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FALK AUDITORIUM

BUILDING A MORE DYNAMIC AND
COMPETITIVE ECONOMY

A HAMILTON PROJECT POLICY FORUM

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Fireside Chat:

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**Roundtable Discussion: Firm Concentration and
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**Research Presentation: Occupational Licensing/Scope
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**Roundtable Discussion: Policies to Support New,
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P R O C E E D I N G S

SECRETARY RUBIN: Good afternoon. I'm Bob Rubin. And on behalf of my colleagues at the Hamilton Project, I welcome you to today's discussion, "Building a More Dynamic and Competitive Economy."

Let me start by making one broader comment. As all of us know, this is a very difficult time in America's public policy discussion. Much of that discussion has devolved ideologically and into partisanship. And I think that makes it more important than ever that the Hamilton Project, Brookings, and the others like us who pursue series of purpose with respect to public policy development and promulgation continue in that activity.

And to demonstrate the importance of that, try the counterfactual. Imagine that we have the political environment we have today, but we didn't have these independent policy organizations that were focused on series to purpose around policy development and policy deliberation.

The purpose of all this, it seems to me, is

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to provide the intellectual work product for our federal government when it can once again become capable of functioning on meeting the challenges of our economy, and for states and cities for the activity that they're engaged in now. In that context, let me very briefly set the stage for today's discussion.

The United States has historically had a dynamic and competitive economy and that has, of course, contributed to productivity and to growth. The economic data shows, as we all know, that productivity growth as currently measured has declined and dynamism has declined. But it seems to me we need to start with two fundamental questions as it relates to the statement I just made.

One, is that a function of changes in our economy or is it a function of inadequate measurement of productivity growth and an inadequate measure of dynamism? As we all know, a lot of the output of high-tech, search engines and the like, consist of value that nevertheless cannot be measured or at least

can be measured, but is not being measured. The question is, has the gap between what is being produced and what is measured changed over time? And I think most commentators think that the mismeasurement hasn't increased over time and, therefore, the productivity has slowed. But some have the opposite view.

As to dynamism, startups certainly have declined, but there is the question of whether there is more dynamism within large companies that has replaced that. Again, I think a lot of commentators are skeptical about that, but others think that, in fact, dynamism has not declined as much as was thought or perhaps even has improved.

Whatever the answers to these questions there are usually consequential issues relating to the changing microstructure of our economy. Let me just mention a few aspects of that changing micro structure and the discussions today will largely be about the effects of some of these changes or how we should think about them with respect to policy.

Large corporations, clearly, have increased in their size and their role in our economy. And in some cases, that's because of scale, benefits of scale or network effects that tilt activity in their favor. At the same time, the rate of new startups has fallen, as we all know, as has the share of workers employed in new firms. Median wage growth has been slow. The share of labor, labor share, of our economy, of GDP, has declined. And entrepreneurship, especially amongst college-educated workers, has declined.

Moreover, we have policies in many of our states that favor large companies, that is to say the incentives that are used to try to induce companies to move from state to state. Exiting antitrust laws can be highly relevant in some of these circumstances, but I think what you'll hear discussed today is the argument that in many ways the changes in our economy go beyond the realm of what can be dealt with through the antitrust laws and call for thoughts about new policies to address the kinds of issues that I've raised.

We are fortunate to have with us an outstanding group of authors, an outstanding group of panelists. Their resumes are in your materials. I will not repeat them other than to say that we are grateful to them for joining us and for helping us all thing about these very important issues in an effective and robust fashion.

I'll also add that in your materials there's a paper by the Hamilton Project, a strategy paper, if you will, on the issues I've just raised that, at least in my view, is very thoughtful and very well worth reading.

Let me recognize, as I always do, the terrific Hamilton Project team. We have Jay Shambaugh, our director and intellectual leader, former member of Obama's CEA. We have Kriston McIntosh, who's our exceedingly effective and highly capable managing director. And Ryan Nunn, our deeply and broadly thoughtful policy director. And finally, our talented and hardworking staff, without whose activities we could do none of what we do.

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With that I'm going to turn the program over to Jason Furman. Jason, as you know, was the former chair of President Obama's CEA. He's now the professor of economic policy at the Harvard Kennedy School. He was the second director of the Hamilton Project, and we are now most fortunate that he is senior counselor to the Hamilton Project. And Steve Case, the former chairman and CEO of AOL, and now the chairman of Revolution.

Jason and Steve, the floor is yours.

(Applause)

MR. FURMAN: So, Bob, thank you for that great introduction. Thank you for inviting me here on what I think is one of the most important and interesting and rapidly evolving topics in the economy. And I want to agree with commending the facts paper put together by Jay, Ryan, and --

SPEAKER: It's Audrey.

MR. FURMAN: What?

SPEAKER: Audrey.

MR. FURMAN: And Audrey, which I think was

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excellent.

And, Steve, maybe I want to start by asking you a question. There are three things that I think most economists think are facts. I want to see how it squares with your experience.

One is that productivity growth is lower now than it was in the past. The second is that there is more concentration than there was in the past. And the third is that there is less startup activity now than in the past.

MR. CASE: Well, I think that all are likely true. I'm not an economist. I'll leave the expert advice to you and others who are --

MR. FURMAN: People trust people without ties much more than they do people with ties.

(Laughter)

MR. CASE: Yeah, I'm just an entrepreneur. But at the same time, I'd say there does seem like a little bit of a disconnect between some of those numbers and some of what I'm seeing out in the country. And I've been spending a good bit of time in

the last five years traveling around the country. We have this initiative called Rise of the Rest and we've done 7 road trips by bus, 10,000 miles, 38 cities in places like Pittsburgh and Detroit and Phoenix and Albuquerque and Madison and Minneapolis and Atlanta and Buffalo. Just a few weeks ago I came back from a Southern swing in cities like Louisville and Chattanooga, Memphis, Birmingham. And what we're seeing on the ground there is surprisingly vibrant startup communities and a lot of sense of optimism, at least in that particular sector, about what's possible in those cities.

At the same I think this ties in with why startup activity has been down, at least partly. If you look at the data from last year in terms of where venture capital dollars go -- NVCA, National Venture Capital Association, tracks this -- last year 75 percent of venture capital went to 3 states. California, New York, Massachusetts get 75 percent of venture capital. California alone gets 50 percent.

So some of the states we visited, like Ohio

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and Pennsylvania and Virginia and Kentucky and so forth, get less than 1 percent. Texas, which likes to think it does everything bigger, gets 2 percent. That's all Texas: Austin, Dallas, Houston, San Antonio. Add them all up, 2 percent.

And so we have this weird dynamic. And some of the data that was a surprise to me when we worked together and I was on President Obama's Jobs Council whenever that was, seven or eight years ago, and kind of chaired the initiative around entrepreneurship with John Doerr and Sheryl Sandberg and others, it was surprising to me that essentially the Kauffman Foundation, McKenzie, and others said all the net job creation really is coming from startups, not from small business, not from big business. They account for a lot of jobs, but they weren't accounting for a lot of net new jobs.

So if startups account for most, if not all, the net jobs, net new jobs, and we're only backing startups in a few places, not that surprising that the dynamism overall is not great. Not that surprising

that a lot of people in the country kind of wake up in the morning a little anxious about the future because it feels like the technology, innovation, artificial intelligence, robotics, you know, driverless trucks, what have you, these innovations mostly funded on the coasts are not doing things that necessarily are helpful to their communities in terms of job loss because of some of those things. And we're not offsetting that by backing the entrepreneurs in some of those cities that actually can create the companies of this next wave and create jobs in the next wave.

So I'm actually optimistic about what's happening, but it is a weird almost two Americas kind of argument or dynamic where essentially you've got all this vitality in a few places that as a result, because all the money's there, the talent moves there. There's a huge brain drain in many parts of the country. It's beginning to slow a bit. I'll say in some cities a little bit of a boomerang of people who left thinking the opportunity was on the coast starting to come back. But there's still a lot of

work to do to really kind of level the playing field in terms of opportunity so everybody everywhere really does feel like they have a shot at the American dream and you're creating startups and creating jobs and lifting up communities everywhere, not just in Silicon Valley, New York City, Boston, places like that.

MR. FURMAN: So I'm a little bit biased probably, and correctly, towards being the type of economist if they see the \$100 bill on the sidewalk will say it can't possibly be there because somebody else would have picked it up if it was. (Laughter) And so then when I look at the lack of opportunities in all these places in the country I ask myself -- I don't ask myself, oh, how do I make money by going there, which is what you do and do it really, really well. I ask what are the obstacles?

One might be that there's a real advantage to these clusters and to being in these clusters and that that's really efficient. And we're just not as a country going to be able to sustain 500 different clusters, and so that's spreading our money too thin

and we don't get as much out of it.

One is that there's this increased amount of concentration and that you're afraid that if you start something, that you don't want to put your venture money, and this would apply to putting money into California, maybe even more so because Google or Amazon will swoop in, you know, take it before you have a chance to make something from it.

Some may be just barriers to entry, maybe regulations that make it harder to move to a place, harder to start a job, harder to get a business started, work across state lines, et cetera. So I worry about what these are and what we can do to overcome them. How much do you think there's a public policy issue that needs to be fixed or is it a matter of will is the first question?

And the second is, I think your fund is \$150 million, which means that 75/25 just on the basis of what you've done so far isn't going to change. Do you think you're going to be teaching other people, you're going to be successful, they're going to follow? And

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what do you think that ratio should be, will be?

MR. CASE: Well, I think -- like 12 questions there.

MR. FURMAN: Sorry.

MR. CASE: I'll try to remember one or two of them.

MR. FURMAN: But you answer whatever you want because your choice.

MR. CASE: I think the pushback or the skepticisms you said I hear all the time, and there's obviously some validity to the fact that there is a reason why clusters are clusters. I would remind you, though, if you look back over the past couple hundred years, you know, the regional clusters have shifted. The regional clusters in that first kind of agricultural revolution wave tended to be in kind of certain parts of the country, the Farm Belt, if you will, the centers of gravity. The clusters, if you will, in the Industrial Revolution were different, kind of the Rust Belt and other things were part of that. And the clusters in this most recent technology

revolution have been different still.

And even if you look at particular cities, the first city we did on our first Rise of the Rest tour, which I think was about five years ago, was Detroit, which is a city that people have talked about its decline. But the reality was 75 years ago it was the most vibrant, innovative, entrepreneurial city in the country, maybe in the world, because the car was the hot technology of the day. And people were moving to Detroit in droves and wanted to be part of the auto revolution, and schools were being built and roads were being built. And then kind of lost its dynamism, lost its way, a whole host of factors. But in over a half-century it lost 60 percent of its population and then went bankrupt. And it was like Silicon Valley 75 years ago. So these things kind of change.

Even more recently, my own experience with the Internet when we started AOL in 1985, so what is that, 33 years ago, only 3 percent of people were online. And those 3 percent were online an average of 1 hour a week. And most people didn't think there was

ever a reason for people to get online. Like normal people, you really expect to buy a computer and sit there and type messages to somebody when you can just like pick up the phone and call them? That seems kind of crazy. (Laughter)

MR. FURMAN: That seems sort of delightful.

(Laughter)

MR. CASE: And for the better part of a decade they were right. It actually was a struggle to kind of -- eventually, you know, the Internet kind of took off. And if you look at that first wave of the Internet, a company like AOL, we were in Tysons Corner. Dell was in Austin. Gateway was in South Dakota. Microsoft actually started in Albuquerque before moving to Seattle. Hayes, a major modem company, was in Atlanta. Sprint, the communications company, was and still is in Kansas City. IBM's PC operations were in Boca Raton, Florida. I can keep going down the list.

So the innovators in that first wave that kind of helped stand up the Internet, built the core

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technologies and networks, the servers, the on ramps, if you will, were quite regionally distributed. It was only in the last 15 or 20 years, I think it was the second wave of the Internet, when it really became about absent software and services. You didn't have to worry about building it, it was already there. You were building on top of it. That's really been the center of innovation for this past kind of period. That's when Silicon Valley really rose to dominance because it was about coding, it was about software, it was about virality, it was even dorm room startups that suddenly took off like a rocket.

I think in this third wave, which is just now beginning to pick up steam, where the Internet gets integrated and more seamless and pervasive, sometimes even invisible, ways kind of throughout our lives and disrupts them. Big sectors -- healthcare, transportation, food, agriculture, I can kind of go down the list -- I think that's going to create opportunity for, again, kind of regional innovation because it's going to now marry that technology,

particularly things around machine learning and other things, with domain expertise, actually understanding like how the healthcare system works or how farmers think and what have you. And the magic will be the combination of those two things that will require kind of building a bridge between those disciplines.

So that's why I'm optimistic in this next wave. I think venture capitalists are beginning to wake up to it.

To your point about the fund, actually a couple things going on at Revolution, my investment company. We have a venture fund and a growth fund, and we've actually invested over a billion dollars just in the last few years outside of Silicon Valley. We just launched six months ago the Rise of the Rest seed fund, which was making relatively small, under-million-dollar investments alongside regional investors. And we put together a great group of individual investors and iconic entrepreneurs, like Jeff Bezos and Howard Schultz and Eric Schmidt, Tory Burch, and Sara Blakely, a bunch of folks like that;

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some private equity executives, Ray Dalio, Henry Kravis, David Rubenstein; some CEOs of major companies like Meg Whitman; some families, the Waltons, the Kochs, et cetera -- were all investors alongside of us in this initiative.

So that's the \$150 million fund which will make between 150 and 200 investments over the next 3 or 4 years in these Rise of the Rest cities. Then to be followed by a later stage investments, either from some of our investment group or others.

