
Committee Meeting

of

JOINT LEGISLATIVE COMMITTEE ON PUBLIC SCHOOL FUNDING REFORM

*"Testimony from Jay G. Chambers, Ph.D., American Institutes for Research;
and John M. Yinger, Ph.D., Syracuse University. Dr. Chambers and Dr. Yinger
will address the Committee on methods to determine the cost of education"*

LOCATION: Committee Room 11
State House Annex
Trenton, New Jersey

DATE: September 19, 2006
1:00 p.m.

MEMBERS OF JOINT COMMITTEE PRESENT:

Senator John H. Adler, Co-Chair
Assemblyman Herb Conaway Jr., Co-Chair
Senator Joseph V. Doria Jr.
Senator Gerald Cardinale
Assemblyman Brian P. Stack
Assemblyman David W. Wolfe



ALSO PRESENT

Kathleen Fazzari
Theodore C. Settle
*Office of Legislative Services
Committee Aides*

Jacqueline Burke
Senate Majority
Mary Alice Messenger-Gault
Keith White
*Assembly Majority
Committee Aides*

Brian Alpert
Christine Shipley
Senate Republican
Beth Schermerhorn
*Assembly Republican
Committee Aides*

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ASSEMBLYMAN HERB CONAWAY JR. (Co-Chair):

Welcome to this next in a series of public hearings on reforming the public school funding process here in New Jersey.

At the outset, I'll make the announcement regarding the cell phones. Please turn them to vibrate or to off.

Also, for members of the Committee, please note that we are, as we have in the past, having speakers come to us remotely, and that the microphones at your desktops need to be turned off when the speaker is addressing the audience or responding to questions. Please make a note of that.

We are joined today, remotely from San Francisco (*sic*), by a Professor John Yinger, Trustee Professor of Public Administration Economics, and the Director of Education Finance and Accountability Program at the Center for Policy Research at the Maxwell School, at Syracuse University.

Dr. Yinger is an expert in funding issues for elementary and secondary education. He is an eminent researcher and scholar with a number of editorial contributions, as well as authorial contributions in the area of education, mortgage discrimination, equal rights, etc. He hails to us from, as well -- from Princeton University, from Harvard University, and the University of Michigan. I should say, to note -- of note, he has a Ph.D. from Princeton.

Dr. Yinger, welcome.

JOHN M. YINGER, Ph.D.: Thank you. I'm glad to be here.

Thank you.

Can you hear me?

ASSEMBLYMAN CONAWAY: Yes, please go ahead.

DR. YINGER: Thank you.

Today I'd like to give a brief overview of the issues of costing out a given level of education, and tell you what my research on this topic has found, and give you a broad framework for it.

I am not an expert on New Jersey, so my comments are general ones not specifically addressed to New Jersey. But from what I do know about New Jersey, the issues are very similar there to the issues that arise in other states.

The issue of costing out is a central issue in many state aid reform debates. The starting question for establishing a foundation aid formula -- which is the main aid formula used in most states -- is to determine the amount of money that has to be spent to meet state standards. And the costing-out idea is about trying to find out how much money a district has to spend to meet state standards.

The first step in this, of course, is to decide what state standards are. And I'm not going to talk about that today. You have your own debate about what you want standards to be. But once you've selected standards, then the issues that I'd like to talk about kick in.

The question of costing out really, in my judgement, proceeds in three steps. The first step is to find the cost of meeting the standards in a typical district. The second step is to find out the extra costs associated with attracting high-quality teachers to some districts. And the third is to calculate the extra costs associated with educating students who have disadvantages. And I'd like to talk about each of those three steps.

In addition, there are three principle methods that have been used to do costing out. And all of them have been used in various state settings. One method is called the *successful schools approach*, another is called the *professional judgement approach*, and the third is called the *cost function approach*.

The successful schools approach is one that looks at the performance of various school districts and tries to select the lowest cost school districts from those that actually achieve the standard, and uses that as a measure of the cost that it takes to achieve the standard.

The second, the professional judgement approach, puts together a panel of expert educators and has them try to figure out what programs are needed to meet the standards; and then looks at the staffing and other requirements of those programs, and figures out how much it would cost to run them.

The cost function approach, which is the one that I've emphasized in my research, is one that takes data on spending, and student performance, and wage costs, and student characteristics and statistically analyzes how various factors affect spending, and uses that to calculate how much it would cost to provide a given level of student performance.

All of those are perfectly respectable methods, particularly for the first step in this analysis -- for determining the cost of providing -- meeting the standard in a typical district. Interestingly, in my work, I've found that those three approaches generally lead to fairly similar answers to the first question. And that's not really too surprising, because what they're all doing is, they're looking out there at existing spending levels and trying to see the spending that's required to meet standards. That's in the

background of all of those methods. And they tend to lead to fairly similar answers.

I should say, the cost function approach is one that probably has been used the least of the three, but it has been used in several cases. I was involved in a cost function approach in Massachusetts, and it was back in the early 1980s. We didn't call it costing out back then, but it was the same thing. And that exercise that I was a part of actually led to a state aid formula that was in place for 10 years.

Recently, my colleague and I have completed our costing-out exercise for the state of Kansas, using the cost function approach. And we have applied the cost function approach to New York. My colleague, William Duncombe, has been a consultant to the State Department of Education in New York on this method. In addition, a variety of other scholars have used the cost function approach. It's been applied to data in Wisconsin and Texas, for example. It's played a big part in Texas court cases.

So the other approaches probably are a little better known, but all three of them have been used extensively now in trying to inform debates about education finance reform.

Now, the second step in the analysis is to try and figure out the cost of hiring teachers. This turns out to be a much more difficult step, and one where there is not a method that everybody would agree is absolutely the best method. Part of this is for conceptual reasons, part of it is because there are hard data problems, and so on. But I think it's very important to understand the fundamental, conceptual point behind this step.

It turns out that what you want, to get to any given performance standard, is to have high-quality teachers. And some districts have to pay more money to attract high-quality teachers than do other districts. And there are at least two reasons why that's true. The first one is that some districts operate in much higher-wage labor markets. So to attract teachers away from private-sector alternatives, they simply have to pay higher wages. If a school, for example, is in a big city, big cities have high costs of living, the wages are generally higher. And if you're going to attract a teacher to a high-cost, big city, you're going to pay a higher wage, all else equal.

The second reason is that the working conditions in schools vary considerably. And teachers have to be paid to work in less favorable and more challenging work environments. Now, that's not necessarily true for every teacher. Some individual teachers might like that work in a challenging environment. But on average, teachers have to be paid to move into a more challenging environment.

And what you need is a method to try and calculate the extent to which some districts have to pay more money to attract teachers, either because they have a harsher teaching environment or because they are in a higher-wage environment.

And there are several methods for doing that. I think none of them are, obviously, the best, partly again because the data are not all available to do it perfectly. If we had ideal data, I think probably most scholars would agree the best way to do it is to do a statistical analysis of the determinants of wages, and determine the extent to which wages are

higher when private-sector wages are higher, when working conditions are harsher. But controlling for the quality of the teacher--

But the trouble is, it's very difficult, often, to get data that controls for teacher quality. It's often difficult to get data that controls for private-market conditions, and sometimes even difficult to get data that controls for the teaching environment. And that means that that method sometimes doesn't work very well.

An alternative method is to look at the wages in comparable private occupations, occupations that require the same amount of education, for example. And several studies have done that. One of the great challenges in many states is that different methods lead to very different results for the range of payments to attract teachers.

In New York, we had an example where one study using a statistical method found very small differences in wages across districts. I didn't think this study was very plausible. But it was using available data which wasn't very good for the purpose. And another study looking at private wages found enormous differences in wages across places. And that, of course, is a great challenge. And so one of the first things you have to do, to do that step, is find out what data are available, and try to decide what the best method is, given the type of data that you can find for the purpose.

The third step is to calculate the extra costs associated with having disadvantaged students in a school. This is probably the most controversial step and, in many cases, the most important, because it has an enormous impact on the outcome.

