

Transcript of Research & Statistics Centennial Conference: The Role of R&S in Research**November 8, 2023**

DOUGLAS ELMENDORF. Good morning, everyone. It's good to see you all. I am delighted and honored to be moderating this first panel today. I want to begin by thanking the Division of Research and Statistics or, put better, thanking the people of the Division of Research and Statistics. Here at R&S and, I will add, in Monetary Affairs, I learned skills and perspectives that have been invaluable in everything I've done in my life since.

I learned, of course, how to analyze economic conditions and think systematically about what might come next. I learned how to write about economic conditions and analysis. I learned how to work as part of a team of people. I learned the importance of a commitment to excellence in one's work. And I learned about the immense rewards of public service. So, as I look back on my own time in R&S at the Board, I am so grateful to my managers, a number of whom are here today; to my colleagues, many of whom are here today; and to everyone who helped mentor me and helped me in my path in this work.

And while I was here and learned all these professional skills, I also made many wonderful, wonderful friends—I think a few pictures of those occasions flashed by before—and these friends have been friends for life as well. So, a huge thank you from me to R&S. And that's all my introduction. Now, we're going to turn to the topic for this first session.

We have three authors next to me here, and you can read about them in the brochure. They're going to tell us about the role of R&S in research over the past 100 years. And I will turn things over right to them.

KAREN DYNAN. Thanks. It is great to be here. Wow. It is just so good to see so many people, and happy birthday, R&S. This is a big event.

It is my pleasure to be presenting a paper I have coauthored with Jeff Fuhrer, who was in R&S when I joined—in fact, I think he interviewed me when I was on the job market—and then with Gustavo, who I worked with in my latter years here in R&S.

So this paper is about—if I can advance the slides. Am I advancing? No, not for a second. Okay, there you go.

We're going to look at the role of R&S research, basically, as it pertains to Fed deliberations around monetary policy, financial stability, and regulatory issues. And we're going to look at how the role has evolved over time. As we were brainstorming this paper, we were thinking about the importance of research. And, of course, research is important because it informs policy decisions. But we also realized there are all these other spillovers. It pushes the staff toward greater rigor. It helps attract an excellent staff. And then, to the extent that you're putting it out publicly, it increases the credibility of the Fed by illuminating the science behind policy decisions.

So the paper has three parts, and we're going to tag-team the talk. I'm going to start with a brief overview of the history of research in R&S, then Gustavo is going to take over and present some quantitative results, and Jeff is going to go last and talk about the role of research in key monetary-policy-related debates. So that's how we're going to organize things. Okay.

So, history of R&S. I'm going to start from the beginning. I will say, it's not like there are a lot of data, particularly for the early decades of R&S. So what we did was we read the literature, we looked at personal accounts and oral histories, and we talked to people. And this is kind of where we came out. So I'll give you a brief overview, starting in the 1920s. There was important economic thinking and there was important data production in that decade. And we're going to hear about the data production later. But with regard to the economic thinking, I was

just sitting next to Athanasios Orphanides at a conference, and he was telling me how the first director, Walter Stewart, really played this central role in what he calls “the genesis of activist monetary policy.”

And then you have the 1930s, which, of course, were a tumultuous decade for the economy. This is a period when the research staff was building up. It’s not clear from the historical record that the decisionmaking at the top really included a wide group of people from the Research Division.

In terms of the 1940s, it was really war considerations that dominated the story. Monetary policy wasn’t that interesting because it was all about keeping borrowing costs low for the U.S. government. But the staff was engaged in a ton of war-related analysis, both to help the Board but also to help other agencies in Washington. And then you had the 1950s with the Treasury–Fed Accord, and you’re back to kind of more normal monetary policy. The record suggests that Chair Martin was very supportive of the Research Division. Not clear how much role research was playing in forming monetary policy decisions, it looks more like Martin was turning to people in the financial sector.

It was really in the ’60s and ’70s when you started to see this big step-up in the sophistication of R&S research and the role it was playing in terms of monetary policy. And part of this was a response to pressure from the outside. So the Fed was getting criticized for not having enough science behind monetary policy from people like Brunner and Meltzer but lots of other people as well—for example, Tobin at the CEA and the Joint Economic Committee of the Congress.

So a big step forward in this regard was the establishment of the Special Studies Section, which was tasked with creating this large-scale econometric model. And that’s when they first

brought in this kind of big team of what we would consider to be kind of modern research economists. They did things—in addition to the model, they were doing research, they had the first working paper series.

But then when you get to the '70s, you start to see this research culture spreading to the rest of the Board, spreading out to the sections that had been previously primarily oriented toward current analysis. So you're seeing more research economists in those sections, more working paper series. So remember the economic activity in the banking working paper series, for example. And then, of course, kind of the fact that we were in this big battle against inflation, which Jeff will talk about in a few minutes, just engendered more research thinking about forecasting and so on. So this decade was characterized by Jerry Enzler in his oral history interview as just a “really spectacular . . . buildup of intellectual capital.