So I acknowledge there's a lot of work to do and I also acknowledge that when we talk about Rise of the Rest I get the same skepticism I got three decades ago when I talked about the Internet. But I'm pretty confident that there'll be innovation in these different cities, but we need to educate enough students about those opportunities.

And there is a role, going back to your other question around public policy, part of the reason I worked in favor of the JOBS Act, I thought that would help unleash more capital. I was a

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supporter of the Investing in Opportunity Act that was part of the tax reform creating Opportunity Zones. I believe that we need to make sure we win what's now a global battle for talent, so things like immigration matter. There are a bunch of things that can help level the playing field and drive more innovation, drive more opportunity to -- more people in more parts of the country.

So absolutely, there's a policy role, but for me it started with the entrepreneurs coming up with the ideas and the investors backing those ideas. And that's really where the rubber meets the road.

MR. FURMAN: Yeah. No, and I think if -- and I'm making a little bit of a skeptical case, but I'm not sure how much I believe it. What I do believe, though, is two things.

One is if we're going to be successful, it's going to be exactly that, that these technologies -- not innovation in the technology sector itself, but technology getting married to all these other sectors and helping us solve our problems in health, energy,

and throughout our economy. I think that's something we're not seeing in the data so far.

We've got something that's going to be challenging because a lot of those things we're already quite good at and to push that innovation forward takes even more. But that, I think, will be the measure of our success. And so I think that domain-specific knowledge and marrying it to technology is really quite important.

But at the same time I do remain very worried that economy-wide we've seen this increase in concentration. And this increase in concentration I think partly is for good reasons because we all benefit from being on the same social network. We all benefit from the accuracy of the search results that Google can deliver to us because so many other people are searching for the same things that we are. But that have also -- you know, can be abused, either by chilling startups in certain areas because you don't want to go into them because you're afraid that that sector's already dominated by those companies; that

they can buy up the potential competitors to themselves.

And in the past, you know, companies weren't super great at it, and so one argument is technology's changing, you know, look what happened to Internet Explorer, look at what happened to MySpace. That can give us comfort from a public policy perspective or we could say that the executive at the big tech companies are looking at those examples and they're trying to figure out what they can do to make sure that doesn't happen again. And part of that is acquiring companies at an earlier stage that could be potential competitors to them.

You know, I think it's a tricky area for public policy, though, because I think, as I said, a lot of why these companies are big is because they deliver tremendous benefits and you don't want to lose those benefits while you're also dealing with the potential harmful side effects at that scale.

MR. FURMAN: I think that's fair. And also, obviously yesterday there was an antitrust ruling

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regarding AT&T and Time Warner that's -- you know, a general view is it'll unleash kind of a wave of mergers across a variety of different sectors and there will be some consolidation. That's not necessarily the view in Brussels or other places. So even on a lot of the Internet policy issues around privacy and other things, the lead actually has been more in Europe than in the United States. And because of the global nature of these networks, obviously, that can have a significant impact.

You're right, big companies as they get larger tend to get a little -- less agile. That was certainly our experience with AOL when we started, a couple dozen people, it went public in 1992. It was the first Internet company to go public. We had less than 200 people. You know, 8 years later we had 10,000 people; merged with Time Warner, collectively we had 90,000 people, and absolutely kind of became less flexible, less agile, less playing offense, kind of leaning in the future, more playing defense and kind of protecting what's there. So I kind of lived

that experience.

I think companies recently -- and Facebook acquiring Instagram is a great example of this; or Google acquiring at the time a very small startup, Android -- have done a much better job of managing those acquisitions, usually by keeping the entrepreneurs in place and kind of protecting them from some of the corporate kind of desire to kind of turn everything into one thing as opposed to have the flexibility and agility the entrepreneurial kind of ventures need.

The other dynamic, though, I think that's going to be super important to watch in what I've called the third wave of the Internet is there are three dynamics that were critically important in the first wave, not that important in the second wave, that I think are going to become critically important again. And that could drive some of the dynamism not just in the startup sector, but dynamism in kind of the Fortune 500 sector.

One of them is partnerships. In that first

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wave everybody had to work together. We have 300 partners at AOL.

The second wave, Facebook didn't need partners. They just launched an app that a lot of people adopted. Instagram didn't need partners. Similarly, they took out viral adoption and moved really quickly.

And this third wave, when you're dealing with healthcare, for example, you need partners. Writing the code, dropping an app in the App Store, kind of the table stakes, the real action is how do you have system-level change by getting households adopt it and doctors and nurses to use it and health plans to pay for it and so forth. That's true with all these other sectors that are kind of up for grabs.

So partnerships are going to be a big deal. The large companies that figure out ways to partner with the small companies are going to be advantaged and the small companies that figure out a way to partner with the large companies are going to also be advantaged. So that's something to watch again. Big

deal in the first wave, not a big deal in the second wave, I think it will be a big deal again.

Policy, you know, what we're talking about here will become much more important in the third wave. In that first wave, when we got started, it was illegal for consumers or businesses to connect to the Internet. We had to build everything on our own. At the time the Internet was restrict to government use and educational use. So if you worked for a government agency or worked on a college campus you could connect to the Internet; everybody else couldn't.

That changed when the commercialization of the Internet and the Telecom Act and a bunch of things happened. There were a lot of policy issues regarding the rules of the road, including Judge Greene essentially making a judicial decision to break up the phone companies and unleashed a torrent of innovation in communications without which the Internet would not have flourished or at least wouldn't have been nearly as broadly adopted because it would have been much

more expensive. And that led to a whole host of companies getting funded that would not have been funded but for that decision.

You know, there's a bunch of other issues around policy that were pretty central in that first wave. Policy wasn't that big a deal again in the second wave. It really was about the software, it really was about the apps. There's only one company that got really, really, really big, like Facebook and then the issues around privacy or Russia or other things emerged that policy became front and center. But it was kind of non-event in the creation of that second wave.

But again, in the third wave, whether it be driverless cars or medical devices or what have you, there are going to be regulations. There just are. And we can debate what they are, but there are going to be some regulations. And understanding that having a strategy that embraces that I think is going to be critically important.

And the third P that's going to become

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important again is perseverance. AOL was not an overnight success. It took us more than a decade before we finally broke through. There were a lot of overnight successes in the second wave. That's going to be quite rare in the third wave.

These are hard problems that require, as I said, systems-level change and partnerships and engaging on policy. So it's going to take a different kind of mindset. I think a lot of that mindset actually is in the middle of the country and a lot of that expertise.

Around healthcare, M.D. Anderson in Texas or Cleveland Clinic in Ohio or Mayo in Minnesota or UnitedHealth in Minnesota, there's a lot of expertise there. And farming, ag tech, we have a big merger right now with Monsanto headquartered in St. Louis, thousands of engineers understand farming, some of whom are going to end up creating ag tech startups in Louisville or in Lincoln and Omaha, a lot of expertise and interest in ag tech.

Just recently I mentioned in Chattanooga,

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the winner of our pitch competition there was a company that basically was doing a platform for trucking. I didn't know it, but like Chattanooga's sort of like the Silicon Valley for trucking. Some of the largest trucking companies are in Chattanooga. So if you're actually trying to create something that's helpful to the trucking industry, there's actually an advantage to be in a place where the partners exist and that domain expertise exists.

So I think people are going to be surprised over the next decade how kind of the puck moves and we'll see innovation, both regionalized and globalized so there are some risks there, which does not mean that Silicon Valley will fall. I think it will continue to be robust and resilient. But it does mean that the dynamics will shift. And as some of you know, even the idea of the Rise of the Rest was not a new thing we came up with.

Fareed Zakaria wrote about this 15 years ago and he basically said that there would be this dynamic where countries like particularly China and India

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would rise. It didn't mean the United States would fall, but it would change the relative kind of balance of power. And that's happened and is continuing to happen. And I think that's what will happen in the innovation economy within the United States.

MR. FURMAN: So there's a question we got from the audience here. You've been talking a lot about regional diversity and this asks about trends for women and underrepresented minorities and entrepreneurship in what you're saying.

MR. CASE: Great question. So here's the data on that. It's actually worse. I mentioned 75 percent of venture capital goes to three states. Over 90 percent of venture capital in this country last year went to men, less than 10 percent to women, less than 1 percent to African Americans.

So we're a great entrepreneurial nation and we should be proud of that. You know, 250 years ago, almost 250 years ago, we were a little fragile startup nation, almost didn't make it. And now we're like the leader of the free world because we have this leading

economy because of entrepreneurs kind of leading the way. And as I mentioned, agriculture revolution, Industrial Revolution, technology revolution, we should be proud of that, but it does matter.

If you just look at the data, you know, it does matter where you live. It does matter what you look like. It does matter who you know. Whether you have an idea and want to start a company, where you really have a shot at the American dream, really have a shot at doing that. So we need to level the playing field there, as well, and make sure more capital flows to the kind of people independent of ideas.

And one of the reason I supported crowd funding in the JOBS Act is the data from KickStart and other places says about 40 percent. At least it was a few years ago< I don't know if it's changed, but about 40 percent of the successful projects funded on these crowd-funding sites were women versus the 10 percent of capital, which says to me if it's more about the idea and less about what you look and who you know, you know, capital flows more broadly and more evenly.

So no question there's work to be done on that front, as well.

MR. FURMAN: Yeah. No, and there's research by Raj Chetty that links parental circumstances, parental income to how innovative children are measured by the number of patents just because that's something you can measure. And the correlation between those two is incredibly striking and really depressing that it's not until you get up to about the 80th percentile of parental income that you really see a take-off. And even at the 99th percentile of parental income, you see the children patenting a lot more than they do at something like the 95th. And if you look at something like that and think talent is roughly equally distributed, the manifestation of that talent is enormously unequal and you wonder just how much we're missing out on.

And that gets to your type of effort, gets to education, gets to a whole range of things.

MR. CASE: Well, no question education, which is a whole other topic. But even some of the

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work underway, I mean, (inaudible) doing some work in this area, others are, as well, to identify some of the traits that would like lead you to be good at coding or good at entrepreneurship or other things and I think are going to be important. Because there's still a lot of people who don't even know what an entrepreneur is. They don't understand even what that -- you know, that there's a path there that people should be pursuing.

And so finding the people with those ideas and have that talent, nurturing them, mentoring them, and giving them access to some of the capital to take their idea and run with it I think is going to be kind of critically important if we're going to have more evenly dispersed innovation economy.

And also, frankly, it gets to this issue that I know there's a big debate in this city and other cities around are we going to have this kind of dystopian, jobless future. AI and robotics are going to destroy tens of millions of jobs. This time's it's different. We're not going to be able to come up with

new kinds of ideas, new kinds of companies, great new kinds of jobs even though we have in the past. And I think there's a real risk of that. But I think the best way to hedge against that risk is to spread the wealth and back more of these entrepreneurs and more of these places for more kind of diverse backgrounds. If we're only backing a certain kind of entrepreneur who went to a certain school in a certain place, like in Silicon Valley, that'll lead to a certain kind of innovation, but not necessarily the kind of innovations that are going to be necessary in this third way because of some of the things I talked about before.

And some of these things, like I mentioned the AOL story, and people laughed when I said, oh, you know, nobody thought the Internet would happen. But the conventional wisdom in the '80s and even a good part of the '90s was this was a dumb idea. It would never happen. Turned out not only was it a good idea, but it led to a whole set of industries, not a industry, a set of industries. And that was

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unimaginable to most people.

I think there are other things that are unimaginable to me and probably to you and even if you hear somebody pitch it, you'd probably say, well, that's kind of a dumb idea. But that might actually be one of the big industries of the future that actually does create some of the jobs to offset some of this job loss. So rather than just kind of assume it's different and assume this dystopian vision and start having a debate around safety net and UBI and so forth, why don't we at least take a shot at trying to kick start more innovation for more people in more places? And we might be surprised that actually it'll lead to a lot more job creation that right now we can currently see.

MR. FURMAN: Yeah, I completely agree with you. I mean, I would think a dystopian vision for the future would be one where AI didn't replace a lot of the jobs that we had right now because that would mean it didn't generate the type of productivity growth we need for wage growth. You gave the example of the

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Internet. You could kick one technology every other decade for the last 200 years that people didn't see coming. When the automobiles replaced the entire industry around horses, that created the travel industry and roadside motels and restaurants. Who would have thought that was the thing you needed to invest in if you wanted to be successful after the automobile.

So I have a lot of faith that we have a long track record of success in creating jobs in new types of sectors. What I am more worried about, though, is are we going to have that amount of innovation?

So we got another question, which I'm going to take as a question to me, but you should definitely answer however you want to, as well, which are two questions. One is, how does reduced dynamism affect inequality and its costs?

And the second is a question about monopsony power depressing wages and dynamism more generally. And the Hamilton Project had an excellent event on wages a couple months ago, and monopsony was one of

the issues that was discussed there. When you have leverage as a buyer of a product you can drive the price down. In this case as a hirer or workers you can drive wages down. And I think that dynamism, that's one of the important ways in which it links to inequality.

If you want to get a raise, a great way to do it is to go to a different job that will pay you more. Another way to do it is to tell your employer you're going to go to a different job that's going to pay you more. And when there's less turnover and less churn in the economy, those mechanisms are less operative.

If you're a nurse, you're going to have a harder time being paid as much in a town that has one or two hospitals than you would have in a town with three or four hospitals. Just the bargaining power of the hospitals compared to what they had in one of those cases versus the other.