We know that schools with many students from low-income families, with many students who speak English as a second language, with

many students who have special needs have to spend more money to achieve the same student performance. That's an extremely well-established fact. It's been documented by dozens and dozens of studies using a great variety of methodologies.

But the trouble is, it's very difficult to estimate exactly the extent to which you have to spend more money for -- when you have disadvantaged kids. We can find many examples of why you might have to spend more money.

School districts that have many disadvantaged kids have to spend more money on health care, for example, because the children don't have as good health coverage at home, and they bring more health problems to school. The school has to deal with them. They typically have to spend more on counseling, as the home environments are often more challenging for kids. They may have to spend more on safety issues. They may have to spend more on compensatory education.

There are a whole variety of things that they have to spend more on. But we don't know exactly what the spending categories are. We don't have enough knowledge, yet, to identify, "Here are the exact type of spending -- extra spending that's needed in these types of circumstances." And so all of the methods that try and address this have to make some kind of compromise. And I think there are reasonable compromises that people make. And some people will prefer one method over another. And reasonable people can disagree about the best approach.

Now, the first approach would be the successful schools. In my judgement, and I think the judgement of many people, the successful schools approach really can't find out the cost of disadvantaged students

very well. And the reason is -- I guess I should have said this first -- there really are three challenges that you have to overcome when you try and measure the cost of educating disadvantaged students.

The first one is that many different factors influence the spending in a particular district. And you really can't determine why a district is spending more unless you control for many, many different factors. And it's not obvious from just looking at a district why it's successful.

So, for example, you might find one district that had a lot of disadvantaged students and high test scores. But just looking at that district wouldn't tell you why it was successful, and it wouldn't tell you whether the reasons for its success could be replicated in another place.

The second reason was the one I mentioned earlier -- is that we have limited knowledge about the set of programs that will generate higher student performance, particularly in an environment with many disadvantaged students.

We have some good evidence about some programs. For example, I think there's very good evidence that pre-K programs have an important impact on the performance of students from disadvantaged backgrounds, not just in the early grades, but throughout their educational career. In addition, I think we have quite a lot of good evidence-- Although some people would disagree with this, I think we have quite a lot of good evidence that lower class sizes boost performance, particularly for disadvantaged kids.

We can talk about some other issues. I think that's the strongest evidence. But we certainly don't have enough evidence to say, "If

you take a school with disadvantaged children and you put in these programs, you will get this performance out.” We simply don’t know enough to do that.

A third problem is that examples of high-performance schools with a lot of disadvantaged students are hard to come by. You may have a few in a state. But, again, as I said earlier, you don’t really know why they have such high performance, and you don’t know whether their success can be duplicated in other places.

The successful schools approach really can’t rise to those challenges. It might be able to observe a place with a lot of disadvantaged students and high performance, but it cannot untangle the reasons for that, and it cannot identify programs that might be helpful in boosting performance. So, really, it can’t help very much with this third step in the analysis.

The professional judgement approach asks educators what programs are necessary to reach your performance target in a school with a lot of disadvantaged students. And educators have some knowledge about this. Some of them have taught in schools with disadvantaged students, they have an idea about what programs those schools have in place, and they can make an educated guess about what programs are needed and how much they will cost.

The trouble is that educators often don’t have enough knowledge to do this very well. They may not have seen a set of programs that will result in high performance in a school with many disadvantaged students. They may not have good evidence about the effectiveness of programs. They may believe that it works, but in fact they don’t have good

scientific evidence that it works. And so the professional judgement approach says, “We’re going to rely on educators who actually are involved in the programs, day-to-day, and ask them to make educated guesses.” That’s a perfectly reasonable approach. But no one should think that it’s anything more than educated guesses.

The statistical approach, or the cost function approach, takes a different tact and says, “Let’s take the data that we have on student disadvantages, and performance, and the cost, and let’s statistically try and untangle it so we can look at the added costs associated with having disadvantaged students, if you control for performance.” The great advantage of this approach is that it makes the best use of available information to untangle the different factors that influence performance. But it has a disadvantage too, which is that it doesn’t literally look at the programs involved. It remains very abstract. It doesn’t identify which programs need to be put in place. It simply says, “Let’s look across the programs that currently exist in schools, and let’s look at the trade-offs that are made in the programs that are out there in terms of costs and performance, given student characteristics, and untangle it statistically.”

So by that level of abstraction, it makes the best use of available information; but it retains -- it remains a little bit detached from the programs that the legislators have to make decisions about.

So I think reasonable people can disagree about what the right approach is. I think there-- Both the professional judgement approach and cost function approach have strengths and weaknesses, and are something that I hope you would consider.

Now, what happens when you do the cost function approach is, you run a statistical analysis that explains spending -- holding constant student performance, holding constant wage rates for teachers, and then looking at the impact of having more students in poverty, more students who speak English as a second language, and so on, on your spending. And from that analysis, you can calculate a student weight. And a student weight is what appears in many state aid formulas. A student weight is an extra spending required for each student that's in poverty, or each student who has special needs, or each student who speaks English as a second language. And you can statistically estimate what that weight ought to be.

And I have a lot of research that I've done with my colleague, Bill Duncombe, and some other people estimating what those weights ought to be. In New York they turn out to be quite high. In general, our estimates find that you have to spend at least twice as much on a student from a poor family to get the same student performance as a student from a non-poor family. You also, in many cases, get very high weights for students who speak English as a second language.

The case of students with special needs is more complicated. In our-- What we have focused on is students with severe handicaps. And for those students, you generally have to spend three times as much to get the same performance as a student without handicaps.

So you can estimate that. The estimates are not always the same in every state, because the extra costs associated with a disadvantaged student depends upon the standards that you're trying to set and the educational environment in which you're trying to provide them. So, in some states, we've estimated student weights that are considerably lower

than that. And some other cost studies have found weights that are similar to ours. Some other cost function approach studies have found weights that are less than ours.

So I think it's important to emphasize -- particularly in an urban state like New Jersey, where you have many school districts with high concentrations of students from poor families or students who speak English as a second language -- that this third step in the costing-out exercise is extremely important.

In the case of New York, New York City has an incredibly high concentration of students in poverty, for example. If you use eligibility for a free or reduced-price lunch as your indicator of poverty, something like three-quarters of the students in New York City are poor. And that means that when you put a weight of -- an extra weight of 100 percent on students in poverty, you almost double the spending that's required in New York City, just by that one factor alone, to reach any given performance standard. So you can imagine that that has enormous impact on the costing-out exercise.

Now, in New York City, you have to spend, just for that one factor alone, almost twice as much as other districts to achieve the same student performance. So, if you're asking what they needed to spend, it's a very different answer. And you miss that difference -- that incredible extra cost in New York -- unless you take very seriously both the higher cost of hiring teachers and the added costs associated with the disadvantaged students. And so these are challenges that you face in any case.

Just one final comment on the New Jersey case. Again, I'm not an expert on New Jersey, but I have read something about it. And one of

the intriguing things about the New Jersey case is that the Supreme Court has required the State to implement certain programs, but there is no really clear evidence on -- from a cost function approach; which would be, I think, a very nice complement to what it's doing. Certainly implementing Whole School Reform and a full-day kindergarten and pre-K are the kinds of things that would happen if you gave extra funding to schools with highly disadvantaged students.

So these two approaches are really complementary. They don't quite come together yet because, as I said several times, you can't identify all the programs that are necessary to bring disadvantaged students up to the same standard. But we know some of those programs; and implementing those programs and paying for them is consistent with providing additional funding to account for the extra costs associated with the disadvantaged students.

And so I think a cost function approach might be very helpful in New Jersey. And I would be happy to tell you more about the research I've done on that, or answer any of your questions about what I've said.

And with that, let me stop and ask for your questions.

ASSEMBLYMAN CONAWAY: Thank you, Dr. Yinger.

You're at Syracuse. I had misspoken and said that you were out West. So I apologize for that.

Questions from Committee?

Senator Cardinale.

SENATOR CARDINALE: I want to thank you for your presentation.

Have any studies been done dealing with the ratios of teachers, or other employees, to students, in order to achieve a particular result?