So then, kind of subsequent decades, you see this ongoing trend toward more focus on research. And I think it's fair to say that a big milestone in that regard was the arrival of Chair Greenspan in 1987. Those who remember working with him know that he just had this vast appetite for engaging with research economists on basically everything. So that was a big change. And then, of course, subsequent Chairs to this day, as Stacey was saying, have just furthered this emphasis on rigorous economic thinking. Gustavo will have some quantitative results that illustrate this. But there was this expansion of research staff, spawning of new divisions. And this started with the establishment of IF from R&S in the 1950s. But then you have Monetary Affairs in 1987 and Financial Stability in the early 2010s.

Partly, research was fostered by some pretty important innovations—maybe you've already talked about this—in terms of computing here at the Board. If you read the oral histories, that was a big deal. Of course, we have richer data sources. And then, importantly,

there have been these innovations that have enhanced the reach of research, which I think are quite important. You had the working papers consolidated into the FEDS series, and you had the establishment of the very important FEDS Notes series, which allows the public to see kind of all this rich analysis that is behind Board deliberations.

So that's your quick overview of the history of research in R&S. And with that, I'm going to turn things over to Gustavo, who is going to show some quantitative results.

GUSTAVO SUAREZ. Thank you so much, Karen. We look at many of the questions from a quantitative perspective as well. I think I'm going to need some help with the clicker. Okay, there you go. All right. And we were able to do this with great support from the Research Library and the excellent research assistance from Alec Erb, who I hope is in the audience here or from K Street.

We focus on three questions. First, how much research is produced in R&S? Second, how is research produced? And how is research used? And we're going to give you a sample of some of the perspectives that we're getting to these questions. We are not aiming for being comprehensive or definitive in these answers, but rather to invite further conversation along these topics.

We use primarily two types of data in this analysis. The first one is metadata on publications that have been collected by the Research Library of Board staff, and metadata include subjects like the title of the paper, the JEL codes, the authors. And this is collected for a wide range of types of publications, including working papers, academic articles published in peer-reviewed journals, and other publications that very notably include FEDS Notes, of which we have heard more recently in this presentation and in earlier days of this celebration.

We focused mostly on the period starting in the late 1990s, and, obviously, it's very difficult to ensure that we're comprehensive, capturing all the publications of all the economists in all the years. We suspect that there is slightly more tendency toward being comprehensive toward the later part of the sample. So some of these results need to be taken with a grain of salt.

We supplemented the data we obtained from the Research Library by collecting the affiliations of external authors and other aspects of the data that we won't get to in the presentation today. And the big second source of data for us was the text in some FOMC publications—most notably, FOMC transcripts and FOMC memos. And we also use the text in FEDS working papers starting in 1997.

For us, it was very special to work with these data. So we actually understood the story behind a lot of the data points because each paper in this database is actually a story; there is a story behind it.

And let me turn to the first question. And to get a glimpse of the amount of research that is produced in R&S, we're plotting the number of new publications per year across the major publication types. We have here working papers, academic articles, and other publications. And all of these have increased over the past 25 years. We can explain some of the wiggles in this chart; some of the other wiggles we cannot explain.

One that we wanted to share with you today is the significant increase in the mid-2010s in other publications, in the green line. So a lot of that increase owes to the introduction and the consolidations of FEDS Notes. This has been a very highly demanded outlet. It has a wide reach, which makes it very appealing, and it also allows for a strengthening of the partnership between economists and research assistants, who, in this product, can work on the same lifespan of the paper as their tenure in the division.

We looked at the increase in the number of publications a little bit deeper by decomposing the number of publications into the number of economists and the number of publications per economist. This is an oversimplification of the production function of research, which is very complex and has evolved over the years. Obviously, it includes the partnership of economists with research assistants, it includes data and technology, and we've heard a lot of the importance of those factors in earlier days of this week. However, this decomposition is insightful in that it shows that the increase in publications in R&S owes both to an increase in the number of economists and an increase in the number of publications per economist.

Let me turn now to the next question about how research is produced. We looked at two angles of that question. The first angle is, how is the research output distributed across economists? And for that purpose, we are plotting here the fraction of economists publishing in a given year, and this fraction used to be in the 30 percent range at the start of the sample in the late 1990s, and it has increased to levels approaching 60 percent toward the end of the sample.

So there is a wider spread of the research output, and it speaks to one of the themes that we have heard earlier in this presentation and also earlier in the week that there used to be a few sections that did a lot of the research output, and that need and that mandate to conduct research and policy analysis have spread. And this is exactly what this chart is illustrating.

Another dimension of how research is produced is by looking at the network of coauthors of R&S. And here we're looking at the external network, which is abstracting from the very important partnership of R&S economists with other divisions and other economists working in the institution. However, it is very illustrative because it allows us to use maps. [Laughter.] And on the left, we have the earlier part of the sample. On the right, we have the later years. And this chart is illustrating that the network of coauthors has become denser and wider. So in

the later part of the sample, there are more collaborations with places that were collaborating earlier in the sample in the U.S. and across the Atlantic. And, in later years, that network has become more dense, and it has expanded to other continents, including countries in the rest of the Americas and Asia. This is likely not only something that is happening at the Board; this is likely a reflection of a wider trend toward globalization of research and the emergence of research centers in other parts of the world.