And then the last is a mechanism, and this one is more speculative, but one that Peter Orszag and

I have been thinking about and writing about for a couple years now, which says that you're seeing this real disconnect between highly successful companies and companies that are much less successful. And you're seeing that success not translate and radiate throughout the economy, something the OECD has found in their work. And that the rents to some degree get shared in the successful companies with their workers, so, you know, at Apple you get paid really well.

If you're working at an unsuccessful or a less successful company, like Applebee's, doing the same type of job, you get paid less. And so that greater degree of concentration, greater barriers, increased dispersion shows up in more dispersion and inequality.

So I think there's a lot of different potential links between dynamism and concentration on the one hand and inequality on the other. And what I think is appealing about this narrative is that the solution to it is more markets, more competition, more dynamism, more entrepreneurs, and more innovation.

And that has the prospect to help with the productivity growth and with inequality.

MR. CASE: And I'd just add to that on the competition front, Revolution's an investor in a number of fast, casual restaurants: sweetgreen and CAVA, both of which started in D.C. and now expanded around the country. Actually that market now is getting super competitive in terms of labor. In a surprising way, it would look like in that particular sector of the service economy it necessarily would be, but actually one of the challenges that these companies have is hiring and retaining people because there are a lot of opportunities in that sector in not all cities, but certainly most of the major cities.

I want to go back to something you said earlier in terms of the cluster point because I think it's pretty important. Go back to the data of 75 percent going to 3 states, 75 percent of the 75 percent really goes to 3 cities within those states, broadly defined. In California, it mostly is Northern California, some now in the L.A. area. But many parts

of California -- Sacramento, Salinas, others -- are left behind. In New York, it mostly goes to Manhattan and many parts of New York; Syracuse and Buffalo and so forth are left behind. In Massachusetts, it mostly goes to Boston and Route 128; many parts of Massachusetts in Springfield and Pittsfield and so forth are kind of left behind.

So it's really not just three states. It's really three clusters within those states. And our hope with this Rise of the Rest effort it would go from essentially -- or the vast majority of capital going to these three places to going to 30 places. Not 300 places, but 30 places. I think that would be kind of transformative in terms of if you could have these anchors in Pennsylvania, like with Pittsburgh.

And a lot of great things are happening in Pittsburgh. Carnegie Mellon is probably the best university in terms of robotics. Google opened an office there; Facebook opened an office there; a lot of startups there. Slowly more venture capital is starting to kind of go there. At least if you -- in

Philadelphia, some interesting things are happening. If you're in Pennsylvania, maybe in rural Pennsylvania, maybe you'll have to move to one of those cities, but at least it's an hour or two away as opposed to having to kind of move across the country.

So these regional clusters I think are going to be helpful not just in terms of lifting up those cities, but giving people in those cities more of an opportunity so they don't feel -- which a lot of people do right now. Most of the people in Silicon Valley are not from Silicon Valley. They went there because that was the sense if they wanted to pursue this career in innovation and technology and so forth, that's where all the action was. That's where all the people were. That's where all the money was. And it kind of created this increasing returns dynamic. How do we begin to shift that so that people have more opportunities and, in the process, we're going to create more jobs in more of these places?

And as an investor, going back to your earlier point, I actually think we make more money

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investing in these because most people aren't investing in them. Valuation of the companies in Pittsburgh and Des Moines and Minneapolis are lower than if those same companies were in Boston or New York or San Francisco. Yet when they get acquired or go public, nobody says, you know -- there's a company in Indianapolis called ExactTarget that Salesforce bought for \$3 billion. They doubled the workforce in the last 3 years, 1,000 people now 2,000 people. Salesforce didn't say, oh, it's in Indianapolis? Well, we're not going to pay 3 billion, we're going to pay 2 billion. They paid full price, the retail price, on the exit, but the investors kind of get a wholesale price on the entry.

MR. FURMAN: So we have about two more minutes and I've got one more question here. I'd really be interested in what you have to say about it. What role do you think our immigration policies are going to have in this? And in particular, do you have concerns about limiting, issuing these for entrepreneurs?

MR. CASE: Oh, it's a big, big, big problem. And I've been working on this for a decade without much success. I was disappointed. I testified in the Senate around comprehensive immigration reform whenever that was, four or five years ago. I was a big advocate for the Obama administration's policy that led to the International Entrepreneur Rule.

MR. FURMAN: That's why I asked that question.

MR. CASE: I was disappointed when the Trump administration decided to pull that. I think it's a big mistake. I think we are -- you know, as we all know, we're in essentially now a global battle around innovation. It's a global battle for capital and it's a global battle for talent. And this country partly has won because we've been this magnet for talent; 40 percent of our Fortune 500 companies were started by immigrants or children of immigrants. And we need to continue to be that magnet.

And opportunities are starting to exist in other places, and so if we make it more difficult to

come here, people feel less welcome to even consider coming here, we'll continue to lose kind of momentum in terms of innovation and we will cease to be the most innovation entrepreneur nation in the world. So I think immigration, I get it's complicated and I get, you know, the subtleties and I understand the politics of it, but if you just look at it from innovation and tie that to kind of economic growth and job growth, I think this will end up, if we don't fix it quickly, being one of the great tragedies of U.S. public policy. That instead of continuing to be this magnet that really enabled us to be the most entrepreneurial nation, we kind of were debating maybe the wrong things or maybe a little asleep at the wheel, and end up kind of losing that.

And people then go back and say, kind of like they did with Detroit, what exactly happened with Detroit? Why did it go -- why was it so good and got so bad? I don't want to have that discussion, but I'm worried that we're on that trajectory. So hopefully, everybody here can do something about it.

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MR. FURMAN: That's great. I'll answer the very last question, which is can you solve all the problems you're talking about within initial coin offerings? No. (Laughter)

MR. CASE: No.

MR. FURMAN: It might even exacerbate the problem, but that's a longer answer. So thanks, that was a great discussion.

MR. CASE: Thank you, Jason. Thank you all.
(Applause)

MR. SHAMBAUGH: Thanks. So, we are going to move right into our next panel and talk about: Firm Concentration and Innovation.

And as Bob mentioned, everyone's bios are in your materials, so I'm not going to go through them at length, I'll just introduce everyone.

Starting closest to me we have Rob Seamans, who is an Associate Professor at NYU; Terrell McSweeney, who is a Former Commissioner of the FTC; Megan Smith, who was top official at Google, and then the CTO of the United States, and now Founder and CEO

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of shift7; and Joshua Gans, who is a Professor at the University of Toronto.

So, as Bob mentioned in the lead-up to the entire event, often people think of the U.S. economy as this big, dynamic place, where so much is going on, where there are entrepreneurs disrupting everything everywhere you go, and yet when we look at the data that doesn't seem to be the case necessarily, as much as it used to be.

And, in particular, as you may have picked up on your way in, we just put out a report here at The Hamilton Project looking at the state of dynamism and competition in the economy, and there are a lot of things in it that are somewhat disturbing. And so we've known for a while that productivity growth has been lower in the United States over the last 14 or 15 years, and that we see a number of other trends though. The start-up rate is down across a wide set of industries, and across almost all industries.

You could look, if you look, say, in the late '70s something like 11 to 18 percent of firms

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were new firms in most industries across that range, and that's now more like 4 to 9 percent. It's really come down quite a ways. You just don't see the same share of new firms you used to, and part of that then shows up that young firms just don't employ as many people as they used to as a share of the labor force.

So, you used to see a decent chunk of the labor force employed by firms that were younger than 10 years old, and that's just gotten much, much smaller in the last 20, 30 years. At the same time we are seeing those trends; you see a number of other things around concentration, where we see the market share of the top four firms is up across most industries. The market share of the top 50 firms is up across most industries. You can look at more technical measures like HHI indices, and those are up across most industries.

And so one of the things that we want to talk about in this panel here, is thinking about the concentration in particular -- in particular markets where we see much more concentration of top firms

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dominating a much bigger share of the market, and how that connects to innovation, and how it connects to productivity growth.

Terrell, I wanted to start with you. So, you've just, you know, kind of come off the front lines of trying to defend a competitive economy, and push back against market power being abused.

And so I just wanted to get your take on how you see the competitive landscape in the U.S. economy right now? And are you worried about concentration across a lot of industries? And is it kind of -- are there just changes happening in the economy that we can't stop it, and it's just, this is the way the economy is going to shape? Or, how are you seeing things now?

MS. McSWEENEY: Well, thanks for the easy start-up question. That's great. So, yes as a former competition enforcer I think I am very concerned about the macro trends here that we are seeing. Partly, you know, informed by the Council of Economic Advisors in the Obama administration, thanks guys. And I think we

have to think about that. I also think it's important to remember that antitrust enforcers think in a very micro way, and what we are talking about is a very macro thing.

And we don't know all of the connections between the macro trend on concentration, and the micro markets that we think about in antitrust. So, so this is an area that I think we need a lot more work on, but what I find really encouraging is when we started thinking and talking about this in a very serious way four or five years ago I had about this much economic literature on the topic, and today my pile is about this big.

So, I think we are getting a lot more information, and I think that's really encouraging. I think antitrust is a huge part of the solution here, but it's not the only solution, and I think it requires a multi-pronged approach.

MR. SHAMBAUGH: Great. So, with that in mind, and maybe, Joshua, we'll jump to you. So, speaking of approaches that are not antitrust, trying

to think about concentration and how we deal with barriers to entry that are coming up in new industries. So you've just put out a proposal with The Hamilton Project, you probably picked it up on your way in. Do you want to tell us just a little bit about what motivated it, and how you're seeing an approach to this problem?

MR. GANS: Sure. So, what motivated it is Facebook, and we shouldn't beat around the bush. It's a company now that has two billion users, and it certainly has as wide a reach, for an American company, as Coca-Cola.

So, it really sort of motivated what -- thinking about what might give it a competitive challenge into the future, because ultimately you have to be concerned about, for want of a better term, a Leviathan. Here is a company, when it sets its rules it's going to be, take it or leave it for everybody there, generally things don't work out too well that way.

But at the same time you had -- you know,
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it's a company that has achieved this level of dominance in an industry, or created it in effect, and it has done this without having to do any of the things that people have innovated in terms of antitrust violations, hasn't had to do exclusive contracts, predatory pricing, the price is already zero.

It's done a few mergers and acquisitions, but it's been at a stage where no antitrust lawyer or judge would ever challenge them. So, it has really reached that position, and you sort of have to ask yourself, well, what's the problem with that?

And I approach that problem, and I guess this is, you know, a good way to approach regulation, I approach this problem as somebody who personally loves Facebook. I know there are two sorts of people in the world, those who hate Facebook and those who love it. The people who love Facebook are often not willing to admit it. I'm coming out I like it -- (laughter) -- I'm with it all the way, but I do see, as a competition economist, if you want it to be

better, and not just better for everybody, that's one way of thinking about it, but better for people at the fringes.

People who want more privacy, people who would like to do it without ads, people who would like it just to look a bit different, all manner of things that might occur; people would like to see news before stuff about friends and family, or vice versa, or no news, or all news, whatever, there's no ability for a start-up to come in and think about what a particular market segment might want and compete with Facebook because you can't just pick off customers one at a time.

The problem is, Facebook's value comes from all the wealth of connections it's got, and that's all solid and stuck together.

Now, interestingly enough we've faced this problem before when we deregulated telecommunications. We had single, publicly-owned, often sometimes public-privately-owned, and publicly-regulated companies, single telecommunications firms, and we wanted to have

competition between different providers.

Now, no one ever really challenged the idea that if you call from one network you should be able to make a call to the other network, and pretty much be seamless, that was taken as a given, and we called it interconnection.

But of course Facebook, and Twitter, and Snapchat have all grown up without -- out of a regulatory environment, so no one has ever dealt with those issues. So, what we do not have is interconnection. So, what you would like to have happen is somebody to enter, and they could take a customer, but the customer would not lose all their connections, to other people who have already given permission for sharing.

And so the proposal that I have is a simple, philosophical proposal, it might be a little bit more technically-challenging, which is, if you want to leave Facebook you should be able to leave it and take your identity with you, and what your identity is, is the set of people who you've decided you want to share

information with, and the set of people who have decided to share information with you.

And with that record you can take it to a new network. And, you know, it's true, the new network might not operate as fancy in a way as Facebook does initially, but there might be some people out there, the people who currently would like to delete Facebook, but can't, might have another option.

And I think, historically, being able to allow for that initially small-scale entry keeps incumbents on their toes, and allows us to take away concerns about more heavy-handed regulation, like trying to regulate Facebook's content, or try to break it up in ways that it's -- if you wanted to break up Facebook, it's just to show you can do it, not as opposed to actually solving a real problem.

And so I think this sort of philosophy worked in telecommunications, no reason why it can't you work in digital platforms, and particular in social media.

MR. SHAMBAUGH: Thanks. And I should mention, you may have seen in the last round, some of The Hamilton Project staff walking around with cards. So, we don't typically do Q&A here with passing around of mic, so people, if you've got questions, just signal to someone, write down the question, and they'll bring them up to me towards the end of the panel.

Rob, I wanted to turn to you, because I think in Joshua's proposal, you know, there's this idea of social identity, portability, and it ties in with some things people talked about with data as a barrier, one way or the other, whether it's in, in this case, your own personal data and your ability to communicate with other people, or in other cases the concern is the barrier to entry comes from the need to access the data to be able to do a start-up and things like this.

And I know it's something you've thought a lot about, and I'm wondering if you could talk a little bit about how data can wind up being a barrier

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to entry, and how proposals like this might be helpful in some way.