DR. YINGER: Well, I think the answer is that the studies looking at class size are very much in that ballpark. And many of the professional judgement panels will start by asking the panels what kind of class size is necessary to achieve this level of performance. And the educators will often refer to the research on this that looks at the impact of class size on performance.

Now, as to support staff-- I think in the professional judgement panels, they often ask what kind of support staff. But that's more speculative. I don't know of any studies that formally do that.

Now, one thing to emphasize on this is, I think the role of support staff is often misunderstood. For example, many people around the country have been pushing something called the *65 percent solution*, which is trying to get -- to make sure that you focus on instruction and not on administration. But the problem is that in many districts, the extra costs associated with serving disadvantaged students often take the form of support staff and not the form of instruction. For example, you might have counselors or health officials that are needed in those schools to give the children what they need. And that's not going to show up in instruction.

So simple rules like that don't help very much. Instead, I think we need to continue to try and understand -- following on the great example of the studies that look at class size -- to try and figure out what kinds of programs are needed and what kind of support staff are with them. But we can't fully fill that in yet. We don't know enough to say, "Here are exactly the programs that we need in addition to a low class size."

SENATOR CARDINALE: From some of the testimony we've already received here, and from some other information that is available, it's been determined here that charter schools in New Jersey -- which are public schools -- operate with, frequently, a better result than some other schools in a similar vicinity, and spend about 20 percent less per child. Do you know of any studies that would give us any insight as to why that is so? And in the same urban environment -- usually urban environments -- parochial schools operate at still less per child. And yet the performance in those situations is such that parents would choose the charter school -- very often would choose the charter school and/or the parochial school as opposed to the public school, which is spending a great deal more per child. Has anyone done any work trying to analyze what's operating to make that so?

DR. YINGER: Well, I think it's fair to say there's been quite a lot of work on this topic. But it's a very, very difficult topic. And my own judgement is that the work is still very preliminary. The challenges facing this are very great.

And by the way, I don't think you find, from the research around the country, that there's any consensus at all about the effects of charter schools, or the reason for the lower costs in some kinds of schools. I think the evidence at the national level is very mixed. And there's no evidence at the national level that charter schools produce higher performance at lower costs, or that unsubsidized parochial schools can do that. I think it's a much trickier issue than that.

On the other hand, I think most people would agree that the experiments that we're doing with charter schools are very helpful, and we'll learn a lot from them eventually. And we need to keep looking at it.

Now, let me just say a couple more things about it. The first one is that charter schools and other public schools are very difficult to compare for many reasons. One reason is that the families that select the charter schools are typically making a choice. And that means those families are different than other families. They may be more motivated, they may have other differences that can influence the performance of their children.

In addition, charter schools often operate, at least in the short run, with an enormous amount of enthusiasm and energy that can't be sustained. Many times, a group of people will get together and charge into do something. They're very excited about it. And we don't know yet whether many of those charter schools can be sustained.

In addition, we often have-- We have very different circumstances, depending on the way the charter schools work, on what the level of disadvantage is in a charter school. What I was talking about a minute ago is how important it is to recognize the role of concentrated disadvantage in a school. Another way to put that result is that if you have a higher concentration of disadvantaged students, all else equal, you're going to have lower performance. And so if you're comparing charter schools and other public schools, you have to look at the levels of disadvantage in those two schools before you can make a comparison.

You can imagine very different circumstances. In some cases, the most advantaged students might end up in charter schools, in which

case the environment in charter schools would be much better, and you'd expect their performance to go up, all else equal. In other cases, you might have the most disadvantaged students ending up in charter schools. And in that case, you'd expect the charter schools to do worse, all else equal. And unless you've accounted for all those things, you really can't make a good comparison between charter schools and other schools.

Now, it's of course also possible, as the proponents of charter schools say, that one of the reasons charter schools can operate at lower costs, without sacrificing performance, is that they've found ways to get around some of the rigidities that are in existing schools. That may very well be true. But I don't think we have evidence to prove that yet. And I think it would be premature to come to that conclusion.

So my judgement about charter schools -- and without knowing the specifics of New Jersey -- but a general recommendation is that this is an experiment worth continuing and worth studying. And I would hope that New Jersey would put into place some kinds of evaluation tools that would help you untangle exactly what's going on in the charter schools in your state. Because looking at the aggregate information is not likely to tell you very much useful at all.

SENATOR CARDINALE: Thank you.

ASSEMBLYMAN CONAWAY: Assemblyman Wolfe.

ASSEMBLYMAN WOLFE: Yes, thank you, Chairman.

Dr. Yinger, thank you for your insight for us. And I'm interested in the models you've laid out.

But you did make a comment that it was twice as much to educate a child from a poor family, and also with English as a second language. Is that correct?

DR. YINGER: Yes.

ASSEMBLYMAN WOLFE: And then you said it was three times as much for a severely handicapped child.

DR. YINGER: That's correct.

ASSEMBLYMAN WOLFE: Okay.

DR. YINGER: In New York. That's an estimate for New York. And that is-- Remember, that's controlling for performance. That's to get them to this new level of performance.

That's correct.

ASSEMBLYMAN WOLFE: Okay. This meeting today is really the fifth or sixth meeting we've had following different issues involving education in the state.

Last week we had a good deal of testimony regarding the extremely high costs of special education for the districts -- the local districts in the state and their obligation to pay for a thorough and efficient education for the children. Could you comment, for the Committee, briefly -- since you are in New York State and with Syracuse University -- about New York's Board of Cooperative Educational Services? How do they work? How is that funded? How does that assist the school system?

DR. YINGER: Well, I can't really tell you the details of that. I am not an expert on that. So what we did was, we got measures of the rates of various student disadvantages. And we focused on students with severe disadvantages, and we didn't look at the programmatic impact. In a sense,

this is an illustration of the abstract nature of the research we do. We're not looking at the details of the financial transactions. We're only looking at the spending and performance outcomes. So what we're observing is that, controlling for performance, school -- a school that has a child with a very severe handicap will be spending three times as much on that child. So I can't tell you about the specific institutional arrangements that go behind that.

And one other issue that's very important in this -- special education is a grey topic. And I'm not really an expert on all the details of it. But in New York, for a long time the schools had a great deal of control over who got classified as a student in special ed. That has since changed. They don't have nearly as much control. But that has made it somewhat difficult to study, because, of course, if the meaning of *disability* is influenced by the school, it means that you're getting some very (video malfunction) outcomes. And it also makes it very difficult to untangle the effects.

But that's not true in New York anymore. And, actually, many states have gotten a handle on that. And that's one of the reasons we focused just on the severely handicapped, because that could not, in our data, be manipulated by schools at all.

ASSEMBLYMAN WOLFE: Thank you.

ASSEMBLYMAN CONAWAY: Yes.

Dr. Yinger, I had a couple of questions. It seems from your presentations, other things that I have read and heard -- that the cost function approach is not widely utilized by states across the country. I hope that's a fair characterization. And I wondered why that was. Does

the cost function approach often lead to suggest that spending levels should be higher or lower? Are there inherent problems in that approach, that so many states have decided not necessarily to use it in determining what -- how to fund a public school education?

DR. YINGER: Well, I'm not sure I can give you a good answer. Of course my view is, every state should be using it. It is a great approach.

But more seriously, I think there are some reasons why it's not used as widely. And the main one is that it is more abstract. And scholars like me are used to thinking in abstract terms and understanding the strengths and limits of abstract ideas.

But legislatures, I think, quite reasonably like to talk in terms of programs and in terms of what is actually happening in the classroom. And I know from my experience, that if you sit down with legislatures -- and you can have an ongoing conversation, you can explain what you're doing, and you can explain the role of data analysis and how it works -- that legislatures can appreciate the information that's provided by a cost function approach. But it does take, kind of, some education, it takes some understanding of the uses of a more abstract approach.

I think, again, the approach that everybody would prefer, if we could do it, would be to go to a list of programs that have been evaluated, and come up with a set of programs that would give you the performance you want under various circumstances. And we simply don't have enough knowledge yet to do that. So we have one approach that starts with programs and tries to make guesses based on what we've observed. And the other starts at a much more abstract level, and looks at spending patterns,

and tries to untangle information from the spending patterns. And it's that abstractness, I think, that makes it less common.