Now, let us turn to the third question about how research is used, more specifically in the context of policy deliberations. And the window that we use to [answer] this question is FOMC publicly available documents, particularly transcripts in the slides that we're going to discuss in a minute. And we're going to use a very crude proxy for the number of research references that are made in FOMC documents by creating our own definition of what a research-related mention is. And, essentially, we are using variations of the word "research," variations of the word "model," variations of the words "study" and "paper." We are going to normalize the frequency of those words by the length of the document, because documents have evolved over time in that dimension.

And that relative frequency, with respect to the length of the document, is what we're plotting in the bars in this chart, which is illustrating that research mentions have become more frequent over time. Obviously, some of those words may not reference economic research the way we understand it when we're writing an economic paper, so we wanted to understand a little bit more of the context in which those references were made. And to do that, we use the most common words in FEDS working papers. We classify the top 100 most frequent words in FEDS working papers, excluding grammatically common words like prepositions, for example. And we ended up with a list that sounds very much like things that an economist would do in writing

an economic paper. For example, we have words like “data,” “estimate,” “model.” And we’re trying to understand how frequent these economic words are around research references in FOMC documents. And that relative frequency is what we’re plotting in the bars in this chart.

So this chart, combined with the previous one, is suggesting that the output of economic analysis is becoming more important as an input into policy deliberations. But perhaps more than some of these abstract charts, some examples are going to really home in on this idea. And that’s what Jeff has prepared for us. And with that, I turn to Jeff.

JEFFREY FUHRER. Well, good morning, everybody. I’ve got to tell you, it’s an incredible pleasure to be here. I’m going to make remarks, and they’ll be brief, but they range from computing battles in the Fed, which I remember fondly—computing was an important part of my research, so I will touch on this—ranging from that to relationships. So let me start with the relationships, because the reason I looked so forward to coming here today is not so much about presenting this paper—although I really enjoyed working with Karen and getting to know Gustavo, who frankly did a huge amount of work for this, and I’m really grateful to him for that—it’s to see all of you folks who I met 40 years ago, I mean, in some cases. That means an awful lot to me. Maybe I’m just getting older. But these reunions mean an important—and look, the institution is nothing without you guys who have been here, who dedicated your lives to a public mission, who worked hard and, along the way, had some fun, got to know each other, shared a bunch of stuff, whether it was computing or something else. So I just wanted to say something about that because that really is really important to me.

I’ll get into the substance of the paper now, quickly. I do want to say that in the course of—a related comment—researching this paper, going through the oral history interviews, the transcripts, other documentation from way back in the history of the Fed, it was wonderful to

bring back to life some folks who I had not seen in a long time, some of whom have left us: so Jerry Enzler, Ed Ettin, Peter Tinsley. The list goes on and on. Those are folks who were my mentors, friends, pillars of the research community here, folks who were responsible for building up the research community into what it is today in large part—not only them, other folks, too. But that was a gift in a way, doing the research to put this paper together. It's just to come in touch, come in contact again, indirectly, with these folks who were so pivotal, not just in my own in my life, but in the lives of many people who lived and worked here.

Okay. I'm not going to do everything on these slides because you can read the paper. I know you have not all read it yet. [Laughter.] I'm just making a safe bet there, but you can read it. This list is a list of some—not all—some of the really interesting episodes that we went through in the Fed in the last 50 or 60 years. What strikes me about this list is, for some sizable part of my career, we talked about the Great Moderation. I've completely forgotten that at this point. [Laughter.] I don't know what that was, but it wasn't this [points to the slide on the screen]. This is what we were doing.

Yeah, there's computer stuff. There's inflation. There's the falling apart of monetary aggregates. There's productivity. How do we measure it? Do we know what it is? Where's the trend? The zero lower bound looked like an interesting academic idea when we finally got inflation down. Then it was much more than academic. The financial crisis at roughly the same time, a huge deal. We learned a lot. We found out things we didn't know. Just to say, just an almost unending sequence of challenges. And throughout that, R&S and other folks at the Board here and at the Reserve Banks—I feel compelled to speak up a little bit for the Reserve Banks [laughter]—and other folks were in the thick of this in ways that I'll very quickly talk about.

The big lessons here are just that throughout this institution's history, there's been a really healthy interplay between research, between policy, between developments in the economy, between measurement—how to measure the things that we're trying to understand—and what's going on in policy. And it goes both ways. Sometimes staff here were leading the charge in terms of understanding how the economy works and how best to pursue monetary policy. In other cases, we were learning from folks outside about important developments in theory and empirics that helped us do our jobs better. That interplay is all over the place, and some of the examples are listed there.