MR. SEAMANS: Yes. So, I guess to some extent what I have to say is going to build a little bit off of what came up in the first panel, the discussion between Jason and Steve around AI, right. And so there's a lot of evidence that AI will, you know, lead to a lot of productivity growth, lead to a lot of economic growth, but sort of the risk that we are faced with, and I think, you know, Jason in the prior remarks has made this very clearly. You know, the risk is that we might not get enough of that AI, and hence as a result not enough economic growth.

So, the question though is, how? Like, how is it that AI will lead to this economic growth? You know, the idea is, again to point Joshua made earlier, they will get startups that enter, that sort of compete against these established firms, you know, using AI or some other type of technology, that then sort of leads to innovations that ultimately lead to economic growth.

But the question is, well, how can these -- you know, is there some sort of barrier to entry for these AI-enabled firms to enter? And anecdotally it seems like the answer is yes, in the following sense. So, a lot of the AI technologies rely a lot on a lot of data to, you know, both to sort of create algorithms, these sort of AI algorithms, and also to sort of run through the data, if you will, to sort of identify potential customers. Be those and customers like you and me, or be those customers like, you know, in a B2B type sense.

And so it seems like it's really -- it seems like data is potentially a barrier to entry for a lot of firms, there are potentially ways around that that we can sort of talk about, but certainly, I think Joshua's proposal is very clever, in the sense that data portability, and there might be issues around how to implement this, and Megan might sort of talk about that a little bit, but he said there is data portability, and it then provides startups with a way to access this data and, in principle, sort of

overcome this potential barrier to entry.

MR. SHAMBAUGH: Okay, great. So, Megan, you've got kind of an interesting viewpoint to kind of survey a lot of these issues. You know, having been inside a really big firm at one point, and then inside the White House, in some ways a bigger firm. And then on the other hand, now doing the work you're doing with shift7, where you're going around and kind of really meeting a lot of people who are kind of starting out way down on the ground level.

And so I wonder if you could just talk a little bit about how worried you are about some of these network effects or data issues that people are talking about as barriers to entry, kind of keeping people, if not from getting into a business from scaling the business, and what you see as some of the barriers to kind of getting some of the rapid growth from those firms you're meeting out there?

MS. SMITH: Yes. In a lot of ways we are trying to think a little bit about what I call collective genius, and so if you sort of think the

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hashtag of more competition to drive that, more collaboration. So more collaboration will drive more competition, and Steve was talking about the partnerships that are there.

We've been all over the country sometimes on (inaudible), sometimes on tech jobs there, or sometimes just with wild entrepreneurs, and there's so much incredible stuff happening in the country, but we are not organizing in a collaborative way to really lift entrepreneurs everywhere. Sometimes it's the Treasury, or the economics, it's the networks, it's the confidence there.

So, I think, you know, data is one example of something that we could release if we sort of open up. So, how is it that a tiny number of people created Wikipedia, right? They created a light scaffolding around which all of us could bring what we are passionate about into this encyclopedia that's now written by all of us. I mean, it's quite astonishing, right?

So, I think that one of the greatest things

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we can do is to do the kinds of proposals you guys are talking about, but almost (inaudible) are some of them. Like, let's put this stuff up there, and let's work with regulators and get very creative.

One of the last things that Alex Macgillivray did, as we finished in the White House, was to ask about data portability specifically, and to just ask: what do you all think about this? And what proposals do you have here, because there's so much collective genius out there? And so if you can get that back, you can gain a lot.

And as by way of an example, you know, I was just at the U.N. a couple days ago, you know, I don't know if people -- are people familiar, generally, with the Sustainable Development Goals, yes, no? This is the set of goals like the Millennium Development Goals for this year. So, a new way of doing this in a collaborative way, like this data proposal.

We convinced them in 2015 when, at the General Assembly, when they were voting, to actually put up a web page a-month-and-a-half before and say:

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does anyone in the world who any solutions already in progress for this stuff? We got 800 submissions from 100 countries in two weeks.

And the incentive was, we are going to have a dozen of you as a celebration collection take the stage one hour after the world votes, and show us what you're bringing. And let's take the Justice Goals, there's a team teaching law in prison in Uganda, thousands of people getting themselves out of jail.

Let's take the kind of Deforestation Climate Goals, there was a team using drones to plant a billion trees a year. There's a team in the Amazon, today we face grave challenges with climate, and just cutting down the trees, and destroying, you know, the lungs of the earth.

Beno Juarez, is a fabulous entrepreneur from the Amazon who lived there till he was nine, came out and became an expert in advanced manufacturing, and 3D printing, and you name it, and he has gone back home and building boats, and floating fab labs just like, you know, the fab labs from MIT, and the other places

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-- these Makerspaces, you could run off the dock into that kind of space, but with the talent of the Amazon indigenous, bio-informed experts do if they had also, you know, these mastery tools.

And so, like thinking about everybody as, you know, shift7, seven billion people as colleagues, as talented, and using the Internet since we have it, to connect ourselves and this almost the guild of all, the apprentice journey mastery, everywhere, in all the towns.

And that, you know, I just was in Detroit, Steve talked about Detroit, it's incredible to see what the Quicken Loans team has done there, and I think it's every sixth grader, every sixth grader goes to visit them, two different days in the fall and the spring. Like, let's take that example and do it in every city.

And so how do we share what's working, rapidly? And so that's what I would do sort of on this data problem, and I would do it on almost every problem. And it's exciting to see what's there. And

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if we do this, we'll unlock extraordinary talent across the country and lift, and scale as we want to.

MR. SHAMBAUGH: Okay, great. I'd like to come back to everybody with, in some sense, a similar question which is: so, we are talking about different aspects of concentration, and innovation, is to really talk a little bit about how they are interlinked, and to what extent were worried that the concentration in some industries, in particular, is keeping out too much innovative activity by keeping out the entrepreneurs, or just making it too hard for them to get in.

Terrell, do you want to start off, of how you're seeing the links between those?

MS. McSWEENEY: Well, I think to the extent that there are links, those are areas that competition enforcers can target with enforcement, and advocacy, and maybe even helping government regulators act in a pro-competitive way with their regulatory power. So, I think the competition enforcers have a role to play there.

I agree, the kinds of things that we should be looking very carefully at, are the competitive significance of data, freeing up data and allowing it to move around, and that's not just allowing portability, but also, importantly, interoperability. It doesn't really work well if I can take my data but I can't use it anywhere, right.

Keeping open API, avoiding the Internet of giant, behemoth walled gardens that contain everybody and have lock-in as a factor associated with them.

And I think Megan is talking about something really important, which is making sure that we are allowing human capital to move around as well, and being deployed into new innovative spaces. So, I think the antitrust theories that map onto that are, of course, monopsony in the labor markets which Jason explained very well, but also agreements between firms, like no-poach agreement that the agencies have been cracking down. They can restrain the movement of entrepreneurial talent between different companies as well.

So, I think there are a number of tools in the competition toolbox that can be used. I do think it's really important to get pretty specific about what the problem areas actually are, and here is a zone that I think there isn't a ton of agreement on.

We can debate the value of the Schumpeterian world versus the Arrow world, and monopolies, and how they are involved in innovation. I don't know that there's a total solution to that, and I suspect it's neither all Schumpeterian, nor all Arrow, it's something in between.

MR. SHAMBAUGH: Okay, great. So, Joshua, I want to come back to you then. And if you got your way, right, and so if this proposal were to go through, how do you see it changing innovation in some way? Do you think it would, or is this something that's operating at the margin and would be a very good idea for one industry? Or do you think it would apply more broadly and matter in different ways?

MR. GANS: I think that it's -- obvious applications are right there in social media

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initially, but we see various things linked to personal data and how it get shared in a lot of places. For instance, we have in many digital platforms we are starting to earn a reputation that might be, if you are an Uber driver, or an Uber customer even, it certainly was true of eBay, built its model on people earning a reputation for reliability. If you're a small seller on Amazon what keeps you there is if you've got a good reputation and great reviews, and your ability to switch to something else is impaired by being unable to send that signal.

So, I can imagine, and really when people leave you reviews, what it is, it's another message, and then it's a message that gets broadcast out. So, it has a lot of these same features of a social network, and some of the same constraints as well.

So, once you free that up you do allow for more innovation. Now, does that mean you will never see any large firms? I think not. I think the reason that Facebook would be large would be the same reason Google is large, largely due to economies of scale.

You don't -- and we don't actually want to destroy economies of scale, they're invariably good for us.

But you want people to be able to nip at the margins, and you want the incumbents to feel like disruption is just around the corner, so that they don't neglect what they're doing, and things like that.

Now, you're never going to get that perfectly, as I said, there's always some natural barriers. But the good news about it is, if you adopted a proposal like this and it was to work, it frees those incumbents up to say, well, we are now open to competition, we are now vulnerable, if we do really horrible things and suddenly millions of people want to leave Facebook, they can do it. They can do it, and they can hold us account.

It gives rise to both the power of exit, and the power of voice, in terms of being able to discipline these companies and have them perform better. And it takes away the need for politicians, and others, to think about solutions that look like

they're doing something, but not actually getting at the nub of the problem.

So, I see these sorts of foundational things, the rules of the game, like interconnection, like -- and later we saw it with number portability, although that turned out to be less of a thing just because, who cares about your phone number.

We saw them as things that reduced costs, reduced frictions, and allowed competition to work. That doesn't mean we get an outcome -- the goal isn't to get more competition, not necessarily to get less concentration, that might happen anyway, but to understand at least, we've done what we can, and so -- something like that.

MS. McSWEENEY: Can I jump in on one point you just made?

MR. GANS: Yes.

MS. McSWEENEY: Because I think people actually do you care about their phone number, and it was when the government said mobile phone carriers had to allow you to take your number with you, that it

really provided more competition and benefit for consumers in the mobile wireless space. So, I think it was about the --

MR. GANS: Sorry. I'll say -- I say that as the person who -- I'm going to give myself credit -- invented that policy.

MS. McSWEENEY: Yes. (Laughter)

MR. GANS: And so it's just that I don't think it's as necessary now. I mean it's a thing, but --

MS. McSWEENEY: Maybe it was good at the time, anyway.

MR. GANS: It was good -- certainly, it was wonderful at the time, it was ground-breaking -- (laughter) -- but no, but it also, you know, it also illustrates the point that these things do evolve. We can't -- you know, at the same time as spending a lot of time arguing how important the phone number was to a person, to think about that today, I couldn't explain that to my children who don't know my phone number.

So, I just think sometimes things change. It both illustrates that you can come up with innovative policies, but you shouldn't expect it to -- you know, there's only so much you can anticipate about what's important.

MR. SHAMBAUGH: Rob, I wanted to come to you, with kind of the same question about how much you see as an IO Economist, and someone who has thought a lot about competition back when you were at the White House. How do you see the concentration tied to the innovation?

MR. SEAMANS: Right.

MR. SHAMBAUGH: Because you can get arguments on both sides that, well, letting monopolies have some profits, gives them some money to do cool things, and so we shouldn't worry about the concentration. So, how do you see that, that issue?

MR. SEAMANS: Yes. Thanks. So, I was hoping you were going to come back to me on that question, because you gave it to Terrell, and then I was worried that we are going to sort of go away from

that question.

MR. SHAMBAUGH: No, no.

MR. SEAMANS: So, I wanted to come back to it. I mean, I think I'm in broad agreement with what everybody here says, but just to, sort of, slightly play devil's advocate a little bit. So yes, you know, it looks like -- you know, there's a lot of evidence that there's more concentration, but it sure looks like there's a lot of innovation out there, and so it's not totally clear to me that if we create more competition that that will lead to more innovation, despite what I might have said like ten minutes ago.

MR. SHAMBAUGH: Right. Yes.

MR. SEAMANS: Okay? And so I guess that -- I guess the point there is that we are starting to get data, and we are starting to get results on this, but it seems to me that we actually need a whole lot more data to be collected, right? There's sort of a role here, for example, for statistical agencies to start collecting different types of data than they have in the past, and there's a need for a lot more research

in this area.

I mean -- so I think really the counterfactual question is, if there was -- if there was less concentration, if you were focused more maybe on like the tech industry, if there were fewer of these large tech companies would there be more startups leading to more innovation? Or would there be less?

And that's not totally clear to me. I mean, there certainly are a whole lot of startups, it seems like part of the reason why they're starting up is because they are hoping to be acquired to one -- you know, be acquired by one of the big firms. That doesn't strike me as necessarily a bad thing. I think I do want more -- it's sort of a call for more data and more analysis on this.

MR. SHAMBAUGH: Yes. Megan, I want to ask you this, because you had this great part, just getting to see inside all the amazing things Google, as a very large company, was doing as just part of its normal product development of things that were

changing the world. And now, on the other hand, you're going around talking to all these people on the ground who are starting really small things, often.

And do you see -- it is there a difference there? Do we need both? Do we need to worry if only the big firms are doing the innovation? Do we lose something?

MS. SMITH: I think the same character. Do you know that early stage -- I ran -- the team that I ran at Google was if you had sort of the tech founder and the startup outside, we were the business teammate; and just across everything, whether we were bringing Android up or, you know, working on YouTube, or BookSearch, or whatever. It's sort of this start-up within, sometimes through acquisitions. We did the acquisitions of Earth and Maps and the Cosmos.

And that's that same talent. We were really lucky that we created an environment inside the company where, you know, Steve talked about this, if the entrepreneurs want to stay. You know, and you led them, a lot of times the CEO became the Product

Manager, and the Head of Engineering became the engine, and those two would drive that business with the support of the organization around them.