There's another reason, which is that it takes a different kind of expertise than the other approaches. You don't have to have advanced training in statistics or econometrics to do a professional judgement approach or to do a successful schools approach. Now, that's not to say that they don't have their own challenges, and that some people do them well, and some people do them poorly. Of course that's still true. But it doesn't require the depth of training that is required for the cost function approach. And there aren't as many consulting firms out there -- who are usually what states hire -- who are willing to do something that requires that kind of advanced training in this field.

Now, I think there are some states that recognize the cost function approach. It's now out there. As I told you, quite a few states are using it. It's been used quite a lot recently. There are now dozens of publications that are based on it. And I think it's becoming much more widely known. And it's recognized as one of the alternatives that you can use in trying to understand things.

Now, there may also be a political dimension to this, as you suggested. In the case of New York, the cost function approach does indicate that you have to spend an awful lot more money in New York City than in other places. But interestingly, the professional panel -- the professional judgement panels that were put together also came up with much higher spending required in New York City than in other places. Not quite as much as the cost function approach -- is much higher.

Another interesting example comes from Maryland, where a professional judgement panel came up with a pupil weight -- implicitly a pupil weight for a poor kid of about 100 percent, which is what we estimate. So the professional judgement approach also sometimes come up with it.

One striking thing about the professional judgement approach is, precisely because it's educated guesses, the answer depends a lot on what panel you pick. And another panel in Maryland -- which was not quite as well connected, and isn't the one that was emphasized in the legislation -- had a much lower weight on -- implicit weight on poor kids.

So these are great challenges that we face. And I hope that states are recognizing that different approaches have different strengths and weaknesses, and they will try to get a range of opinions about what it costs to fund education, particularly in the places with a lot of disadvantaged students. That is the issue that the -- I think the cost approach is strongest on, compared to the other approaches. And that's precisely why sometimes it is controversial, because it does suggest that the extra spending is quite substantial.

ASSEMBLYMAN CONAWAY: I hate to press on this point, but can you say, generally, whether or not-- Is it your view, therefore, that generally the cost function approach requires more spending across the board, or can you only say that as regards the education of students with special needs, or who are low-income, etc.?

DR. YINGER: Well, I think-- As I said earlier, all three approaches give similar answers, not identical answers. And it will depend a bit on who does it, and so on. But they give similar answers for the

question of, how much does it cost to provide -- to reach the standards in a typical district. So there's no systematic reason why one of those approaches would give a larger answer on that question than another. There is no reason that I know of.

However, looking across the studies that currently exist, it's typically true that cost function approach ends up putting a higher weight on the -- a higher number on the extra costs associated with having disadvantaged students than the other approaches. That's not inherent, it's not true by definition, but it has been true as the approaches have been practiced.

Again, one example -- a counter-example is the case of Maryland, where they came up with a very high weight on students in poverty using the professional judgement approach. But I think, generally, it's true that the cost function approach will put higher weights on disadvantaged students than the other approach. Again, not by definition, but just by the way that it uses information.

ASSEMBLYMAN CONAWAY: Following on that, is it your view, in looking at-- And I gather you're not overly familiar with New Jersey. But are there-- Because I have to say, I'm a big believer in getting the data, crunching the numbers, and that's a way of reliably coming up with a number over time. And it might be less subject to the vagaries of how you put professional judgement panels together or model your successful schools.

DR. YINGER: I agree completely.

ASSEMBLYMAN CONAWAY: Are there data that generally states aren't collecting? And, generally, should states beef up their data

collection so that we could make these kinds of more precise -- well, hopefully more precise -- judgements on what we ought to spend?

DR. YINGER: Well, when I get involved in one of these studies, the first thing my colleagues and I have to do is find out about the data. And in some states, the data are in pretty good shape. In some states they're not.

The big change that's happened in recent years is that, partly because of state accountability systems that have been developing, and partly because of the Federal No Child Left Behind Act, there's now very good data -- pretty good data -- in most states on test scores. And the cost function approach requires data on test scores so that you can control for it. It's a very critical part of the method.

So that's a great improvement from when I started this analysis many, many years ago. So states generally have good data on that. Some of the information is not so good. It would depend on the state. For example, some states have good information on students who speak English as a second language, and some do not. That would be an example of a variable where we've encountered some difficulty in some places, and not so much difficulty in others.

So, generally though, I think the data that are required to do a cost function approach are pretty widely available. Spending data are usually available, student performance data are usually available, and characteristics of students -- like their poverty rate and so on -- are generally available. So most states will do it. It's just a matter of how much work you have to put in to get it in a nice, clean form. And certainly I would encourage states to have good information. It serves many purposes, not

just this one, to have good information to help evaluate their education finance system.

But I would not-- I would be surprised if you couldn't put together a data set fairly rapidly to do this in New Jersey.

ASSEMBLYMAN CONAWAY: Great. Thank you.

Senator Doria.

SENATOR DORIA: Thank you very much, Mr. Chairman.

I want to begin by thanking Dr. Yinger for his presentation.

My question follows up on the Chairman's question. And that is: As we deal with the cost function approach, successful school approach, or the professional judgement panels, are they mutually exclusive, or is there a way to integrate the best parts of each of these into development of a formula?

DR. YINGER: Well, that's a good question. I've said I think that they all have a role to play. And reasonable people could disagree. I would be very happy to have a state do a costing-out exercise with more than one of these methods.

I think the successful schools method really can't handle the problem of the extra cost of disadvantaged students. So I would not emphasize that one personally. It might be a good place to start, but you really can't get the whole story out of that one. But I would have no problem with a state that did a professional judgement panel, and did a cost function approach, and then compared them and tried to understand what they were each telling you, and made some compromises to come up with the best -- what made the most sense for them.

I think they are-- They're different. They have different strengths and weaknesses, and that makes them complementary. There's no reason why they have to be inconsistent with each other. They're not making different assumptions. They're just using information in a different way.

SENATOR DORIA: To follow up, maybe as it relates to New Jersey specifically, and the court decisions in New Jersey -- which are basically based upon the expenditure of money in the better districts -- the more successful districts, if you would want. It isn't exactly the successful school model, but it's somewhat that, in that what the funding for the Abbott districts -- which are the poor districts, both educationally and economically -- is based upon the spending in the richer districts, and the ones that are more educationally successful. And thus, there is something of the successful school model within the court decisions in New Jersey.

So what you're saying is that, as it relates to the development of a formula, or as it relates to determining how schools are successful, that would be the least effective methodology to determine how funding should be allocated.

DR. YINGER: Absolutely. If you took the spending in successful schools in New Jersey, and said that's what the urban districts have to spend, you'd be making two major mistakes. And the first one is, you're not recognizing that it costs a lot more money to attract high-quality teachers to the poor districts -- partly because they're in central cities, where the cost of living is higher, and partly because they have less favorable teaching environments. And you're missing the point that those -- that the Abbott districts have much higher concentrations of disadvantaged

students. And those take extra-- That requires extra spending on the part of those districts. And simply looking at the spending in successful districts does not tell you anything about those extra items of spending. You have to do an additional analysis to figure that out.

SENATOR DORIA: So what I'm hearing, Dr. Yinger, is that looking at the methodology that's presently being used as the court makes its decision -- using, basically, a comparison between wealthier districts and poorer districts and more educationally successful districts and educationally disadvantaged districts -- that that method by itself is not necessarily the best educationally, and the best empirically.

DR. YINGER: I would agree with that. It's not.

SENATOR DORIA: So if we take the two other models -- the cost function and the professional judgement -- and integrate those two, what you're saying is -- and let me understand if I'm -- if I'm correct in my interpretation. What you're saying is that you should do both separately and develop the criteria on a separate basis, running in parallel tracks; and then, when you look at it, create a comparison and try -- then that -- we should go with one or the other, or should we try to integrate the information that we get from those two very different models?