Even though, obviously, you may have read about the rise in inflation and disinflation in the '70s and '80s. You may have read about this. It was kind of a big deal. What's interesting to me—so I went back to reread it. I actually have a bound copy of this in my library, the *Econometrics of Price Determination* from 1970. This is a really interesting volume. It really is. And the Fed is not the only participant there, but they are right in the thick of it. And in the midst of that discussion are concepts that are being wrestled with and, in the case of Bob Lucas, who contributed to the volume, put forward for more or less the first time, that grad students today are talking about, right? This is what we learned. This is what we thought was important. Well, that was real-time, real-world policy challenge and economic research interacting. And the Fed was in the thick of it there. Jerry Enzler was one of the contributors to that volume.

Expectations. They've come a little ways. And not that I think we know everything we need to know about expectations just yet, but it used to be they weren't really present in some models. And then they were kind of there in this really ad hoc way, and that was discussed in this volume, among others. And then we started to get more serious about it. And then we adopted rational expectations, kind of. Except then, in my view, we found out that wasn't

exactly the right way to do things all the time. That stuff was going on at the Fed in R&S all the time.

It's great to go back and read the transcripts from the early 1980s, and Dave is in there in spades, trying to explain to the—well, that's not quite fair—but trying to give the staff's perspective on how to think about inflation in the wake of that large disinflation episode. And I think the staff did actually pretty well in that case, using a model that I've got there. I'm going to run out of time, right? Yep. But it's been fun. [Laughter.] So I'll then just touch on the zero lower bound, and then we'll wrap up and move along, and we can hear our discussants.

There was a really interesting conference. I was part of the organizing team, but there were a bunch of people who worked on it. In 1999, it was in Woodstock, Vermont, and inflation had been coming down. It looked like it might settle somewhere in the 2 to 2½ percent range. And so we said, “We should think about whether the zero lower bound might be a problem.” That was a good idea, to think about it. [Laughter.]

Now, I had a paper with Brian Madigan, and then John and Dave Reifschneider and Athanasios and John had papers on the zero lower bound. So to my eye, reading them now with hindsight, all those papers, including the one that I was involved in, were a little bit glib about both the likelihood that we'd hit the zero lower bound and the likelihood that we'd run into serious problems. Well, certainly with hindsight, it's easy to say that.

But the good news is I think that work laid the foundation, the analytics, in starting to think about policies we might pursue that did involve expectations, explicitly, to perhaps ease the zero lower bound to some extent by lowering real interest rates. That foundational work made it easier when, as it turned out, we were going to be living with a zero lower bound off and on for the next 20 years. That was really important foundational work. So proud to have been a part of

that conference, but I think—not just me, this was organized in part by the Board—a really prescient thing to do. I honestly think we still have some more work to do, thinking about how best to work with a zero lower bound, but that’s for another conference.

So I don’t have time to talk about the pandemic. You may have heard that inflation was up recently, and I think you heard about that. So that was not easy. It still is not. There are a few other examples discussed in there. I call it “The Rise of the Machines,” which is just about the way in which computing power improved on our ability to use models and analytics to sharpen the discussion. It’s really a big deal. It’s not the only thing, and we can be misled sometimes in the way that medicine, I think, is misled by its incredible imaging technology. That said, medicine doesn’t understand how a lot of things work, not that they aren’t working on it. We’re sort of the same way. We’ve got pretty good technology now. Do we understand how everything works? No. But an important part of improving the way we could analyze the economy and provide that sort of advice to our principals.

So that’s kind of it. I mean, it’s fascinating to see—and Karen touched on this—the evolution in the role of research in R&S—in particular, over its history and how it contributed to policymaking. Really fascinating. It has come a long, long way. It is probably not done yet, but I’m proud to have been a small part of it early on in my career and proud to be coauthors with these guys on this paper. I learned a lot from them, and I look forward to our discussants’ comments.

DOUGLAS ELMENDORF. Great. Let us thank Karen and Gustavo and Jeff for a terrific paper. [Applause.] And I do encourage you all to read the paper—it is fascinating. But we do want to press ahead so we have time for some Q&A after the discussants. And our first discussant, John Roberts, is right here. There you go, John. Thank you.

JOHN ROBERTS. So I want to thank the organizers for inviting me to have this opportunity to talk to you all and to discuss this really, really nice paper. So, first of all, this is a terrific paper. It's got the narratives that we just heard about, the use of data that Gustavo talked about. If you wanted a paper on research in R&S, this is exactly what you would have wanted. I think students of central banking are going to find it very useful. It sort of pulls back the curtain on an important process within a central bank: How has the Fed made use of its economic staff? And then I'm going to take a deeper dive into one of the issues that the paper raises. It's this one that got mentioned a couple of times, this idea of spreading the research resources more evenly around the division.

So, overview of the paper, we just saw it. I'll just go through this quickly. It starts with a very nice historical discussion, making really nice use of some oral history documents that had been gathered over the years. I really like that fact-based analysis in the second section, with drawing on these data from the Research Library. And we just saw some good examples of that. And then the case studies that Jeff was just talking about, really interesting examples of how research and policy interacted over the years.