I think if you -- when you see those kinds of -- the moves that happen within the companies, they create space for great innovation, then it doesn't matter the size of the company. And, you know, being from New York State, Corning always stands out to me as just this incredible company that went from, you know, making milk bottles, to now Gorilla Glass, and so you don't have to be a tech company to have great innovation.

So, I think we are seeing it all around the country. A lot of times when there's a great research university nearby, then people are spinning out, and there's a conversation, there's interns, there's talent and there's a perspective, and that doesn't have to, again, be Silicon Valley.

I think it's sort of, there are two things that we are talking about right now at this panel, one is data itself and the portability of it, which is

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really critical, you know, open, innovative data.

I mean think about like having said, you know, we did the acquisition on Maps, and this isn't personal data but we opened 200,000 datasets with President Obama, and then started to get them mobilized, and those that are mobilized have, you know, billion-dollar industries on top of them, and those that are quite quiet often, sadly, the ones the Domestic Policy Council was dealing with, with me in the White House.

The National Economic Council got all our attention, and we are not doing that, and so thinking about data, in general, mobilizing it, whether it's personal, and getting it out for the RIF, keeping privacy of course was critically important now, because data and the digital world is fueling every industry.

And then the second question of entrepreneurs themselves, I think they live everywhere. They don't have the same treasure, and they're not getting same money, they're not getting

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the same voice, they don't get to be on panels, they don't get to talk about their areas and their agenda, the agenda that somebody who's like the Clara Barton entrepreneur, the George Washington Carver entrepreneur, is just as important as the Henry Ford entrepreneur.

So, making sure that all across our world we are using the entrepreneurial capability, and teams, and methods in any organization are really critical. And having technical people, especially data scientists involved, in every piece of what we are doing, is really important, because not that that character knows more or less, they just know their thing.

It's like, for example, in this room, how many of you are working with a real-time -- many people probably are. Who are real-time data scientists in here? There's a couple, two.

All right, who is working on her daily basis with a data scientist who is not quant, who is also a data scientist, but live tools, they can make you a

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live tool right away. They go get an API, suck something off the web about a census. Who is doing that right now?

Yes, so that is a problem. So, this is what we learned when he came to D.C. that the "us" we tech folks are too rare here, and it's not that we know more or less, we just were like the lock-picker in the Navy SEAL Team will get you in a room, we don't know what you know, but we know how to do certain things, and we need to be in your teams, we are not the help.

So, you don't make a whole plan write it all up and hand it to us to make that, because then the architecture is wrong, and that's how we got our Healthcare.gov, right? (Laughter) It's exactly how we got Healthcare.gov.

So, we need to be in the room cross-functional, as cross-functional, and as fast as we can, and we will move really fast on all topics, and the techies can't be all alone in Silicon Valley without those who are super experts and, you know, Steve you talked about it, you know, the farmers who

really know what they're doing in Nebraska, or wherever. Let's get out in the country, and let's get cross-functional as soon as we can.

MR. SHAMBAUGH: Great. So, we've got some terrific questions from the audience already and I see -- actually this often happens, there's more than two or three already on the same topic that I want to ask. And I want to start, Joshua, with you, and come to everyone really on this, if you have thoughts, which is, "How my policy is designed to increase identity portability take into account asymmetrical data privacy and security regulations across different platforms?"

And related to that was someone else wondering, "If I've got this kind of identity portability and I'm able to message across, you know, again, how do I worry about the issue of privacy where the business model may be different, so that the different firms may have different privacy policies, and how am I going to deal with that?"

MR. GANS: Right. Yes, that's the first

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order question here is you know: what if I decide I've got a friend and the friend decides to join, you know, (inaudible) a book that doesn't care at all about privacy, and so if I send messages to that friend it's all, you know, getting sucked up out in the open, or something like that.

Now, that would be bad, so you want to have some rules against that but you've got some issues there. Now, one way to think about it is to have some transparency that, you know, Facebook are very good at saying what it's privacy rules are, maybe there should be a rule of interconnection that your privacy rules are transparent, and therefore if you notice that a friend is on another network you can click and see what happens to your data there, and take action right then and there, and change your friendship relationship as a result of that.

But you want to be a little bit careful. I mean you could imagine a situation where an incumbent would argue, of course people should do that upfront. Yes, someone should leave, but they should be forced

to ask everybody again for re-permission: I'm going to this other Network.

But that would obviously obviate the entire point of this exercise, so you want to have a balance between transparency and the friction of this entire thing.

But I should say with regard to privacy, you know, subject to some minimal requirements of course, that the privacy issues are the same between networks, which is what is occurring within Facebook on its network.

In other words, these privacy issues aren't new, they just continue to be there. And I don't think, in principle at least, that allowing identity portability is going to increase or decrease the risks of that.

In fact, our net, it would allow people to enter who decide to be more stringent with regard to these things, than Facebook currently is today, if that's what the consumers want.

MR. SHAMBAUGH: Great. I'm just curious,
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anyone else? Joshua has obviously been thinking about this quite a bit for this proposal, but other thoughts on this?

MS. McSWEENEY: I can't resist this, as a former enforcer.

MR. SHAMBAUGH: Yes. Exactly!

MS. McSWEENEY: I think that privacy, but also the security of this information, and the vulnerability posed by technically inept consumers, I put myself on that list, using these tools is significant. So, we do need solutions for those problems. I wouldn't jettison the notion of the default being set to an opt-in consent until we had a little bit more trust around how we can control our data once it is in the pipes.

And that is the bigger problem, is getting a handle on all of the use scenarios that I think we are all wrestling with here, and feel a little bit distrustful of, and that's where the policy conversation I think needs to shift.

It's important to protect privacy, we don't

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want to jettison that concept, we also don't want to over-correct on privacy and not get to some of the other issues that are raised by a lot of business models that are very dependent on collecting massive amounts of information about us, and thinking about, you know, whether there are some problems that are arising for consumers because of that.

MR. SHAMBAUGH: Right.

MS. McSWEENEY: Including more transparency and accountability for data brokers, and the whole third-party industry that is collecting vast amounts of information about consumers, and then selling it on for a variety of purposes, without a lot of transparency back to us. We have models for that, right? We have FCRA, the Fair Credit Reporting Act, so we know how to create some of these frameworks and intermediaries that can help us negotiate this world, but we haven't done it yet.

MR. SHAMBAUGH: Great. Did you want to?

MS. SMITH: Yes. One of the things that I've been thinking a little bit about is whether there

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will be an opportunity soon to consider adapting the calculus requirement in high school and turn it into data science, and that all young people will have the opportunity to work with datasets of their interest while they're in high school, and solve local community problems as part of their high school work, or even younger.

And that, you know, we have the computer science for all initiative, many people may not be familiar, but we had started that at, you know, we don't have a Ministry of Education, so we don't -- you know, top-down education, but now Wyoming has just voted for a computational thinking, computer science, and coding in law from kindergarten onwards, because they're the state losing the most people.

So that means Virginia, Arkansas, and its bipartisan -- Rhode Island, there are five states now, there are cities -- Chicago you can't graduate from high school without learning to code. And it's not because coding is, somehow all of us are supposed to have that job, it's because, like freshman biology, we

should all have basic literacy in that. And I think that data -- you are working with data and APIs, as something that would feel as familiar as having to write an essay? Is there, you know, this is raspberry pie, it's just the board from your cell phone basically. Right?

And in England, and the second graders, people are playing around with this stuff, right, and it's just the second graders know how to read somewhat, and they can cook so they can follow instructions and write that, so that says if you can do cooking that's like coding.

You know, so they are doing things, you know, with little kids. Do have it light up stuff, and play around, and make their clothes do stuff. But, you know, we need to have this fluency in everyone, so that everyone, no matter what job you choose, you don't feel like: oh there's math people, I'm not math, that I don't know it.

You know, and we don't -- we aren't able to protect ourselves because, you know, we saw some

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pretty grave stuff happen with data and sharing, and stuff with data this year, this past year, we are going to see more. I'm still very worried about the OPM, the OPM hack because, you know, all of our security clearances are in China, and that's a pretty amazing social network to be able to exploit with PII and attack people directly, which is how the China teams tend to attack in phishing.

So, you know, we need to be fluent urgently on behalf of economic opportunity, and amazing things that we can do, and on behalf of protecting ourselves, and on behalf of the fundamental main question you started with, is competition, and sort of concentration.

MR. SEAMANS: Can I just?

MR. SHAMBAUGH: Yes.

MR. SEAMANS: I'll just add my two cents, or my two seconds on this. So, I think that there's a range -- I think it's a really important problem, right, how to handle sort of these sort of asymmetric requests, if you will, of data portability? I think

that there's a range of possible solutions, and all of them have various trade-offs. So, a couple of solutions have been mentioned.

You know, one other -- another potential solution is, you can imagine all the data in some sort of central repository sort of run by some sort of brand, newly-created government agency, right. Again, big perhaps -- you know, all sorts of trade-offs there, but you could imagine all the data there, and then sort of data portability allowing companies to pick out the data that's needed, that they were granted permission to buy, whoever the user is.

But, I think there's probably a range of possible solutions, and perhaps a great follow-on study that The Hamilton Project could do would be to lay out, systematically, all these different solutions and the trade-offs with each if, you know -- And Joshua I'm sure might be interested in working on you that for you as well. (Laughter)

MR. SHAMBAUGH: I want to come back. There are a couple of questions in here, and it brings up a

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point as something that I wanted to pick up on, that both Rob and Megan mentioned, which is talking a little bit about the -- are these entrepreneurs right now trying to build a scale, or are they trying to build two get bought out, right?

And so in some sense, you know, you were talking about it, like you know -- sometimes you were acquiring, you know, for a piece of technology, or for a piece of a team to do something. And so how worried should we be about it? Do we see that as a problem in terms of the competitive landscape? Or on the flip side, do we worry that, you know, some of the people who look at the big firms they say, well, the answer here is, don't let them by anyone, right?

Like, tell them they've got to quit -- you know, if these big firms can't buy firms anymore, because we have to -- we don't want them to buy their competitor from ten years down the road. If we do that, how worried are we that that actually steps on the ecosystem, because then all of a sudden the startups have no really shot because they need that

possibility of getting bought? Do you want to start?

MR. SEAMANS: So, I'll just jump in with one quick thing. And I see Terrell is about to raise her hand.

MR. SHAMBAUGH: Yes.

MR. SEAMANS: So, maybe she's going to be raising, you know, which is it -- I mean, we actually have like competition policy tools that we can use to address this, and the case that gets brought up a lot, that I think gets referenced in the great piece that you and Ryan put together, is the Hart -- I'll say it the wrong way -- but it's the Hartware, right, and what's the other firm? Hartware? Somebody help me out here?

MS. McSWEENEY: Which one? Is it the one in your report?

MR. SEAMANS: Yes.

MS. McSWEENEY: There's -- a few examples of this, and we see it also, potentially, in the pharmaceutical sector more than we've seen it in the tech sector. But suffice it to say there are

competition theories here around protecting potential competition. So, if the acquisition is really to snuff out a potential competitor, and you have business documents generally that tell the story, because you need some evidence of it, it can't just be your hunch. Right?

MR. SHAMBAUGH: Right.

MS. McSWEENEY: And there isn't really good econometrics for some of that, and it's a sort of non-trivial situation, then you could -- that's potentially cognizable. What's I think a little less clear, and a little unknown, but is reachable under antitrust laws, potentially, as a kind of serial acquisition by a dominant, let's call it a platform, in order to protect itself from competition.

You know, that that is maybe monopolization, and I think that's an interesting question, probably very difficult to reach under Section 2 of the Sherman Act, maybe reachable under Section 5 of the Sherman -- of the FTC Act, which is a little more flexible, and I think it's an area where we need to really understand

the extent to which that is harming innovation and entry.

I get concerned when the acquisition or the talent acquisition is about eliminating an innovation from a market, and not generating innovation in a market.

MR. SHAMBAUGH: So, how worried would you be if -- for a lot of these firms that you're out there meeting right now, if in some sense there was a lot more activity trying to stop the larger firms from doing these acquisitions, would that kind of -- you're talking about how these firms really struggle to raise capital right now, if you pulled that kind of potential lottery ticket away from them would that -- would that --

MS. SMITH: Yes. That's a huge challenge. And so I think that, you guys, and I defer to you, because you've got some amazing knowledge in how you look at when it's unfair, and when it's -- and when it's sort of a healthier sort of acquisition economy. I mean if I think about just even reflecting on our

own experience in a lot of the tech sectors, like Google for example, you know, that half the products came from extraordinary teams that joined and just came and did their thing.

You know, and it was very much in a generative perspective, whether it was something like a double-click coming into the ads group and adding a whole bunch of capability. Or whether it was Android Tech coming in, or Maps, or others, very much those kept saying, hey, do you want to come do the amazing thing you're doing over here? And those teams that would come in and lead themselves, different companies do that differently. But that was, it felt like a pretty healthy way to have acquisitions happen.

The one thing that I think would may be additive here, is this idea of scale up, and how different regions have different challenges. And so I think economic policy -- the U.K. had this issue, and they started to look into it, so they created the ScaleUp Institute. But the concept there is, you're a fabulous startup in Manchester and you're not getting

all of the things you need, the resources, the talent, whatever you need to see move to London. You're not getting the resources you need to see move to Silicon Valley.

So, how did England stand? So, for us how are we holding on to somebody, you know, who's in Kentucky, or who is in -- and getting them to stay, and getting the leadership, the municipal leadership around them, others who would help them with the resources they need.