DR. YINGER: Well, I don't think there's one answer there. I think, oftentimes, when you compare, you find out a reason for the differences that might be instructive. For example, the professional judgement approach might have much lower costs for disadvantaged students. And then, when you start looking across the programs that you observe in schools with disadvantaged students, you discover the people in the professional judgement panel have missed something. Well, that would

be-- You wouldn't want to average them. You would want to correct the professional judgement panel. But you might have another circumstance where you left an important variable out of your statistical analysis that you discovered as you tried to do a comparison.

So I think some idea of doing them both and looking for a compromise is a good idea. But I don't know exactly how to characterize a formula for doing that.

SENATOR DORIA: My final question relates-- We have a formula in New Jersey, which probably has not been used -- actually has not been used for a number of years -- the CEIFA formula. And what that did, which was different from the QEA, is that-- In the QEA, from the first student on, who was disadvantaged educationally and was eligible for free lunch, we were coming up with funding for districts whether they were an Abbott district or not. In CEIFA, there was a base of 20 percent. If you have 20 percent or more, you received that additional funding. If you had less than 20 percent, you ended up not receiving any additional funding for those poorer students.

So based upon the cost function approach, as well as the professional judgement -- let's say cost function. You should actually begin with Student No. 1, not look for a base of 20 percent, or 10 percent, or 5 percent. But you should actually begin the funding at the need of the student at the first level -- that is, the first student who has a need -- rather than creating a base, in order to create better equity and, at the same time, help those students educationally.

Would you agree with that?

DR. YINGER: Sure. I think you're more precise when you start with the first student. But, obviously, if they only have one or two poor students, it doesn't make that much difference. But, in this case, the literature that is out there suggests that the costs increase continually as the share of poor students increases.

SENATOR DORIA: Well, that's a good point. And maybe you can go a little bit into more detail. Because I agree with that, and I think everybody does. But maybe if you could specifically point out why it increases proportionately -- even more than proportionately -- some instances, geometrically as the number of students increase.

DR. YINGER: Well, in the research that I've done, the -- it's approximately true that each additional poor student costs a given percentage more. And that doesn't change with the concentration of poor students.

Interestingly, in the work we've just done in Kansas and Missouri, we found that the effect of poverty is different in cities than in rural areas. And the effect of poverty is much greater in the cities than it is in the rural areas. But we haven't found that kind of thing in New York.

Now, exactly why that's true, I can't tell you. Again, the cost function approach doesn't get down to programs. So I can't identify, exactly, the programs that are associated with this increased spending. But I can tell you we've looked for whether the impact of poverty grows more than proportionately or less than proportionately. We can't find that effect. So having a poverty weight of 100 percent on a poor student is pretty close to what we find in the case of New York.

SENATOR DORIA: Thank you very much. I appreciate your information. I think it's very helpful.

DR. YINGER: Thank you.

ASSEMBLYMAN CONAWAY: Dr. Yinger, given the regression analysis that you conduct, can you tell us something about optimal school size, and costs along those size -- whether it be a district of 500 kids versus a district of 1,000 or 4,000? Do we see that there is sort of a straight line of progression in costs, or are there economies of scale that are developed as you move from, say, a smaller district to a larger district? Can you tell us anything, in your judgement, in your research over the years, about the optimal size of schools?

DR. YINGER: Actually, I have a lot to say on that topic. I recently spoke to another panel of the New Jersey Legislature on some work I have done on school district consolidation. But the cost function approach also addresses this topic. And it raises a number of very interesting issues.

In the case of New York, we do estimate the impact of school district size -- not school size, but school district size -- on costs. And we find that the minimum cost size is about 3,000 to 4,000 pupils -- somewhere in that range. And very small districts and very large districts have higher costs per pupil in the case of New York.

Now, this U-shaped relationship of relatively high per-pupil costs for really tiny and really big districts has been found in many other studies in many other states. And we found it in almost every state that we've looked at. That shows up, for example, in work we've recently done

in Kansas and Missouri, and some work we've recently done in California. And so there's quite a lot of evidence of that.

Now, there are two further points to make. The first one is, it's not clear how you want to handle that in a costing-out exercise. One argument you can make is that those are economies-of-scale, given the districts that you have. And you want to compensate the districts that are of a non-optimal scale, because that's not really their fault. They didn't draw their own boundaries. So you want to compensate them.

That runs into some difficulties, because some of the districts are really small because they refuse to consolidate. And if they consolidated, they'd lower their costs. So many states have gotten quite confused about this, and they have one part of their aid formula that rewards people for consolidating, because they want them to consolidate, and another part of their aid formula that compensates them for the high cost of being small, which discourages them from consolidating. So I think that raises some very difficult issues.

It's also true that-- We ran into this in the case of New York. New York City is so big, relative to the other school districts in the state -- New York City has 1.1 million pupils; and the next biggest district, which is Buffalo, has about 50,000 -- that the economies of scale effect leads to a whole lot higher cost in New York City than other places. It's like 50 or 60 percent higher costs from that factor alone. And it's quite challenging to convince people that that ought to be included in an aid formula in New York, because New York is so unique. And you really can't tell whether that's because New York has true cost disadvantages, or because it's doing something that's fundamentally inefficient.

So there are some great challenges in the case of New York. I'm not sure how that would play out in New Jersey. I don't think you have any places that are kind of outliers like New York City is. But there are some challenges that arise in interpreting the economies-of-scale estimates in the largest places.

But there's certainly a very-- There's very strong evidence that costs are U-shaped. And there's a good intellectual argument that at least within some limits, the districts that are not of optimal size might want to get -- you might want to give them more funding. In other words, the amount that they have to spend to get a given level of performance is higher than the districts that are at the optimal scale.

ASSEMBLYMAN CONAWAY: Your comments about these cost incentives remind me of a person who is going to put up a swing and decides to hang it from branches on opposite sides of the same tree.
(laughter)

DR. YINGER: That's about right.

ASSEMBLYMAN CONAWAY: You mentioned a lot about incentives for getting teachers into some of these poorer districts. And I gather you've looked at that. And are there states-- Are there any ones that you would recommend -- any of the methods states have used for incentivizing, getting the best teachers into the more difficult districts, if you will, that seem to be working well, that you might want to tell us?

DR. YINGER: I really wish I could do that. Partly it's because I'm a little new to the topic, and I can't claim to have studied what happens in every state. But partly also, the literature that I'm familiar with mainly emphasizes how difficult it is.

We had a conference here, at Syracuse, a year ago on teacher attraction and teacher retention. And the literature there is quite discouraging. There's one really powerful fact that has shown up in a few studies, which is that the type of people who become teachers like to teach in a place that's geographically near where they grew up. And this is an astonishingly powerful effect in New York. And it appears to show up in some other places, as well. And that means that the city districts, which produce relatively few people who want to become teachers, start out with an enormous disadvantage before you ever get to anything about salaries, or teaching conditions, or anything; because they don't have very many people who have this natural inclination to go back to their home geography.

Now, on top of that, we do have evidence that teachers are responsive to salary. A higher salary does increase the ability that you can attract and retain a teacher. But the effect of salary is surprisingly low compared to the effect of harsh working conditions. And so if you have a school that has a lot of disadvantaged kids, it's likely to be -- have a much harder time retaining teachers. Teachers will be much more likely to leave. And you could offset that with salary changes, but they have to be enormous salary changes. Twenty, 30, 40 percent increases in salary would be necessary to bring the (video malfunction) in line with what happens in a less-disadvantaged school.

In addition, several states have run some bonus programs that try and give bonuses of a few thousand dollars to teachers to teach in some of the schools with more disadvantaged kids. I haven't studied those myself, but there were papers at this conference on that. And these bonus programs have proven to be kind of hard to run, and they aren't often run

very well. But even when they are, they don't seem to have very large impacts, again, because the numbers aren't really big enough to offset the disadvantages.

So I would say that's one of the great challenges that we face. We have challenges in the statistical work, because it's very hard for someone looking just at the aggregate data sets to identify the highest quality teachers. And that's a great challenge.

And we also have challenges in the policy arena, because policies face some particularly difficult challenges in addressing the disadvantages of a harsh teaching environment and the disadvantages of teachers' predilection to teach near where they went to high school. So I think we still have a lot to learn about that. But it's a very active area of research and of policy. And I hope, over the next decade or so, we'll learn a lot more about it.