A few little quibbles: the title. So the title is "The Role of R&S in Research." The paper is much broader than that, right? It talks a lot about the role of research in the policy process, for example. So the authors might want to consider having a title that more correctly represents what a really great job the paper does covering the whole gamut of issues. There's this paragraph in the introduction to the case studies section where it kind of goes on about "Oh, the staff didn't always get it right when they did their research." It comes across as a little defensive. I mean, research is research. You're not always going to get it right, so maybe just tone that down a bit. And then, finally, for a paper with a historical emphasis, I found there was a bit too

much discussion of the very recent research. So the authors might want to consider treating things a little bit more evenly over time.

Okay. So I wanted to take a deeper dive into one of the issues that the paper touches on. So it noted that at some point—and it was a little vague on this—the division management decided to distribute research resources more evenly across the division. I think they abolished the section that Jeff was in, for example. I'm not talking about cause or effect or anything there. [Laughter.] But so instead of having a Special Studies Section, economists throughout the division were encouraged to be active in research.

I think it's important to note that not all central banks do things this way. The last time I checked—I don't follow it closely—but the ECB had separate research and economics departments, and it's clear that most of the research resources are in the research department. So a very different way of doing things. And as far as I can tell, other divisions at the Board seem to take kind of a hybrid approach, right, where special studies or study sections still exist, but all economists are encouraged to do research—so sort of in between, although, I think, closer to the R&S model.

So, in the narrative, I would have been interested in hearing more about some of the reasoning behind this decision to spread the resources more evenly. Maybe they could go back to the oral history archives or just draw on whatever information is available. Why was this decision made? What was the analysis, sort of the pros and the cons?

The experiment seems to have been a success, based on the information that Gustavo was just showing us. So the data presented in the paper suggest that research per economist went up, not down, as the change was being implemented. A fear might have been that with asking staff to do both their analysis and research, maybe the research would have gotten crowded out. That

turned out not to be the case, and the research that was being produced appears to have been useful to policymakers, as the case studies illustrate and as the data show as well.

So just a quick review of some of those data that we just saw. The steady rise in publications—here, I’m focusing on the blue line, because that’s kind of the academic published research—so that rose from the late 1990s to about 2010 and then has flattened out since then, but at a high level. And, as this other picture shows, that was occurring at a time when this process of spreading the research resources out more evenly was taking place. So from the mid-1990s to about 2010, you can see this steady—this is an index that’s sort of showing the—oh gosh, I’m trying to remember what this shows. Oh, right. So it used to be, right, that a lot of the research was concentrated in just a handful of people, the top 5 percent of producers. But then, over time, that relative concentration of research fell over time. So this is indicating that at the same time that the research per economist was going up, this was at the time when there was this process of spreading out the resources.

And as they showed, the research is appreciated, right? Over time, you can see this increase in the amount of times that research-related words are mentioned in the FOMC transcripts. It’s high volatility there at the end, but the trend is generally up. And, as Gustavo also explained, the mentions of “research” are indeed within the context of economics terms. So altogether, it looks like the research culture in R&S is thriving. There’s a lot of it being done. It’s appreciated by policymakers. So it looks like this idea to spread the resources out more evenly was a good idea.

And then to sum up, this is an excellent paper. It’s going to prove to be a great resource, I think, to students of central banking. And, as that last exploration suggests, it provides plenty of food for thought. So thanks very much. [Applause.]

DOUGLAS ELMENDORF. Thank you, John. Thank you, Steve.

STEVE SHARPE. Thank you for inviting me. When Burcu, a couple of weeks ago, asked me if I would be willing to step in to discuss this paper, I was flattered and felt honored to do so. And then I saw it was 70-something pages. [Laughter.] And then I learned that I actually was taking the place of Frank Diebold, and it was kind of funny to me because Frank and I both started in the same month, in September 1986, together in the Special Studies Section. And, actually, I got my first publication with—I was a coauthor with Frank, which probably makes me like half the profession. But, anyway, I’m really happy to be able to do this.

So let’s see. Okay. So as you’ve already been told, it’s long. So there are three major parts to this paper, and I think if you approach it as kind of three different chapters, it’s very digestible. I’m just going to say a few words about each of these chapters before I go off the reservation a bit.

So the first chapter is, again, the narrative of the history. And that narrative is broken down into three periods: the pre-1960, ’60 through ’80, and post-1980. The post-1980 period is—I’m sorry. So those first two periods are really drawn from a compilation called *Working at the Board* that was done on the 75th anniversary and also from the Oral History Project interviews of the directors and deputies, and that’s a very valuable resource to combine some of the gems from all those pieces. So these three periods are characterized as—the first period of really scant research, the second period where it’s really a staff-driven expansion, and then the third period where, really, the research is also getting impetus from the top, a lot of impetus. So that Section (iii) is titled “Intensified research focus.”

And the narrative on research’s role echoes kind of my recollections. In ’86 when I arrived, I felt research did not feel like it was a central input in the FRB production function.

Research time was more seen—was talked about like a component of economist compensation, and research outputs were a marketing tool to attract the youngest with the latest training. I can't recall how frequent the outside seminars are, but, actually, Frank and I started the R&S Lunch Workshop in that fall of 1986, and it's still going on Wednesday to this day.