I think paying attention in policy to that work, and paying less attention to this acquisition question is probably the more important thing for the startups themselves. And then I think, you know, would leave it to our colleagues on the big firms, on where they see things being unfair, and just continuing to iterate, and getting better and better at squashing the unfair, because it's not right, but other stuff seems to work pretty well.

MR. SHAMBAUGH: We've got a couple of questions here also asking about the general

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principle, okay, so many of us keep starting from the position that there's more concentration right now. And so one of the -- or a few of the questions in here: "Why?" So, why do we think the U.S. economy -- the landscape of the U.S. economy right now involves more markets that have more concentration than it used to? And it may be that there are a lot of different reasons, but if people have their own, in some sense, favorite one, you know: what is it that you're worried about, or that you think is generating this?

Terrell, do you want to start, since you probably had to think about this a lot?

MS. McSWEENEY: So I think the short answer is, probably a variety of things, many of them having to do how we reward capital creation, not all of them having to do with under-enforcement of antitrust laws. So, I guess what I think about when I thought about antitrust law, which is my area of expertise is: okay, is concentration happening because the antitrust laws aren't fit-to-purpose, aren't right sized, or the enforcers aren't using them properly.

And I suspect the answer is: maybe some of that is happening, and we should be really mindful of that, and we should use those tools aggressively, we should recognize that they were meant to be flexible tools that evolve with a dynamic marketplace, that they include more than just price effects, that they include innovation, and quality effects and other things.

But I think it's unfair to peg this whole concentration question, which is a macro question, on just antitrust law.

MR. SHAMBAUGH: So, Joshua, in your proposal you're poking at one particular, you know, theory of the case, right, so kind of the network externalities, and so you talked about that in social media. Do you see that as a broader explanation across a range of industries that's driving increased concentration?

MR. GANS: Not quite. No. You know, I don't think network effects drive it in search. No. I wouldn't be convinced network effects are at the root of Amazon's success, or anything like that. And

Microsoft is currently having a huge renaissance, but that possibly is to do with network effects, but no one pays attention to them because they're doing a very good job of pretending that they don't exist anymore. (Laughter)

MS. SMITH: They bought GitHub.

MR. GANS: They did buy GitHub, but also, they also like -- or depending on the day of the week, the number two largest firm in the United States. So, things haven't changed since the 1990s.

But I think it comes down to switching costs and frictions. I think, you know, the main way you get to dominance is by being able to be sort of like the default in some respects. You know, even small frictions can give you a lot of advantages, let's take the example of Google, there are other search engines out there, you know, as we can tell, it's a complete wash, in terms of what information they bring you.

But Google is the default, and so people go to Google, there's no compelling reason to move between them, and so that leads to naturally a whole

lot of people just knowing about Google, and Google having a large market share. And I wonder how much that also plays in other industries as well.

For instance, about eight years ago I worked for the Federal Trade Commission as their Chief Economic Expert in an antitrust case against Intel, and one of the things I remember from that, there's a lot of things from that, Intel did some bad things, but they had this other mantra sitting there, when they were thinking about getting deals, and they were able to tell their sales people: no one ever got fired for buying Intel. Okay?

Whereas, their competitor, AMD, was going to have an issue, even if on specs and other things, they show that AMD was slightly you have to worry about that friction right there. And I suspect that sort of thing, and now with the ways information flows, might be at the heart of increasing concentration, not just in the United States, but around the world as well. That's just my pot of the theory, no one has proven this.

MS. SMITH: One of things that I -- the great paper that's around the Main Street Fund, that's in the collection from today?

MR. SHAMBAUGH: Mm-hmm.

MS. SMITH: I also think that, you know, there's -- maybe to give a shout out to that concept a little bit. We could be better organized as a community, to be accelerating what's working and accelerating each other. And one of the policy moves there is, again, it's sort of collective genius, it's, you know, how can we take not just funds to have large firms move around, but funds to help entrepreneurs.

You know, where is the cool, WeWork, Makerspace in every town? You know, and how do we fuel those entrepreneurs to have that so that there's a place to go? You know, and so we get the friendly friction that Governor Hickenlooper talks about, right?

And those entrepreneurs start to have community, and they start to get together, you know, maybe Steve Buss shows up, and the Family Funds go on.

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But in getting that community moving, we did that with a program called TechArt, we have 600,000-plus jobs over the United States, they are in every sector, they are in the tech sector, but they are also in retail and medical, et cetera.

And what we noticed is that St. Louis was doing alternative, you know, boot camps, and those are starting to emerge in New York in a little bit, that Louisville had code (inaudible), and the mayors, the municipal side had come, and then was leading there.

Then in Delaware the employers were saying, we are starving, and they were jamming for new -- because these new training, employers were willing to hire from it, and the mayors were willing to route, and know, and get people from the city who didn't even, you know, look the part, and get them in.

And so that was an ecosystem, we work-shopped that, and we eventually got -- there were five or six -- we went from that to 20, called the TechHire. And then on to 70 cities, and then we went to the Department of Labor and found a dusty budget of

\$150 million that was available for this kind of thing should someone apply, no one applying until those seven cities, and so it's kind of community organizing these teams to do that.

Now, and all the applications went in, and 39 cities got amazing amounts of money to really work on this new path, 23,000 Americans are going to graduate from code boot camp this year, which means 60 percent of the tech workforce is coming from code boot camps this year, in a kind of a blue-collar tech.

So, you know, those ways to move faster, the way that the Sputnik (inaudible) kind of hustlers of the past have done. And we can do that. And then we have this thing called the Internet, so we can go even faster together. And so thinking this way about, not only the Internet project, but specifically about competition, and lifting the entrepreneurs in this country to be the inside a company or outside, there's a real opportunity to go faster using these methods.

MR. SHAMBAUGH: Great. I think we are just about out of time on this panel. That might be a good

note to close on, since you're basically advertising our next panel, where we are going to talk about that side of the ledger.

So we are going to take a short break in just a minute, and then come back in, I believe 10 minutes, 10 minutes after. So, a quick break, but there'll be coffee, and the restrooms there.

But first let me just thank our panel for terrific insights. I really appreciate it.

(Applause)

(Recess)

MR. NUNN: Good afternoon, I'm going to get started here and count on the siren's song of occupational licensing policy to bring everybody in the room. My name is Ryan Nunn, I'm the policy director here at the Hamilton Project, and a fellow in economic studies at the Brookings Institution.

So, I'm going to talk today about a core labor market institution that has important implications for competition. As many of you know, a license is a credential that is legally required for

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employment. It is typically, but not always imposed by state governments, and today more than 20 percent of workers must have a license in order to do their job. Licenses are relatively evenly distributed across the states, but they are not evenly distributed across occupations. Workers in health care, legal, and education jobs are most likely to be licensed. And, this presentation will be particularly focused on health care workers, given that they account for about a quarter of all the workers that are licensed.

So, licensing is intended to protect public health and safety, but it can also serve to limit competition. The traditional explanation of licensing is that consumers and patients sometimes find it difficult to ascertain quality in the market. And, markets function more effectively if we eliminate the worst, most damaging outcomes. However, it's hard to explain many of the details of licensing policy if one looks exclusively through this lens. There's quite a bit of variation across states in how they regulate the same work. For example, cosmetologists in New

York must receive 233 days of training, while the same cosmetologist must undergo 963 days in Massachusetts. In addition, it's relatively easy to find occupations that are not really characterized by plausible health and safety risks. Or, where some regulations short of licensing would likely be sufficient to achieve whatever public objectives there are.

Moreover, there's a growing body of research that's finding that licensed workers enjoy substantial advantages over unlicensed workers. But, it's not just the existence of licensing that matters, it's also the design of the rules, and the tasks that licensed workers are able to perform under their state law. The state based design of licensing also often interferes with workers' mobility, as well as their ability to serve customers across the country using new technologies.

So, the Hamilton Project has been -- has contributed in really important ways to discussions of the economics and policy of these issues along with the Obama Administration's 2015 report, Marz Cliners'

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Hamilton Project proposal helped frame a national conversation about licensing reforms. Licensing was also an important focus of a Hamilton Project Proposal to mitigate the collateral consequences of criminal convictions. In subsequent Hamilton analyses that I conducted have used new data to explore the labor market experience of licensed and unlicensed workers. And, all of this can be found online at our website, hamiltonproject.org. These analyses document a number of the ways in which the impacts of licensing show up in the labor market. So, here I'm showing median wages, and over the life course, they're higher for licensed workers than for unlicensed workers even after you adjust for all the observable ways in which those workers differ. Interestingly, other work suggests that the wage impact of licensure actually increases the longer that the occupation has been licensed, in part because entry requirements tend to get ratcheted up over time. The advantages that are enjoyed by licensed workers, and the corresponding disadvantages experienced by unlicensed workers extend

far beyond wages. Licensed workers tend to have lower unemployment rates, they have higher job tenure. And, they also experience, what's shown here, less involuntary and voluntary part time employment. This is all consistent, I think, with a view that licensing shifts labor from some sectors to others, creating scarcity in some, and crowding in other sectors.

So, as I mentioned a moment ago, the necessity of getting a new license after you move across state lines, tends to depress worker mobility. The dark green bars in this figure show the reduced likelihood of within state and across state migration for licensed workers, relative to workers without any credential, but who are similar in terms of demographic variables. By contrast, workers with certificates, who are not constrained by state borders, actually have higher interstate mobility than other workers. The diminished mobility associated with licensing is particularly concerning in light of evidence that mobility is really important for boosting both wages and productivity. So,

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licensing also has other costs that need to be acknowledged. For example, licensing can produce entrepreneurship as it limits access to particular markets. For workers with criminal records, it's often difficult or impossible to obtain a license, even when the licensed work is completely unrelated to the criminal record. For immigrant workers, licensure requirements are often duplicative of experience and training they've already obtained abroad. And, economic growth overall is diminished when consumer prices increase and innovative new ways of organizing work are prohibited.

Which brings me to health care licensing, the focus of a new proposal by Kathleen Adams and Sara Markowitz, both of Emory University, and published today by the Hamilton Project. So, the health care sector is notable, both in terms of its economic importance, and also in the prevalence of licensing for its workers. I think it's also notable for the occasional deviation from a state of perfect efficiency in that sector. But, Adams and Markowitz

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address specifically, the unnecessarily restrictive licensing rules in the healthcare sector. And, they lay out the evidence on the effects of these rules as well as a strategy for reforming them.

Here the emphasis, though, is not on the existence of licensing, but on how health care professionals interact with each other, and how those interactions are constrained by the licensure rules. So, so called scope of practice limitations restrict the activities of various medical professionals including physician assistants and advanced practiced registered nurses, who are the focus of the proposal. For example, these limitations can include a maximum number of APRNs to physicians, or a maximum number of physician assistants who can be supervised by a particular physician. They can also include restricted prescription authority, and various supervisory requirements that all limit the ability of advanced practice registered nurses, and physician assistants to compete with physicians.

So, as with most licensing policy, the rules differ considerably across the country. Twenty-four states plus D.C. have what's called fully authorized scope of practice for nurse practitioners, indication that they can practice to the full extent consistent with their education, training, and experience. The map above shows states with fully authorized scope of practice, which is the least restrictive condition in dark green. What do we know about the effects of scope of practice restrictions? Are they necessary to protect patients? What are their consequences for patients, for workers, and for the economy overall?

In their Hamilton Project proposal, Adams and Markowitz organize their discussion of the evidence in terms of effects on employment and earnings, on prices, on health care access, and on quality and safety. So, starting with labor market outcomes, the research tends to find either no impact, or a positive impact of less restrictive scope of practice on provider employment. Nurse practitioner employment may be especially sensitive to the scope of

practice restrictions. Less restrictive scope of practice also appears to actually raise nurse practitioner earnings, while lowering physician earnings. This may be part of the reason that these rules are sometimes so strongly contested in state houses across the country. Medical prices are difficult to observe, both for patients and for researchers, but the estimated impacts on prices tend to be consistent with what theory would suggest. That removing scope of practice restrictions lowers prices as some tasks are shifted from physicians to non-physicians.

Health care access is notably improved when scope of practice is less restricted. And, this is particularly important in rural areas with health care shortages, of which there are many. Moreover, the evidence suggests that patients may shift from emergency to routine medical consumption, which can yield additional cost savings. Of course, if these benefits, though, if they came at the cost of worsened patient outcomes, of reduced health, then policy

makers might prefer to retain the restrictive scope of practice rules. But, the weight of the evidence here is that there is no impact on health, or in some cases there are actually positive impacts of loosening these restrictions. For example, Adams and Markowitz, in separate research find that reducing scope of practice restrictions for certified nurse midwives, improves childbirth outcomes both for mothers and for children.

So, in addition to removing unnecessary scope of practice restrictions, what else should we be doing to promote competition through better licensure policy? I think to start, we need to subject licensing rules to rigorous cost benefit analysis. That often takes the form of sunrise or sunset reviews, where you're looking at either new proposals for licensure, or existing licensing rules. And then, after applying that analysis, retaining only those rules that are necessary to protect public health and safety. Where licensure is an unnecessary impediment to work for people with criminal records in particular, states should remove those barriers. We

must also work toward licensing reciprocity across states, so that licensed workers themselves are not unnecessarily burdened. And, ideally, we would establish a presumption that licensed workers can move across state borders without any kind of costly and time consuming re-licensure requirement. And, more generally, it is really vital to just reconsider occupational regulations with the goal of maximizing competition, and preserving space for new ideas to reshape the marketplace.