ASSEMBLYMAN CONAWAY: Thank you.

I don't think there are any other questions from-- Oh, I misspoke.

Assemblyman Wolfe.

ASSEMBLYMAN WOLFE: Yes, thank you.

Dr. Yinger, you mentioned frequently, in your presentation to us, the term *disadvantaged child* or *disadvantaged kid*, and you talked about English as a second language, special education, financial disadvantage, and a need for medical and additional counseling. What actually-- If you could summarize it for us, how would you define *disadvantaged child*? Which of those terms should we be looking at?

DR. YINGER: In the cost function analysis that I've done, we've used three variables to measure disadvantage. One of them is whether the child comes from a poor family -- and that's typically measured by whether they are eligible for a free or reduced-price lunch, because we don't have poverty measures available every year -- they're census variables which are not available every year; whether the child speaks English as a second language; and whether the child has a severe disability. Those are the variables we've used.

Now, what I've tried to emphasize is that our approach is abstract in the sense that it doesn't tell you exactly the components of extra spending associated with those kids. So I can give you examples of what we think is going on, but I can't give you a formal analysis of that. So when you have a kid from a poor family, they're less likely to have good health insurance and the school is more likely to have to deal with it.

I have a really good story about that, that's from a column that appeared in the *New York Times* several years ago. There was a school district in California that had a lot of migrant children who were from very poor families and didn't have health insurance. And they'd come to school sick, and then other kids would get sick. And they spent a lot of time out of school getting well. And the school was just discovering -- and it couldn't get its test scores up, because the kids couldn't stay in school. There was no continuity to their education. So the school built a clinic, and the school provided health care to its pupils. And its test scores went through the roof. And that's an example. It's not a formal analysis of how much you have to spend to provide health care if you have a lot of poor kids, but it's an

example of the kinds of choices that schools face when they have kids with a lot of health problems because of their low income.

Another example I'll give you is from the city of Syracuse. One of my colleagues took some students around to junior high schools in a nice suburb and in a city school in Syracuse, and compared what went on in those schools in terms of safety. And in the city schools, each classroom had a buzzer. And when there was a disruption in the classroom -- which happened, sadly, fairly often -- the teacher had to hit the buzzer. The teacher couldn't leave the classroom, because then the disturbance would get even more out of hand. So they'd hit the buzzer, and the staff member assigned to dealing with disruptive students would come and take the student out. But they didn't have enough money to really hire counselors and to give the kind of services that they needed to help disruptive kids. Instead, all they had money for was to hire a retired teacher to take the disruptive kids into a room and let them watch a movie. So they had to spend a lot of extra money without even solving the problem very well.

So those are just examples of the programs that are behind the abstract analysis that we're doing. We're just looking, on average, across schools -- on average -- when you have more disadvantaged students. To get the same performance, you have to spend more. But we're not able to identify, with that method, exactly how you spend more.

ASSEMBLYMAN WOLFE: I just need some clarification. Do you mean disadvantaged includes all of those three criteria, or each of those criteria is a separate type of disadvantage?

DR. YINGER: The latter. Each is a separate type of disadvantage.

ASSEMBLYMAN WOLFE: Okay. Thank you.

DR. YINGER: We estimate the extra cost of each one of those separately.

ASSEMBLYMAN WOLFE: Thank you.

DR. YINGER: So you could have a kid that had all three of those disadvantages, and the extra cost would be very large for a kid in that category.

ASSEMBLYMAN CONAWAY: Thank you, Dr. Yinger. Your testimony was very fine and very helpful to us. And we hope that if we need to call on you again in the future, that you will be available to us.

But thank you, again.

DR. YINGER: You're welcome.

I'd just like to say one more thing, which is, I do have a policy brief -- which I hope was made available to you -- that discussed these issues on costing out.

ASSEMBLYMAN CONAWAY: We have that.

DR. YINGER: And there's other information on my Web site that discusses some of these issues, too, if you wanted to have some of your staff look around and see if something else was useful.

ASSEMBLYMAN CONAWAY: Great. We'll have-- We'll make sure the staff gets that Web site. I don't see it right in front of me, but I'm sure it's here.

But thank you, again, very much for your very helpful testimony.

DR. YINGER: Thank you for inviting me.

ASSEMBLYMAN CONAWAY: Thanks, again.

Now, we have a little technical problem that's going to require us to have -- you see it on the screen -- perhaps 30 seconds to a minute to get our next speaker, Dr. Chambers, on line. So there will be a brief pause while the call is made.

A little less than 30 seconds it looks like.

We have, joining us, Dr. Jay G. Chambers, who is a Senior Research Fellow and the Managing Director of the Education Finance Business Development Group and the Educational Program at the American Institutes for Research.

He holds an appointment as a consulting professor with Stanford University School of Education, and has served in the past as the President of the American Education Finance Association. He has served on President Bush's Commission on Excellence and Special Education, helping to form recommendations on the reauthorization of the Individuals With Disabilities Act. He is an expert with over 30 years of experience in the area of costing education and has written -- has done much writing in this area, as well.

Dr. Chambers joins us from the west coast, I understand -- San Francisco.

Is that right, Dr. Chambers?

J A Y G. C H A M B E R S, Ph.D.: Palo Alto, California.

ASSEMBLYMAN CONAWAY: Very good.

Well, you have the floor. And thank you for being with us today.

DR. CHAMBERS: Thank you very much.

I'm pleased to have the opportunity to speak with you. And I'm pleased it didn't require me traveling all the way back to New Jersey to do this.

At any rate, I did hear some of the comments of Professor Yinger. And I have to say, on the whole -- I didn't hear all of the questions that were asked of him, because we got disconnected somehow in the midst of it -- but I think there's going to be a lot of disagreement in a few areas of (video malfunction) of costing out. And I'm going to repeat a little bit of what he said, just so you get a sense of where we might agree and disagree on some of these issues.

I've been working on costing-out studies, as they are called, for some 30 years with Tom Parrish. And Tom and I did what was probably the first real comprehensive costing-out study, per se, using the professional judgement model, more than 25 years ago in Illinois and Alaska. And since those earlier studies, the major changes in the approach is that there is much more significant emphasis on consideration of outcomes as a foundation for the work that we have been doing.

Let me begin by first defining what we mean by *costing out*. You've gotten a little bit of that from Professor Yinger. But let me at least start by a formal definition -- at least the way an economist would describe what we mean by *cost*. Cost is the minimum expenditure required to achieve a certain outcome, goal, or standard.

I think there are some key phrases in that definition that I want to emphasize. One is the minimum expenditure. In other words, it requires some optimization -- assumptions about optimization. And the second

thing is that it requires an outcome, goal, or standard against which to measure.

With that in mind, there are really three major factors that affect the cost of education or, for that matter, of almost any kind of good or service that one might think of. But I'm going to express them and describe them in terms that are relevant to school funding and school finance.

The three major factors are -- and let me give you three words, and I'll go back and define each one -- *price*, *need*, and *scale*. What I mean by price is, we want to find out how much more or less it costs to recruit and employ comparable resources, comparable teachers, comparable equipment and materials in different communities across the state. Dr. Yinger referred to some of the factors that affect those variations in price of comparable teachers. And when I say *comparable teachers*, I mean teachers with similar qualifications. But those factors that affect -- those cost factors that affect that price are things like the cost of living and the attractiveness of different local educational agencies as places to live and work.

Let me step back for one moment. I think one other factor that is important to keep in mind is, as we think about cost, what we're talking about here is those factors that are essentially outside local control. If we're trying to design a school funding formula, we need to define a way to distribute the money from the state capital to local school districts that adjusts for variations in factors that are outside the control of local school districts -- they can't affect.

So the first one, as I said, was price: how much does it cost to recruit and employ comparable teachers. And, essentially, the issues are labor market issues.

The second one -- and the major factor, I think, involved is need. And what I mean by that is, if I want to categorize students into basically three groups, they are at-risk -- or students in poverty -- English language learners, and students with disabilities. Now, you can even start to think about students who have vocational needs, or gifted students -- a more broad category of exceptionality, if you will. And all of those factors need to be considered as well. But the three major factor groups -- student groups are at-risk students, English language learners, and students with disabilities.

