ Laughter ]

**Audience member:** [ Inaudible Remarks ]

**Dr. Chamberlain:** Well, the point and--

**Audience member:** [ Inaudible Remark ]

**Dr. Chamberlain:** OK, I won't do the same.

**Audience member:** [ Inaudible Remarks ]
Dr. Chamberlain: Yeah. One thing--I know one my of predecessors said that we--because capital gains is always an issue. 2006 and '07, capital gains are going to the roof a lot; well, partially due to that the housing market but also due to – the stock market was doing fairly well. And--so the question is always, OK, we got this big jump in capital gains. Is this a permanent increase? Can we just build this into the budget? Or, do we say--and so what she did was that she assumed 50 percent was permanent and the rest was temporary. It was a one time thing, OK. She said that she may not have been right, but it was a good thing she did that. Because if she had assumed it was all permanent, it would all have been spent, you know. And so I think, budgetarily, it would be good if we could come up with the reforms. So I can still forecast capital gains as whatever I think is the right answer but that they say, "OK, can we take those capital gains and"--you know, my thought is something like do a five-year average of capital gains and say, "You can always spend that five year average." So it maybe spiking this year. Maybe it's permanent, maybe it's temporary, but it won't be until five years from now. If it's permanent, it will be five years from now you'll be able to spend that permanent.

Audience member: [ Inaudible Remark ]

Dr. Chamberlain: Right.
Audience member: [ Inaudible Remark ]

Dr. Chamberlain: Yeah. No, but that--I think that is--when you look at the state budget, that's a real problem in that because we have this [inaudible]. A lot of people say, "Hey, we got a problem, our revenue system is too volatile." My thought is it's not the revenue--volatile says--I mean it's fine. It's wonderful that it brings in a huge amount of revenue. That's a good thing for the government. We just need to control our spending and say, "OK, let's not spend it until we're certain." And there had been proposals to do things like that. I know Schwarzenegger had the Rainy Day Fund, that's one of the reforms he adopted. It's--unfortunately, he adopted that just about the time we started running big deficits. So there's never been money to put into it. But I mean that a sort of thing that people are thinking about that.

Audience member: [ Inaudible Remark ]
Dr. Chamberlain: Well, yes, my--Department of Finance, we've got all the other--in fact, in that thing, there's--they--there's a diagram of our department. And so, we have all the units. We have education unit, a corrections unit, and they're all looking at, you know, what are average cost, what are--what's--you know, with the caseload, is that going to be increased in this? So they're on forecast revenues. They're projecting what their cost are going to be. And then they say, "OK, projected cost on a current law basis are right here, revenue on a current law basis are right here. We need to do something. We need to raise revenue or do programmatic changes so that our cost comes down."

Audience member: [ Inaudible Remark ]

Dr. Chamberlain: OK. So it's not the director of the agency, she is my boss. So she is what's called a program budget manager. So, she's at a very high level in our agency. She--well, first of all, she's very smart and she has--and some college is not--didn't have a degree. But also, she realized--on the technical part of this job, she realized--I mean for the technical part of the economics, she--so she's a good manager, she's a good--she understands the budgets very well. Yeah, yeah.

Audience member: [ Inaudible Remark ]
Dr. Chamberlain: Yeah. Yes.

Audience member: [ Inaudible Remark ]

Dr. Chamberlain: It depends. It depends on which special fund because each special fund has its own needs. And you may have heard the Parks Department had a nice special fund of its own. So, yeah, I mean there are--yeah. It depends on its special fund. Yes, yeah. OK.

Audience member: [ Inaudible Remarks ]

Dr. Chamberlain: Well, and the way--yeah. So the way the state where you've got--so you've got the agencies who are interested in health and human services education. And they've all got their turfs, if we can call it. You know, they want to--you know, they want to improve things for their--you know, for--they want to improve education. They want to improve services to--

Audience member: [ Inaudible Remark ]
Dr. Chamberlain: Well—but see, at the Department of Finance, we are a control agency, so we are supposed to be sort of above the fray or we’re not supposed to be caught up in the provision of those programs. We’re more, "OK, you say you need this money, you say that there’s a real need there. We need you to demonstrate what happens if we don’t fund this? What happens if we do take away that couple of 100 million from your program? We need you to demonstrate."