Okay. So chapter 2, that's the work that Gustavo discussed. And it's, again, quantifying this post-1980s evolution. There are data on R&S publications, citations, and references to research and economic research in FOMC documents. Now, John already covered this, really. The time series on the breadth—and, particularly, that sort of chart of the 5 percent most prolific authors, their share of research—was a very interesting and clever way to look at it. And I think it may be interesting to push the data a little further. It'd be nice to see, like, a dashed line and a dotted line showing the 1 percent and the 10 percent. [Laughter.]

So I guess the breadth over fields was another thing that we haven't talked about here but that they show, which is quite interesting, although there's an overrepresentation that you'd expect of the money, macro, and finance fields. The distribution really surprisingly echoes kind of the universe of publication distribution. One suggestion I guess I'd have is to try to push the data. Again, I know we don't have a long time series, but divide into pre- versus post-2010 to see if there's some change in that. Also, if it would not be a lot of marginal effort, I think sort of it would be valuable to expand the study to all Board of Governors research for the purpose that I think that would appeal to outside audiences, of course.

So another thing you could include is data on the breadth of economic hires. So just quickly, I asked the Admin Section, and they were able to come up with, without too much work, some data on the past 10 years. We've hired 102 economists over the past 10 years from

52 different Ph.D. programs spanning 40 different primary fields of expertise. And macro is the largest group, 23 macro hires, and they come from 16 different schools.

I guess my only quibble that I'd say with their analysis of the data was that they described the references to research in the FOMC memos somewhat like a rising trend. But really, to me, it looks like a discontinuity in 2006, and that's Bernanke's legacy. And, basically, we see almost no references up until then, and then we see a huge jump. And that's where it remains today.

Okay. So chapter 3 examines the two-way interaction between research and policy as a series of case studies on some of the major policy topics faced by the Fed since the 1960s. Some of the most interesting reading is really in this section, I found—I think for both Fed insiders and outsiders—in some of these case studies on the interaction between policy and research. The case that most grabbed my attention was the broad effort during the 1990s to measure productivity. In part, that's because my own work fed into that effort, and it fed in in ways that I really didn't appreciate, fully appreciate, before reading this section. On reflection, my experience in this regard was, I thought, a quintessential example of the policy research synergies that can produce a happy career path for a Fed economist.

So just to go in a little bit on that, under Greenspan's direction, I spent the latter 1990s digging deep into data behind published measures of corporate profits, reconciling quarter-by-quarter profit growth measured and the NIPAs—national income accounts—measured in financial reports compiled by S&P or compiled by the surveys of equity analysts who work for brokerages. So I was nudged into studying conflicting approaches to accounting for stock option compensation, for marking oil inventory valuations, the peculiarities of pension accounting that distorted pension expense during the boom in stock prices, and then the exercises under

Greenspan to monitor equity valuations or explain the relationship between market valuations and book values and the implications for productivity measurement.

And given my skeptical view of market rationality, I saw some scope to push back or redirect, which the Chairman tolerated to an extent, though I do clearly recall one time when he said, “Okay, right now I don’t want to hear what’s wrong with this. Just follow my instructions, bring back the results, and then you can tell me what’s wrong with it.” [Laughter] So on the one hand, this never-ending set of exercises looked like torture, but on the other, the policy work steered me and prepared me for an area of research, equity valuation, and forecast biases that would become my research niche and passion. And I look forward to this afternoon’s session on measurement, which will shed more light, I think, on this.

Okay. All right. So the last point I’d like to touch on is related to research undertaken when the Fed was considering and then was confronted by the zero lower bound, one of the deep-dive topics that was discussed. This might look like I’m just trying to divert the conversation to my own research, which I am. [Laughter.] But the bottom line will highlight the importance of having staff with diverse backgrounds and training.

So just background, Gustavo and I began working on a project in 2012 using data from responses to the 2012 Duke University–CFO Magazine Global Business Outlook Survey of CFOs. There’s a quarterly survey of CFOs. There, we uncovered a surprising degree of insensitivity of capital expenditures to interest rate changes. So a year later, in September 2013, the CFO Survey asked some pointed questions about the implications of the so-called taper tantrum, when long-term yields jumped 100 basis points over a few months. The CFO responses were quite interesting, and for one question in particular, I wanted to see how economists’ at the

Board responses would compare. So we engineered an anonymous survey to Board economists several weeks after that CFO Survey. I think we got, like, 100 and some responses to that.

So the question is “Over the past quarter”—as you probably have read twice while I’ve been talking [laughter]—“Over the past quarter, long-term interest rates have risen by 1%, yet U.S. stock market has maintained its record highs.” And they ask, “Which explanations do you most agree with?” And they offered seven possible responses plus “other,” and choice 3 was the one I’m kind of focused on, which was “Long-term interest rates rising 1% does not affect businesses because rates are still low.”