So, now I'd like to ask our next panel to take the stage. I think it'll be a really excellent discussion as they consider policies to support new, rather than big firms. Thanks. (Applause)

MS. VANEK SMITH: Hello, welcome. We are here today to talk about how to build a more dynamic and independent economy, and specifically now, how our economy can start supporting small business rather than just large businesses. My name is Stacey Vanek Smith, I am a reporter for NPR. I cover business and economics, and I spend all of my time trying to

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understand economic concepts and then boil them down into something that's hopefully clear and understandable. And, as I've been thinking about the economy in this way for the past few weeks, my mind keeps going back to this moment that I had in the dentist's office a few weeks ago where I was looking for a fashion magazine. I don't know how familiar you are with fashion magazines, maybe not so much. I don't read them a lot, but you come across them every once in a while. And, in a lot of ways they just -- they never change. They're the same segments that there have been for decades. One of the perpetual ones is they're always talking to some celebrity who's very spelt about how she stays very spelt. (Laughter)

The answers have changed though, in a very interesting way. So, 20 years ago, the answer was always, I eat whatever I want, I just have a really high metabolism. I didn't ever actually believe that, but it was an interesting answer. The answer now, is a little different. What everybody seems to say now is, listen, it's not about how I look, I just want to

be healthy. So, I'm not actually sure that I believe that either, (Laughter) but I think that it's a useful metaphor for the economy right now, because in a lot of ways, our economy looks really good. I think, for instance, if our economy were in a swimsuit competition, it would do really well. (Laughter)

The stock market is near an all-time high, unemployment is near a 20 year low, and we've just been driving innovation and technology for decades, and companies that aren't even 20 years old are some of the biggest, wealthiest companies in the world. That's all amazing. But, if you take a second look, there -- as we have been today, things start to look a little bit different. Productivity has been falling, kind of mysteriously, wages haven't been rising the way it seems like they should given unemployment. Also, the wealth doesn't seem to be that evenly distributed. A lot of smaller communities, smaller places, are having so much trouble keeping population. They're having to offer people cash to move there, or billions of dollars in incentives to lure in companies

that can offer jobs. So, it seems like there is at least room for improvement in our economy, and maybe an underlying health issue. And, that is where I will turn things over to our wonderful panelists.

So, first we have Governor Terry McAuliffe of Virginia. He also chaired the National Governors Association. We have Ronney Chatetterji, an economist with Duke's Fuqua School of Business. He also served as senior economist on the White House's Council of Economic Advisors. And finally, John Haltiwanger, Professor of Economics at the University of Maryland, and former Chief Economist of the U.S. Census Bureau. Welcome everyone.

So, Governor, I would like to start with you. You took the governorship of Virginia in 2014, and this was at a time when the state's economy was facing some real challenges. Talk to us if you will - - if you don't mind just kind of walking us through what you came -- the situation you walked into and what you subsequently did.

MR. MCAULIFFE: Sure. So, I got elected November '13, took office January '14, and Virginia had really been wowed by sequestration. Virginia is the number one state in America for Department of Defense outlays. Twenty-seven military installations, the largest Naval base in the world, the Pentagon, the Central Intelligence Agency, Quantico, all in Virginia. And, I think Virginia, for way too long, had relied primarily on that defense spending, it was our number one industry. So, when sequestration came about, it just clobbered our economy. Just clobbered it.

In December 2013, before I took office, the state had only created 1,300 jobs in the entire month of December. We were reeling. Our unemployment had gone to 5.4, I had inherited about a \$2.4 billion budget deficit when I went into office. So, for me -- when I ran for governor, it was to build the new Virginia economy, to diversify. We want those government assets, we want the Department of Defense money, but we can't rely on it. Especially with the

Congress we have today, who knows what's going to happen. So, we had to bring in other businesses.

So, we went out -- and Virginia's not a big incentive state. We do -- you have to as a Governor, I could tell you, if you don't put any incentives on the table you're not going to get business. But, we're not a big incentive state. We have a lot of other things, a lot of other attractions. We're very low taxed. We haven't raised our tax rate in 28 years. 350 wineries, 250 craft breweries, eight varieties of oysters, Virginia is for lovers, you get it. (Laughter) So, I ended up going to five continents, I did 35 trade missions, the most of any Governor in America, and brought back 1,300 new businesses and about 20 billion in new capital.

The key to it was, not really incentivizing, but I said, here are the assets. We have a great work force, we have a great education system. Our K-12 always rated the top in America, one, two, or three. And, before business is going to come back, they want to know they're going to have a workforce. We did do

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some incentivizing, but in four years, we became the number one state in America for cyber. We have the most cyber companies of any state in America. We are the first state to do an ISAO, first state to set up a cyber range. All of our community colleges are now cyber centers of excellence. Brought that cluster together, did some incentivizing, but not a lot.

We're the number one state in America today for unmanned systems. We have more unmanned systems than any state. I worked with the state government, all of the roads we're building in Virginia today all have the sensors on them to entice businesses to come. We have a great project with Virginia Tech on the unmanned system, and we're now the number one state in America for data and data analytics. We have more data centers. So, we got Amazon, Google, Facebook. When I personally went out and pitched to do it -- so the Virginia economy five years ago when I was running, today we took unemployment from 5.4 down to 3.3. We're pretty much at full employment now in the Commonwealth of Virginia.

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Our biggest problem today is we have so many open jobs we cannot fill. What a change, literally, in four years. But, that's why I put a billion dollars into education, redesigned our entire K-12, first state in America to teach cyber beginning in kindergarten. Critical reasoning, computational thought process, all core curriculum. I got rid of a bunch of worthless tests. You know, our teachers were teaching to tests, kids were learning to memorize, but we totally restructured our whole education system.

First state in America to do a workforce development grant. If you go get one of our 166 credentials, we the state will pay two thirds of the cost. I don't believe you should give it away for free. I think everybody ought to have a little vig on the table, but we'll pay two thirds of the cost. And, we became the number one state in America for stem age credentials. Fifty-six thousand last year.

So, retooling our education, leading that workforce development, recruiting businesses in to take an economy that was stagnant, dependent on the

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federal government, today is booming to the point that I have, right now, 38,000 cyber jobs open in Virginia. Starting pay, parents, is \$88,000. Now, we either fill those jobs or they're going to go somewhere else. So, it has been in literally four years, a transformative process in the Commonwealth of Virginia.

MS. VANEK SMITH: And, Ronnie, you have a new proposal for a way to possibly address helping small businesses in states like Virginia and all over the U.S. The Main Street Funds. Tell us a little bit about it.

MR. CHATTERJI: Well sure. I mean, the best way to start is with an example, so how many people have heard of Amazon HQ2? Yeah, that's almost everyone. Okay. Now, you know that 20 cities around the country are competing, falling over themselves trying to attract Amazon HQ2. And, they're actually in many cases not doing the good practices that Governor McAuliffe talked about. They're offering these huge incentives for the company to come locate.

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And, I understand that. You really can't be a governor in America, or a mayor, and not offer these incentives. Because you're basically fighting with one hand tied behind your back. But, ultimately, these incentives are what we call a zero sum game.

So, to explain, let me give you another example. Every day when I come to class, the first day of class, I bring a jar of pennies to my class. The jar of pennies has 234 pennies in it. Okay? That's \$2 and 34 cents. But, I ask my students in a class this size to all bid to win the jar of pennies. (Laughter) I usually make about 20 dollars that day. Why? Because, when we're all bidding against each other, even though there's only 234 pennies in there, the person gets really excited and they want to win. That's called the winner's curse. And, the state that wins Amazon is going to very likely experience the winner's curse. Pay a lot, and not necessarily get enough back.

It doesn't mean that Amazon is not a great company. It doesn't mean they're not a great

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entrepreneurial success story. It doesn't mean that we should all want to work there, or work with them. It's not about that. We should be doing these incentives for single companies. But, we have a classic collective action problem, right? Any governor -- and the research shows that the voters like this stuff. They want to see their governors out there fighting for jobs. And, they're not necessarily thinking about the impact on the overall economy. So, when AMC moves from Kansas -- or Missouri to Kansas, and when Applebee's moves from Kansas to Missouri, the voters on either side are thinking that's a good thing. But, here is an opportunity for the federal government to actually do something to make this a little more of an efficient story.

So, the Main Street Fund is basically a matching grant from the federal government that rewards states for eliminating incentives. And, when they eliminate those incentives, they can invest those in evidence based programs to help entrepreneurs. And, not just small businesses. I think that's a

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distinction that Professor Haltiwanger will make very clearly, and I've taken from his research, frankly, is that the role of new businesses -- so new businesses happen to be small. But, small businesses that have been around for 10 or 15 years, aren't necessarily the fastest growing businesses.

The ones that you want to really pay a lot of attention to, the ones that are driving growth, and job creation in the economy, are a small set of new businesses. And, what I want to see is, let's make what works win in the economy. Let's find a way to take this money that's going to incentives for large companies, where the playing field is already tilted to them, and find a way to support new businesses and entrepreneurs. And, in the paper, we lay out a bunch of evidence based practices that we can use to support entrepreneurs and innovators, not by subsidizing specific companies that don't need it, but building a grassroots infrastructure for all entrepreneurs. And, I'll talk about it in more detail as we go on, but that's the big idea in the proposal.

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MS. VANEK SMITH: And, John, as Ronnie mentioned, you've just done a wealth of research into productivity and job growth, and this kind of puzzle that we're looking at right now in the U.S. economy. Walk us through the economy as you see it right now. What do you see is going on?

MR. HALTIWANGER: So, one way to think about it is the way I like to think about productivity growth, what generates it, is experimentation. So, -- and that's why entrepreneurs, and dynamism, are so important. So, back when Robert Reuben was Secretary of Treasury, the U.S. regularly, when it went to meetings -- G7 meetings, for example. And, talked to particularly our European counterparts, I had speeches by Robert Reuben, but also Larry Summers and others at these kinds of events that would emphasize -- here's the key to be like the United States. Be entrepreneurial, be dynamic, and be flexible.

And, we would say this because we would say we knew, or we had some sense that entrepreneurs were really critical for experimenting and developing

innovation. But, we also knew that it really is a trial and error process. That's what I want to emphasize, is that you need a lot of experimentation. And, if there's lots of experimentation, there's going to be lots of failure. So, then you need the flexibility for the places that -- the businesses that don't work, and the places that don't work, for those businesses, and those workers to be able to find other things. And so, all these barriers at state -- at the state level or otherwise that prevent this, it is bad for productivity growth.

So, let me describe real briefly, I'll call it the 1990s versus now. So, in the 1990s, we had a surge in productivity growth in the United States, particularly led by the high tech sector. Strikingly, that was a period of time in which, again, there was an enormous amount of entry. So, actually, entry led productivity growth in the 1990s. If you go look at a detailed industry level, if you see the sectors that eventually took off, they had an enormous amount of entry. But, it didn't happen right away, again. It

was an experimentation process. Actually, in many cases what you saw was, you saw a surge of entry. Actually, you saw productivity growth fall first before it rose. Lots of experimentation, then a shakeout process, and then productivity growth.

What's happened in the post 2000 period? We have slower productivity growth. We have, actually, lower entrepreneurship, believe it or not, in the tech sector. We also have -- we don't have the same kind of takeoff that's going on. What happened in the 1990s, and these are the household names. So, here's a challenge for entrepreneurship. What happens to most entrepreneurs? They fail. What happens to most that survive? They don't grow. But, when things are going well, a small fraction grow really rapidly. And, in the 1990s was a perfect storm, because the -- we had the household names we're talking about that were really high in the productivity innovation industry. They took off, and so that's perfect for job creation and productivity growth.

So, the current economy, we have fewer startups, and actually, we have fewer high growth young firms. For some reason, young firms just aren't taking off, including in the high tech sector, as much as they did before. That shows up in the productivity numbers. So, if we're trying to ask ourselves -- this isn't telling you why it's happening, but if you're trying to figure out where to look for why productivity growth is low, I think you want to look to why we're seeing a decline in entrepreneurship and high growth young firms.

MS. VANEK SMITH: That seems really surprising to me for a number of reasons, but especially because there's just so much investment money focused on tech startups. Why do you think there aren't as many of them? It seems like the opportunity is out there, they're well established, it's clearly an area where people can succeed, and make a lot of money.

MR. HALTIWANGER: So, this again comes back, and the core question I think Robert Reuben asked at

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the beginning which is, is this change that I described -- it's in the data, okay, this is happening. Is it going on because we've had a deterioration in business climate? A variety of things, for example, that Ronny's talked about. Is it the case, for example, that states are spending even more resources, and diverting resources to attract large mature businesses, and we're not providing the resources in the business climate? Or, is it possible that this -- there's something more benign going on? That this is some sort of structural change. Maybe the old way of getting innovation and productivity was the way I described it. And, maybe the new way is there's more -- there's more innovation going on, and restructuring going on inside large mature firms. I guess, I don't -- I don't think that the latter is happening.

And, it's for the following reasons. I don't know why, exactly. That's a really hard question. So, why don't I think that's happening? First, back again to the aggregate numbers. I do

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mostly believe that there is a decline in aggregate productivity growth, particularly in the high tech sector. So, if this is all benign, and we're getting within large firm restructuring, where is it in the productivity numbers? The second is, lots of folks are increasingly doing research just trying to figure out who makes the major innovations. And, there's just some very nice work that suggests that it's the young firms that are much more likely to make the major disruptive innovations. Large, mature firms have the incentive, and the data suggests that they're going to be more likely to be engaged in -- I'll call it, more defensive, minor interventions. Trying to protect their customer base, and their product base. And, this came up in the last panel.