Now—and so, we sort of—we act in a sense, in adversarial—friendly adversarial way but with, you know, adversarial manner. And likewise, the legislature, they’ve got various committees and they will—you know, they will—and you’ve got two parties or not just two parties, but you’ve got various—so you might have—one legislature says you should be spending a lot more money on this program, another one say you shouldn’t be spending any money. So you’ve got that—so there are various checks and balances that are attempting to keep these programs from getting out of [inaudible]. But if you’ve got the administration and the legislature wind up for spending more in a particular program or cutting certain taxes, those are going to happen. And, you know, regardless—you know, we will give our advice to the administrations and say, "Well, if you do that, if you cut this tax, you’re going to lose this much revenue." But if they’ve got support in legislature, they’re going to do it anyway. So it’s—you know, we have our role but we are not elected officials. We simply, you know, do our part, give our advice, and then sometimes it’s ignored and—
Audience member: [Inaudible Remark]

Dr. Chamberlain: Yes, yeah. And that's--you know, that's the way our system works.

Audience member: [Inaudible Remark]

Dr. Chamberlain: Yes. Yeah, it is very much.

Audience member: [Inaudible Remark]

Dr. Chamberlain: Congressional Budget Office, yes, yes, very much, [inaudible]--

Audience member: [Inaudible Remark]

Dr. Chamberlain: We had--yeah, we had--our main conference room is named after--I forget it, it's a Reagan era appointment --

Audience member: [Inaudible Remark]

OK.
He was a very well respected analyst.

Yeah. Well, no, I'm just--I'm actually say--yeah, and someone who--I'm [inaudible] because I know that a lot of people who have worked their way through are--

[ Inaudible Remarks ]

What?

[ Laughter ]

Yeah.

Yeah.

[ Inaudible Remark ]

It's going to go through the appropriation.

[ Inaudible Discussions ]
Well--OK. But as long as you're making room for there to be exceptions. But the other question is where do you start? Right now, we've cut programs significantly, OK? So do you start where we are now? Or do you say, "OK, we're going to recoup some of that, we're going to get back to where we were, you know, in some programs back to where we're in 2007." But, you know, those are sort of the questions that you need to ask. And once you allow for exceptions from that CPI growth because that's sort of, you know, a very structured mechanical calculation, then you--then--well then the exceptions can--you know, it could be huge, right? So--I mean that's an idea. And certainly, that's along the lines of what people have projected or have been proposing.

[ Inaudible Remark ]

Well, I mean it's a really big question because you have to go, you know, program by program and say, "OK, are we--you know, are we spending the right amount on this?" And you can't do it in a static sense because we've got the--you know, we got the courts telling us we need to spend more on our prisons. We've got the federal healthcare changes that are going to cost additional cost. So, there's all sorts of external forces that you have to contend with over it and, you know, sort of project over time. And--
The incentive works both ways. It's a question of would you want immediate gain or--it depend--what is my discount rate, right? Because when I say, "Hey"--and actually, it gets a little more complicated. But generally, if I say, "Found another billion dollars," that's good news. You know, [inaudible]--OK. If I--but if it turns out that that billion dollars doesn't materialize, then I'm--so it's always better to say, "Hey, cash is coming in higher than projection." And so, I--well, it's best to say--it's coming in, exactly, exactly a projection. But if I'm going to miss, I'd rather be on the low side. I'd rather be telling people, "Look at this, we're a 100 million higher or, you know, whatever, we're over forecast." That's a good thing. So--but when I do it in any particular forecast, yeah. I mean I want to tell them--although I'll tell you, it's not always cut and dry.

>> Right, yeah.
That you want more revenue because the way our budget works, because Proposition 98 which guarantees school funding runs on a real bizarre schedule that I've had explained to me several times but I still don't understand. You know, there are times when we get more revenue. It's all got to go education. And in fact, it can affect later year. It can affect later year spending on education so that the--what we call the non-Prop 98 programs actually get hurt. So, it's not always--I don't always know with confidence when I go to the director of--if I had to say, "We found more revenue," that she's going to be happy about it.