Some of the kinds of factors -- or some of the kinds of programs and resources required to meet these needs include things like smaller classes, extended-day and extended-year programs, and preschool programs for at-risk children. English language learners -- you need teachers who are qualified, bilingual teachers, and also some extended-day and extended-year programs. And for students with disabilities, again you need variations in class size, additional -- or supplemental services to meet the special needs of various kinds of children with disabilities; and you need some special attention, and related services, and supports to provide for those students to meet the standards.

The third factor is scale. And here I want to distinguish between simply schools that are small by choice -- because many of us have argued, and there is some literature suggesting, that small learning communities or smaller schools can provide improved services for children.

But what we're really talking about here are schools that are located in regions -- geographic locations -- where scale -- they can't operate at the optimal sizes of schools that -- as in more urbanized settings. So what we're thinking about here is more of the necessary small schools.

Now, I guess, let me provide you with what I think would be an overview of a comprehensive study to address adequacy. There are four components to these kinds of studies. The first component is setting the goals. And that includes identifying the legislative enactments, or enactments of the state board of education, that have specified the standards or the goals for the state. And the process that's involved in these costing-out studies includes public engagement with key stakeholders that have three purposes: to inform the public, to seek input on goals, and to seek input on how to achieve those goals. Now there's some extent, again, as I say-- This is specified in legislative enactments or the state board of education proclamations. But I still think that an important element of (video malfunction) as I will point out -- adequacy studies involve both a political and technical element to them.

The technical element is the one that I think Professor Yinger focused most of his attention on. And it involves costing out -- or determining the cost of achieving the goals. So once you set the goals, the second thing you need to do is determine the cost of achieving those goals.

There are really four basic methods. He indicated there were three, but there are actually four methods that are out there being used across the states, currently. One is the cost function approach, the second is the successful schools approach, and the third is the professional judgement approach, and the fourth is the evidence-based approach.

Dr. Yinger told you mostly about the cost function approach. And I think the problem is that all of the methods have fundamental flaws -- every one of them. We've all tried to account for some of those flaws and deal with them as best we can. But let me just kind of outline for you -- for the four major models that I have just laid out -- cost function, successful schools, professional judgement, and evidence based.

(video malfunction) requires substantial amounts of data. It requires data over time on multiple years, and can't even be done in some states with small numbers of school districts, to be honest with you. And it's usually done at the district level. It focuses on a very limited set of outcomes, and is a bit of a black box. And I think Dr. Yinger even alluded to that. It is hard to tell what the implications are for specific programs.

(video malfunction) in a cost function approach is the fact that it generally focuses on a single measure of outcomes, and that's student achievement test scores. Because usually the statistical models don't allow one to address some of the other outcomes. They don't say anything about creative thinking and problem solving; about social skills and work ethic; about citizenship and community responsibility; about physical health; about emotional health; about the outcomes in arts, and literature, and vocational education. In general, it uses something like reading and math scores, and finds ways of combining them. So while I think it can be a useful-- It is an approach that deserves to be looked at and (video malfunction) is very limited in its ability to address a comprehensive set of outcomes.

Successful schools-- I think Dr. Yinger nailed what I think are the limitations. I think it's -- the approach provides some important

information. But, in fact, usually what happens is, they define successful schools and the ability of the schools to achieve state standards. And the only-- There's only a handful of schools in any state that actually achieves state standards, and those tend to be schools that are in the wealthiest communities in the state. And that tells us nothing about what it takes to provide for success in schools that are serving high-poverty kids or kids with lots of special needs.

The newest approach to that -- to successful schools work is now referred to as *beating the odds*, which also has some flaws. But basically, what it does is, it says, "Let's take a look at the schools -- the resources in schools that are doing better (video malfunction)" --the schools that are serving low-poverty populations, and the schools that are serving high-poverty populations, and tries to identify schools in each of those cells -- if you will -- that are having tremendous success. And yet you find very little if any schools that are in the high-poverty -- serving the high-poverty populations that are meeting state standards. So the problem is, you're not identifying schools that are doing what you want them to do, even though they're doing better than their counterparts.

Professional judgement relies on panels of educators who, if you had to express the concern over that approach -- and this is the approach that I have been -- that I have used throughout my career, and rely on for some very good reasons-- But the people who are critics of this have suggested that it involves self-interest. You're asking educators to come in and specify the programs. And, eventually, the researchers do the costing-out analysis. But you're asking people who have, in theory, some self-interest to specify what resources are necessary.

I personally find it, because of the limits of the existing literature in education, the approach I find most appealing. Because educators have a broad view of what the outcomes and the desired goals are of education, they have a broader view of -- at least an on-the-ground view of what works. And I think one can develop some important checks and balances in the system in order to make sure that the results can give you something that's useful and valid. Those checks and balances, at least the way we approach it -- and I think a number of other people who have done it, to some degree, do it this way -- is using multiple, independent panels who are asked to go through the same sets of exercises, develop a prototype school for its certain kind of -- serving a certain demographic, and tell us what that school looks like. And then, let's vary the demographics and say, "How does that school design -- how does the program design vary when I vary the demographics? What would you change?" And if you have multiple, independent panels answering that same question, you can compare the results, because the panels themselves are not -- at least the way we do it, we ask the panels to not communicate with each other, and set up the exercises in a way that they don't interact with each other.

So you can actually look at their program designs, which is another feature that we approach -- or that we have developed. That is, before they start specifying resources -- "Well, how many teachers do you need, and how many FTE counselors, and how many FTE this, that, and the other thing?" -- we start by saying, "What is the nature of the program design that you want to implement in these prototype schools? And then I want you to specify the resources necessary to deliver that program."

The other thing -- the other approach that we have taken in implementing the professional judgement is using stakeholders. That is, we establish a group of noneducation stakeholders that include the business community, that include the legislature, that include parents, and taxpayers. Even students on occasion can be included in this. Even students -- we say these are the people we are serving. But they have something to say about what they would like to get out of schools. So there are lots of folks that need to be involved in this process who have an interest in the success of the education system. And the checks and balances that come out of that is by interacting -- the professional judgement panels that we organize -- the educators, with the stakeholders. The stakeholders can query them. They can review the results. And we know the professional judgement panels, at the beginning of the process, know that this is going to happen. So they're looking at this, saying, "We're not going to just specify the models and walk away from this. We're going to specify these models, we're going to develop justification for the program designs, we're going to develop the resource specifications, and then we're going to come before a panel of stakeholders" of a large group of stakeholders, as we did in New York -- "and answer questions about what we've designed, and how we've made -- what recommendations we have made."

The fourth approach: evidence based. Again, another approach that I think has merit. It relies on evidence that's out there in the research community and in the professional literature. Unfortunately, the evidence is rather thin. It's more of a one-size-fits-all model. It has little regard for specific outcomes in any specific state in which it is implemented. And yet it still has some value in the sense that we can say, "Well, what are the

things that the literature tells us?” For example, what does it tell us about class size, what does it tell us about preschool programs, and extended-time programs? And what are the cost implications of those models?

The problem is, for every study that tells you that class size makes a difference, or some of the other resources make a difference, you can find studies -- other studies that say just the opposite. And so the evidence-based model tends to rely very selectively on the literature.

What is becoming more and more popular is kind of a fifth model, which is a hybrid that brings all of these approaches together. Because, ultimately, anybody who does the evidence-based approach begins to fall back on professional judgement, because they ultimately need professional judgement panels to take into account the specific context of the state in which they are working, and the outcomes, and standards that have been established by that state.

The hybrid model -- if I might just describe briefly the approach that we have taken to some degree in our New York study, and that we are taking now in a study we are conducting in New Mexico that involves all of these dimensions: public engagement; it involves the technical cost simulations, with a centerpiece being professional judgement. But it provides professional judgement panels with information on beating-the-odds studies, and looking at the schools that are -- and the resources that are being provided in those schools, so that they're basing it on something that's from their state -- from within their own state. Looking at the literature, and providing them with a balanced review of the literature that says, “Here's the studies that say class size makes a difference, and that say preschool makes a difference; and here's the ones that provides kind of an

opposite view, or alternative views, of these things,” and at least provide some limitations.