So we won’t take the time to go through all that. This is what the question looked like. So here’s the distribution of the CFO responses, and as you can see, I’ve highlighted that that response, “The increase doesn’t affect businesses,” was one of the two most popular that the CFOs picked, the other being “Stocks still beat the alternatives.” So, again, these were reasons why the stock market wasn’t affected by the interest rate increase.

So then the question I wanted to look at was, how did staff economists look at this? And the responses—actually, we found quite a bit of difference between the staff’s propensity to answer “Increase doesn’t affect businesses.” Otherwise, some of these sort of responses had a similar propensity. But even though the sort of average difference wasn’t that big, the remarkable result we found was, when you broke it down by field, microeconomists had actually answered the question sort of in a similar propensity to the CFOs, whereas macroeconomists were not very believing in the idea that an increase in interest rates did not matter. And sort of that disparity—this is, again, back in 2013; I think views may have evolved since then—but the implication is that there’s value in having staff with very different backgrounds. And the second result that we had was that working on Tealbook boosts their

propensity to choose this response, so an implication of the influence of the policy–research interaction.

So, in conclusion, let me say that, again, really, aside from the minor suggestions that I made along the way, I would suggest that you transpose the title. It just doesn't make sense to me. I'd say "The Role of Research in R&S" sounds better to me. To the audience I'd say that once the polished version comes out, is released, I'd say, put it on your bedstand and take your time reading it. Thank you. [Applause.]

DOUGLAS ELMENDORF. Thank you, Steve. So thanks to the efficiency of the presenters, we have reserved time for Q&A, and so I think the floor is open.

JEFFREY FUHRER. Doug, can I just have one really brief moment for us?

DOUGLAS ELMENDORF. Yes.

JEFFREY FUHRER. Thank you. Thank you to the discussants.

DOUGLAS ELMENDORF. Very good, Jeff. Thank you. The floor is open. If people want to just put your hands up, and we have Don Kohn right here. And the microphone is coming.

DONALD KOHN. Thank you, Doug, and great to be here and see so many old friends, as Jeff said. My mentors are gone—I think, everybody. So two factors that I think really contributed to the rise in research output—background factors. One was allowing more foreign-born noncitizen economists broader access to data, broader participation in the policy process. This was a fight, particularly through the 1990s, where the research directors really advocated for this with the Board, and there was quite a bit of resistance from time to time, but I think it was critical to the results we've seen.

And I think the other thing that was critical, as I think back to my 1970s background, is tolerance or encouragement of diverse views on the staff and in publications. So, in the 1970s, it was not possible to publish something, a piece of research, that contradicted what, particularly, the Chair of the Federal Reserve thought, and that gradually loosened. It's difficult, I know, from a communications process procedure. Sometimes people confuse everything that's published by the Fed as being Fed views, and it's not. But it really, I think, has contributed to the research in R&S, MA, and IF; to the understanding of policy; and to research, deep research about policy and the economy.

DOUGLAS ELMENDORF. Thank you very much, Don. Any of the paper authors want to speak to that, or should we go on to the next question?

JEFFREY FUHRER. What's to disagree with? [Laughter]

DOUGLAS ELMENDORF. I guess on behalf of the economists here, we should say "Thank you" to the research directors who urged those changes and worked with the Board to allow them to happen. So, thank you. [Applause] Who else? Chris Carroll.

CHRISTOPHER CARROLL. Well, I very much look forward to reading the paper and wanted to say "Thank you" to the authors and the discussants. But I have one specific suggestion to you, to invoke the name of Athanasios Orphanides, which Karen did earlier. He and I have had a lot of discussions about the history of the Fed and the sort of internal thinking of the Fed.

And I think it would be a great improvement over the availability of data for researching those kinds of questions if the Fed would put some real effort into digitizing everything and making it publicly available. I know there's the ALFRED project, I know there are other efforts out there, but going all the way back to the beginning of the Fed. At least a first step might be to—maybe you're planning already to do this—but to make all of the memos and all of the other

data that you used in constructing this paper available so that people can replicate your results.

It's, of course, a big move in academia these days to have all the results be replicable. And so if all of the results in this paper were replicable, I think that would be a great thing.

DOUGLAS ELMENDORF. Thank you very much, Chris. Who else? Eileen. Eileen Mauskopf. Please stand up, Eileen. And the microphone is coming, and then everybody can hear you.

EILEEN MAUSKOPF. So in terms of the amount of research that we know of that went on in the '70s, I want to remind people that, in those days, the number of journals in economics was very limited. We had the AER, the JPE, maybe the *Journal of Money, Credit, and Banking*. I can't remember. But the opportunity to publish in an economics journal was quite limited. And recently, because we're close to Dave Wilcox, I went through some of the papers that were written in the '70s in my section and in Special Studies, and what I read just amazed me, partly because my memory is fading [laughter] but also partly because the memos that were written were of research quality. I found memos to Kichline and to the division director before Kichline that would be published today if they were written today.