[ Inaudible Remarks ]

Yes. Prop 30 did--

[ Inaudible Remark ]

OK. So, Prop 30, all of the Prop 30 money gets segregated into the Education Protection Account. Yeah, it does. It does. But--

[ Inaudible Remark ]
It does, but it also accounts towards the--what we call salary revenue, the total amount of revenue that you use to calculate the Prop 98, the education funding. So, you know, it all goes in--they're--essentially, the money is--revenue is tangible [phonetic]. So, even though, we put the full amount in the education protection account, the additional budgetary commitment to education is only the amount that Prop 98 says we have to spend. So, you know, what we're getting--

[ Inaudible Remark ]

Yes, it does. It does release--yeah, yeah. And that's why there's this--you know, you'll hear Republican legislators from time to time say, you know, "You told us that Prop 30 was all going to go to education but it isn't all going to education," so. And your both sides are right. It is--all the Prop 30 money is going to education but there's some money that would've gone to education that isn't helping, so. But clearly, education was the big benefit--was the biggest beneficiary of Prop 30. OK. Yes.

[ Inaudible Remark ]
Our department is--my group is not. I've got--I've got a staff of five people working for me. They're--only one right now is applying for different jobs. So, hope--I'm hoping I get to keep him but, you know, I may have an opening. But certainly, the department has plenty of openings. As I said, you know, we tend to hire people with master's degrees but certainly, you know, we do have--we do have openings. And, you know, I think if you're--if you really like economics, the two best places for you in finance are economic research and financial research. You're either doing the macro forecast or your forecasting revenue. But the other areas have--they're all sort of quantitative and they're--you know, there are very interesting policy issues that are always--there's economics involved in all of them, so. And another thing, just back to the whole jobs thing that--you know, you--clearly, if you're going to be doing economics, you need to be able to do the math, you need to be quantitatively very--you need to be--there's a word. It's kind of like littered [phonetic], except you need to be numerate, you need to be numerate. You need to be very numerate, right? But the one thing that I found that sort of distinguishes the people who do well and do OK versus those who do very well is if you can write well and if you can write well for a non-technical audience, you know. In every job, I've had--well, my first job, I think I was able to write fairly technically.
But every job since then, working for the private sector and for Franchise Tax Board or the Department of Finance, I've had to write things that were intended for politicians, for legislative staffers. So, you can't just talk economics. You need to write in a way that is understandable by someone of--you know, these are usually smart peoples, so it's not like eighth grade education, but it does have to be--but it does have to be for a non-technical person. So that I think I would recommend that you, you know, focus what you can on doing your--on making sure you do it on writing.

[ Inaudible Remark ]

Sure, it's good seeing you again, yes. Oh, I wanted to tell you, I work right next door to--and her name is Casey [assumed spelling], she was in your class. She was your head--Mary O'Malley [assumed spelling].

[ Inaudible Remark ]

OK. Yes, yes. She's at the General's Office.

>> Yeah.

[ Inaudible Remark ]
>> Oh, is that right? OK.

[ Inaudible Remark ]

I will do that.

[ Laughter ]

[ Inaudible Remarks ]

They do? We certainly use it as a comparison point but we want to have our own forecast. We want to be able to do our own and make our own tweaks to it.

[ Inaudible Remark ]

Well, they don't do a California forecast. They do a national forecast and we take their national, adjust it or we either accepted or we do some adjustments to it, and then we do our California. So we're doing our own California forecast.

[ Inaudible Remark ]

No. No, we're--no, this is--
It wasn't commissioned on safe finance.

>> Yeah, it wasn't.

>> OK.

>> Yeah, they got wiped out by the governor.

>> I actually thought that was Wilson [assumed spelling] but [inaudible]. Yeah, whatever. Yeah, I wasn't around that time period. Yeah, OK. Yeah.

>> I usually use their stuff quite a bit.

>> OK.

>> Well, do you have any more questions for him? OK.

>> Thank you.

>> All right. Thank you.
Economic Forums

[ Applause ]