We combine that with supporting studies that look at the variations: the geographic cost adjustments in education, and the transportation facilities and other things that may be of interest to the state in which we are working. And we also combine the information -- the school prototypes with overhead analysis -- that is, the analysis of cost of maintenance, and operations, and central administration that may vary across districts. And then, finally, we provide them -- a structure for the stakeholder panels in which they can query and work with the models to kind of hone in on the approach and hone in on the cost estimates.

So I've gone through setting the goals, costing out achievement. The third part of this study is designing a funding formula. What's the mechanism for how to distribute the funds to local school districts and who pays? How much of it comes from the state, how much of it comes from local taxpayers?

And the fourth dimension -- the fourth element to this whole thing is determining availability of resources. Most of the costing-out studies, or most of the adequacy studies that have been done in the last, probably, 15 years have focused on two -- element two, that is determining the cost of achieving the goals and, on occasion, designing the formula. Few of them have done anything with public engagement, or setting the goals, or at least talking explicitly about those issues. They are sort of handed down from the legislature, or whoever is contracting for the study, and very often determining the availability of resources is usually outside the scope of these studies.

I think it's important to recognize, in the context of what I just talked about -- the approaches to adequacy -- is that there are-- This is the policy process, ultimately. And the adequacy is both a political and technical process. There is no one right answer to this question, whether it's professional judgement or a cost function approach. I think multiple approaches need to be implemented within a state. And I think they need to be compared so that one can look at how different the results are or how similar they are. If you're getting similar answers, or more or less similar answers, from different methodologies, it can give you more confidence. And I think this has to be done within states, rather than just saying, "What were the results from other states?" Every state context is a little different and, I think, needs to be taken into account as you're doing this work. No one approach is viable on its own.

The other thing that I think is absolutely true -- and the critics of all of these approaches have pointed out -- have pointed this out -- is that every one of these approaches are projecting beyond their sample. This is a problem. Statisticians would say, "Well, if you want to examine behavior of local firms, or local school districts, in doing anything" -- they want to make estimates of what those -- what changes in policy will -- how they will impact behavior.

The problem is, there are no schools -- or there's only a handful of schools throughout this nation who are serving the neediest of children, who are actually succeeding in meeting their own state standards. And so I don't care if you're using professional judgement, cost function approaches, evidence-based, or whatever approach you might take. Every one of them is going to have to project beyond the sample, because we don't have models

of schools -- any significant number of models of schools that are succeeding in meeting those state standards. Yes, we have some that are doing better than others, but we just simply don't have enough to have solid -- on which we can build solid estimates. So that's why I emphasize that this is both a political and -- a policy and a technical process.

Efficiency is a concern. And this is one of the reasons that we have taken the beating-the-odds approach to -- as part of our methodology. Because it tries to identify the schools that are doing better than other schools within certain -- serving certain kinds of populations. So at least you're identifying schools that are, in a sense, off the regression line. They're above the regression line, if you will. They're doing better than otherwise would be expected. And you try to include that as part of the analysis to the extent that you can.

In concluding, I guess I think it's important that we believe accountability is critical to success, that educators need to be held accountable for what they are doing. And, at the same time, they need the ability and the flexibility to be able to make decisions; which is why I, in general, would prefer a block grant approach when you're doing these kinds of adequacy studies, or designing formulas. Because it offers to educators fewer categorical programs that define, "Well, you ought to be spending the money this way and that way," and specifying to them, from the state, exactly how they ought to be using the money; but rather provides them with the resources that, as best we can tell, give us a good estimate of the cost of achieving the state standards. And then holds them accountable for achieving those results, but give them the flexibility to make the decisions that they need to make for achieving those goals.

I think one-- I guess one last thing that I would like to say, in thinking about those four elements, is that one must recognize that, ultimately, the process that one sets in motion when you're thinking about adequacy and equity studies of this kind -- ultimately need to balance education with noneducation elements. And what I mean by that is, if you start by setting the standards and goals; and then you go to the second step of that process, and you cost out what it takes to achieve those goals; and then you design a funding formula-- And the final step of that process is you find out what it takes -- or how much state money, based on that formula and the structure that you put in place -- how much state money needs to be allocated to fund K-12 education and to meet those standards. And then, all of a sudden, you say, "Oh, gosh. That's too much money," or it's too much money relative to balancing the noneducation models -- or the noneducation needs, excuse me -- health, and prison systems, and welfare systems. And you decide, "Well, gee, we can't afford to spend that much money on education." Well, it puts you right back into the process again. In other words, you've got to say the goals -- the standards that you set are going to end up defining or determining the costs that you're going to need. And if it's more money than you think the state can spend, it means you've got to go back and say, "We either have to allocate more money in order to meet those goals or we have to reset the standards."

So I think, with those comments, I'm going to stop and take any questions that you might have.

ASSEMBLYMAN CONAWAY: Thank you, Dr. Chambers.

Question from Assemblyman Stack.

ASSEMBLYMAN STACK: Thank you for your testimony, Dr. Chambers.

I just had one question. Has there been any successful court challenges to the PJP model approach that you've talked about today?

DR. CHAMBERS: Well, the one that I'm most familiar with is New York. And the court in New York accepted the approach and the analysis that we presented to New York State. It was not done for New York State, it was funded with money from four foundations, including Atlantic Philanthropies (video malfunction), Rockefeller Foundation. But that study was presented to the court and was found to satisfy the court.

ASSEMBLYMAN STACK: Thank you.

ASSEMBLYMAN CONAWAY: We have a question from Senator Cardinale.

SENATOR CARDINALE: Thank you very much for your presentation and for pointing out the differences in methodologies.

I'm troubled by something that you pointed out. You indicated that there are almost no examples -- or very few examples of successful schools, which are successful in terms of providing good outcomes where they have lots of disadvantaged school population.

We often hear -- I think its Minneapolis shaped up its educational system -- which had been performing very badly -- by providing a competitive system by using vouchers. And the outcome -- at least we're told this, I haven't been there -- is that the public school system became much better once it was competing against private schools, which were getting vouchers with public money.

Would you comment on that? Is that--

DR. CHAMBERS: Well, first, let me--

SENATOR CARDINALE: --correct?

DR. CHAMBERS: Let me just correct something you said that I said. Actually, what I said was, you find very, very few schools that are meeting state standards. And by that I mean that 80 percent, or 90 percent, or 100 percent of the students are meeting those standards. I'm not saying you don't find successful schools. There are schools that are moving in the direction. But I just want to be clear. That doesn't mean there aren't some good-quality schools doing some outstanding things. There are.

I guess I'm somewhat familiar with the Milwaukee system, but I have not studied it in great depth. So I don't know that I have a lot to add to that. So I'm not sure I have enough knowledge to really make a comment on success or failure.

SENATOR CARDINALE: Let me follow that up. You talk about generating formulas. My view of the formula that we currently have in New Jersey is that by virtue of -- not the Legislature, but the courts -- we have given an enormous financial reward to districts that were failing. And we continue, in many of those districts, to have failure at the same rates. And so they continue to get the same money.

Has anyone every devised a formula that is based on rewarding successful schools?

DR. CHAMBERS: Well, I can't say I'm familiar with anything in that regard, in terms of a state formula. I mean-- I'm sorry, I don't have -- I can't think of anything that I can tell you in that regard.

SENATOR CARDINALE: Thank you very much.

ASSEMBLYMAN CONAWAY: I don't see any of the other members of the Committee have questions for you, Dr. Chambers. We do appreciate your testimony and hope that you will be available in the future, should other questions arise.

DR. CHAMBERS: Yes, I will.

ASSEMBLYMAN CONAWAY: Great.

DR. CHAMBERS: Thank you for giving me the opportunity.

ASSEMBLYMAN CONAWAY: Thank you very much. We appreciate it, again.

With that, I believe we'll entertain a motion for adjournment, unless you have anything else to say. (no response)

We're adjourned.

(MEETING CONCLUDED)