I mean, Jerry Enzler, obviously, is the prime example of someone who did incredible research but was very humble, and the Fed—I mean, I remember we were very busy writing memos to the Chair that might pass for research today. I'm not speaking of my own work but Jerry's work, Peter Tinsley's work, Michael Hadjimichalakis, all those people, Jeff. Jeff, you didn't come until the '80s, though, did you?

JEFFREY FUHRER. I was here in 1979, but I had a minor bit role. [Inaudible.]

EILEEN MAUSKOPF. But, yeah, I think the '70s were really quite a glorious period in terms of research, and if anybody wants to see some of Jerry's papers from the '70s, I saved a bunch of them. [Laughter]

DOUGLAS ELMENDORF. Well, thank you, Eileen. I think some of your memos fit in that category that you describe. I think we have time for one more question before I turn this back to the authors for their final words. David Wilcox.

DAVID WILCOX. So most of the discussion appropriately this morning has been both backward looking and sort of upbeat and sunny, celebrating the glories of research. I want to take both of those and kind of turn them over to looking to the future and thinking a little bit about some of the threats and pitfalls.

I wonder, based on your examination of the historical record, if you have any reflections about lessons that need to be drawn about what needs to be done to safeguard this incredibly valuable franchise that has paid profound dividends, I would argue, not just for the institution but for the global economy, not just the U.S. economy. It's a really special thing that we have. What steps need to be taken? How do we balance the consideration of being too cautious, too conservative against what feels, from now the perspective of an outsider, like a more threatening environment? Any thoughts about that based on your examination of the historical record?

DOUGLAS ELMENDORF. So thank you, David. So I've asked the panel, the paper authors, to just incorporate any responses to that along with any final thoughts you have in these last couple of minutes.

KAREN DYNAN. Yeah, I want to thank our discussants for excellent comments. Just on Eileen's comment, we were discussing throughout as we were getting these different results, which were unique to the Fed versus what's going on in the broader profession. So this is

something that we plan to do more thinking about. Again, more journals probably means everyone's publishing more. So I wanted to kind of note that narrowly.

The other thing I wanted to say in response to—John had this great idea that we should talk more about why the spread of the research culture. I will be around to talk to those of you who were around then to kind of try to figure that out. But it just kind of raises this point that this Oral History Project has been just invaluable. And since doing all of this—I think my coauthors would agree—I've just become an evangelist for oral history. I feel like I've told the president of the NBER he needs to do it for the NBER. I've told the dean of the Kennedy School he needs to do it for the Kennedy School. [Laughter] But I just do think it's a really, really important project, even today where we have all this quantitative data. Like the story Don told, that's not something that we're going to be able to find in the data. So the project is great. Keep it going. But all of you someday are going to be in the position to contribute to this oral history, and so just keep that in mind.

JEFFREY FUHRER. "On" button. Thank you. That's my tech consultant.

Eileen, I just want to echo your comment. I went back to read some of these memos, too. Some of them are from Special Studies, but others back in the '60s, they never saw the light of day, really. And there's just incredibly good work in there. So I agree. And that was, again, part of the fun of doing the research for this.

Dave, I think your question is really interesting. I don't think I have a full answer to it. I will say Don partly alluded to the notion of bringing diverse points of view to the table. I think that is a work in progress everywhere. I think it's more or less front and center at the Federal Reserve Board now, as it is at many Reserve Banks, but saying it's a good thing to do and making it effective so that those views really are heard and respected and sometimes explored in

greater depth is another thing. How to do that? I mean, sometimes it's—well, we don't have enough time to talk about it. I think it's just a really important issue.

So the more you think about and talk to people who are not economists about how to build in diverse viewpoints, because economists—I don't know your experience; mine is that we're not always the best at social skills and stuff. [Laughter] Just going out on a limb there. And so this is a cultural thing, right, in large respect. So talking to people who have thought hard about that and practice it and maybe had some success in organizations or in researching this phenomenon over time, it would be really important.

I think, during the Great Financial Crisis, we heard a few—there are some great transcripts, excerpts—we heard some diversity of viewpoints. I do think that there were some viewpoints we didn't hear as much inside the Federal Reserve all over the place that might have changed the way we would have responded, advocated for various sectors of the economy, and so on. So I really love the question. That's only a partial answer, but it's just to say, yeah, we've got more work to do there, but it's good that it's ongoing.

GUSTAVO SUAREZ. I wanted to revisit one topic that John discussed, which was that the number of publications appeared to peak or plateau at a high level in the mid-2010s. So we puzzled a little bit about that, like why there's no continuous increase over the entire sample. And, for us, it was very interesting to look at the titles that were published around that peak because they are telling. A lot of the publications coming out between 2012 and 2016, 2017 are still actually about the financial crisis. And I think what this speaks to is the magnitude of the event that the financial crisis was and the need for rethinking a lot of the things that we thought we knew as economists. And it took a long time to go through a lot of the ideas that came out of

the financial crisis. So I think I came out of that extra analysis that we conducted of the peak with a little more of a hopeful view than just looking at the series plotted in the charts.

DOUGLAS ELMENDORF. Okay. Let us give one more round of thanks to Karen, Jeff, Gustavo, John, and Steve. [Applause]