So, to the extent that what we're seeing increasingly, part of this decline in entrepreneurship and high growth young firms is that the objective now is much more to be bought by these large firms, to the extent that they're buying them, not to adopt these latest ideas and implement, but to stifle competition.

Again, that's consistent, at least with the lower productivity growth.

MS. VANEK SMITH: Governor, I'm curious, since this was something that you were looking at and building up in your state, how did you approach helping small businesses in Virginia?

MR. MCAULIFFE: I think, as I said, in Virginia there had been a history. And, I think a lot of states, to go after the big ones. Which, let me be very honest, as a governor you want the big ones, and you want the small ones. You want both. I wanted -- but you know we didn't -- as I say, Amazon is a perfect case. Maryland announced they're putting up, I think \$8 million, I think. How much was Newark? I think 12 or 14.

SPEAKER: Twelve or 14, yeah.

MR. MCAULIFFE: Billion. I'm not going to tell you Virginia's bid, but I can tell you it is tiny compared to that. I think they just want to win it for the sake of winning it, but you cannot make money on these types of things. And, I never went after --

I'm very aggressive going after deals, but if it didn't make economic sense, you just had to walk away. And, unfortunately, I don't think enough governors probably had the business experience, they just love the idea of getting the deal. They didn't really care what mattered. I can't understand the soft bank deal, the one that the governor of Wisconsin did. I mean, they'll never make money on that deal, but you really want to get both. You want to have the big as well, but you also want to have small.

I needed to do that because I had to help rural communities. You're not going to get a huge company to go over to a rural community. You want to think about Northern Virginia, it's Richmond, it's Hampton Roads, and the military. Then you got Southside, and Southwest. Those areas in Southside and Southwest, coal, tobacco, furniture, wiped out. Literally, wiped out over the last 30 years. So, we had to really go out and recruit businesses to come in. So, I established a bunch of different things, small businesses financing authority. I set up if you

invested a million and a half, and created 15 jobs, we'll incentivize you to do that. That had never happened in Virginia. But, I got to tell you folks, 15 jobs in Danville, Virginia is a big, big deal. I used to do these ribbon cuttings, and the whole town would come out for 15.

So, we'd have all different types of incentives, of small business financing, to recruit different businesses to come in. Obviously, the renewable energy space out in coal -- you know, Virginia is a coal state. Southwest Virginia. We're about eight and a half million people live in Virginia. About four and a half million workers get a paycheck. Out of four and a half million, we're a coal state, guess how many you think actually work in the coal business. Yeah, take a guess, out of four and a half million.

SPEAKER: Thirty thousand.

MR. MCAULIFFE: 1,016, make it easy for you.

SPEAKER: Less than a percent, right?

MR. MCAULIFFE: Think of that. And, so these jobs have been wiped out, but in my last four years, we've created 50,000 renewable energy, energy efficiency jobs in rural communities. But, still cultural -- you know, because my father worked there, and my grandfather worked there, and I want to work in coal. I can get you a job that pays a lot more, that's a lot safer. So, we had to incentive, really, 21st century technologies to go in, you know, they literally would change an entire city, or a town. And, I think that's how you had to do it, and you had to invest in education. Because what you have in rural communities, some of the schools in many rural areas are not where they should be. And, you have to go in and bring in new teachers, that's why I put a billion dollars into K-12. To bring in new teachers, to put many in those rural communities, because the businesses before they come in they want to know whether they're going to have an educated workforce.

And, then we get in all the other issues.

There's an opiate addiction problem, as you know, in

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many of the rural counties. We're having to deal with that. I mean, I've had rural Chambers of Commerce say, well Governor, I'd love to do it, but eight out of 10 applicants fail the drug test. This is a big, broad, complicated issue. But, we've made progress. I'm happy that we reduced unemployment. Every rural community in Virginia with new businesses. But, it's education, quality of life, and some incentives.

MR. CHATTERJI: And, let me just add to that, I mean, think about education as a good investment because it's broad based. Governor McAuliffe is not talking about tracking one company with investments in education, there's so many spill overs in terms of investing in K-12 education. If you look at the typical state budgets of my home state of North Carolina, 75 percent of the budget or so, give or take, is health care and education. We got our Medicaid program, which is expensive, and our education system. But, if you're giving large tax incentives to single companies that basically reduces the tax revenue that you take in to your general fund,

well you may then have less money to spend on those very general investments that Governor McAuliffe's talking about. So, for me, the incentives game is actually pretty much the opposite of these broad based investments. And, it's true, governors really do have to do this. As I said, there is a little research that shows that voters really do respond to this. And, you know, they want to see people fighting to put jobs in these different areas. And, that's why I think this -- the only way you can really solve this collective action problem is with something like the Main Street Fund, where you provide some incentives for states to take money away from incentives, right? And, put it into investments and things that we know that works.

And, this is -- especially to the younger folks in the audience, this is kind of like the good government boring stuff, that's never going to be very sexy, but is incredibly important. So, when you think about good government, when it comes to Jerry Mandrane, Campaign Financer Forum, voting rights,

those things will never fit very well on a bumper sticker, but they're very important for a robust democracy. I'm on the other side, I'm an economist who thinks that you can build, a more fair and just economy that is better for entrepreneurs. But, it's going to take some of this infrastructure work. And, for me, economic incentives are standing in the way of a lot of that infrastructure work we could do.

MR. MCAULIFFE: And, the one thing I should add though, is culture too. When you mentioned North Carolina, perfect case in point. You've got to make your state welcoming and open. I vetoed 120 Bills, the most of any governor in Virginia history. But, I had a very tea party legislature, very horrible anti women, anti-LGBT, anti-environment, pro-gun, and anti-voting rights. You cannot, you cannot get those 21st century businesses to come to your state if you put walls up. One of my greatest -- I got Nestle to move out of California. One of my other bests was, I got Coastar. North Carolina, twice the incentives that Virginia offered. Eleven hundred high paying jobs. I

got them to go to Richmond, Virginia for one reason.
HP2.

MR. CHATTERJI: HP2, yeah.

MR. MCAULIFFE: That was down there in North Carolina. So, you should also say -- and the culture piece is a big part of it. Women are not going to a state that discriminates against women. Not going to happen.

MS. VANEK SMITH: I have a question about the Main Street Fund.

MR. CHATTERJI: Mm-hmm.

MS. VANEK SMITH: Because you're proposal is, sort of, up against a major economic machine in this country.

MR. CHATTERJI: Yes.

MS. VANEK SMITH: And, if you are the governor of a state, or making decisions on behalf of a state, and you decide to stop incentivizing companies -- big companies to come in. The HQ2s of the world, that's really risky.

MR. CHATTERJI: Mm-hmm.

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MS. VANEK SMITH: I mean, how do --

MR. CHATTERJI: Sure.

MS. VANEK SMITH: You deal with that?

Because, if you're running a state and you're looking at a reelection in four years, that's not easy.

MR. CHATTERJI: Yeah, we thought about that a lot in the proposal, and I also want to thank the Hamilton Project staff because they helped a lot with this paper. One thing we've thought about a lot is, well, there's got to be some incentive for states to be tracking not just their own status, but other states. So, when you lose that company to another state, there's an incentive to say, hey, you know, they offered this company \$300 million, and that should be counted by the Main Street Fund. What happens with the Fund is, once another state initiates an incentive -- so let's suppose South Carolina offers an incentive, and the company moves from North Carolina to South Carolina. Then, there's more money left over in the Main Street Fund. South Carolina's allocation then gets allocated across the whole pie.

So, there's a lot of incentives for other states. One is to say, we're not going to do these incentives anymore, or we're going to reduce them sharply, and if other states are using incentives, to report and say, here's what's happening, if they're underreported. Because there's a key issue about how you report these things.

So, by creating a fundable set of money that can be distributed across states, we're going to provide a lot of incentives for governments to say, look I didn't do this incentive, or we lost this one because I didn't offer that much. But, we're going to invest in grassroots entrepreneurship, and create more jobs and more growth that way. So, that's the idea. You are going to have to start small. There's a lot of other proposals out there, which I'd love to entertain in terms of taxing incentives. I think they're much harder politically. This is a much smaller approach to try to tilt the playing field a little bit, and create some momentum towards fewer incentives.

You're exactly right Stacey, you're not going to take -- this is a \$45 to \$80 billion business a year. You're not going to take it down or change it. And, not all the incentives are bad either. Some of these things are for more general investments in the workforce. But, if you can trim some of those companies' specific investments, you can make the biggest down payment on American entrepreneurship that we've ever made. We don't spend -- I mean SBIR, small business innovation research. That's probably one of our biggest investments in entrepreneurship. That's \$3 billion a year. That's less than 10 percent of the total amount of incentives that we'd give to big companies. So, even a small amount of money can make a huge difference for entrepreneurship. So, that would be the goal of the Main Street Fund and the initial run up.

MS. VANEK SMITH: We actually have a question, I think directed at you, but also possibly to John. And, also to you, Terry. Which is, how

would large firms react to a program like the main street fund aiming to reduce firm specific incentives?

MR. CHATTERJI: I'll just be brief because I just gave --

MS. VANEK SMITH: Sure.

MR. CHATTERJI: Some large firms are not going to like it, obviously, because they're going to lose out on some of these incentives. But, who said it in the last panel, right? I think it was Steve Case in the first panel. Partnerships are the name of the game in the third wave of the internet. How many large companies are going to start to partner with some of these entrepreneurial accelerators with small companies trying to take advantage of some of the ideas the main street fund has to offer? I think the market will speak, if there's money available, somebody's going to come up with creative opportunities. That's the idea with the Fund. Rather than taxing them, or passing laws, you use the power of the market. Right? And, the power of the money,

and the flows, to tilt incentives in the other direction.

So, I would expect some interesting partnerships between big companies like Google, and Amazon, and Facebook, with smaller entrepreneurial startups. They depend on them too. Those are the employees of the future and the companies that they're going to acquire, given our last panel. Whether we like it or not. So, they have a compelling interest in the ecosystem in these places as well. Which is why education, and STEM, in particular is so important.

So, I think that's some of what could happen, but it's definitely going to be a proposal that will meet with resistance. And, that's why I'm giving the exaltation to people in the room. This is the kind of good government stuff that gets, you know, kind of trampled down in the details. Where there's a lot of money on the other end. There's a lot of people who are vested in the incentives, but what's so interesting about this proposal, whether you're on the

right or left, we have a lot of agreement. So, economists mostly think it's a consensus. This is pretty much zero sum gains that are wasteful. People on the right think this is corporate welfare, people on the left are sort of critiquing this as being giveaways to companies, as well. So, you have a really unique political coalition you could put together here that doesn't look like anything we've seen. And so, I think, if we're creative enough we can push it forward. And hopefully, it starts today.

MS. VANEK SMITH: And, to be clear, it would be like federal funds matching state funds.

MR. CHATTERJI: Federal funds matching state funds. There's a lot of details in the paper --

MS. VANEK SMITH: Funds they would have allocated toward luring in HQ2.

MR. CHATTERJI: That's right. So, when they end an incentive program, it increases their allocation under the Main Street Fund. And so, that's how it would work, and they'd have an initial allocation based on state demographics and other

attributes. And again, it's detailed in the paper. We can go into more detail later on, but I should probably let John answer too.

MR. HALTIWANGER: So, I think a really important distinction here, listening to this discussion -- and Ronnie has hinted at this at times. I think we may need to make a distinction here between small businesses, and new businesses. There's virtually no evidence that small, mature businesses are critical for job creation, innovation, or productivity growth. Don't get me wrong, oftentimes they are niche businesses, they've found -- obviously if they're small and mature, they survived. So, they sound some place, they're serving some market. But, a large fraction, both at the federal and the state level of our policies that are intended to be entrepreneurial, are actually geared toward small businesses rather than new businesses. So, much of Ronnie's proposal is all about, make sure -- let's make sure we don't put too much emphasis on large, mature. I think it's almost equally a mistake --

MR. CHATTERJI: Yes.

MR. HALTIWANGER: To put too much emphasis on small, mature.

MR. CHATTERJI: Mm-hmm.

MR. HALTIWANGER: So, -- and a real challenge we have, by the way, of what you want for -- there's two challenges at least, for entrepreneurial businesses. On the one hand, remember, they don't exist yet. So, it's like a constituency out there. You're trying to create the state environment, or the national environment. Is this a good place to go experiment? That's a real challenge.

The second thing is, you don't want to just increase the pace of entrepreneurship. Here's the dilemma. Right? We actually know the vast majority of entrepreneurs fail, or don't grow. So, put differently, most of us here in this room, should not be entrepreneurs. Okay? (Laughter) We should work, indeed, for large, mature companies that went through one of these growth spurts. There's good reasons why most of us do work for large, mature businesses. So,

enormous challenge here. We want the business climate and the environment that attracts this kind of entrepreneurship. You just -- history shows, you just can't get there from here, unless you do this.

SPEAKER: That's right.

MR. HALTIWANGER: But, on the other hand, you don't want to just have incentives, okay yes. The more entrepreneurs we have, the better off we are. So, that's a real challenge for whether it's the policies Ronnie has talked about or even the ones that have been talked about at the state level as well.

MS. VANEK SMITH: This question I'd be interested in your response, Governor. What is the main policy impediment to boosting productive startups?

MR. MCAULIFFE: You mean, policy impediment to what?

MS. VANEK SMITH: Into boosting productive startups. The main policy impediments, or I guess, even just the main general impediments. What did you run into when you were trying to --

MR. MCAULIFFE: You know, regulations -- I think state regulations make it so difficult for businesses. You got to go in and try to reduce those as many as you can. And listen, we all -- most of the venture money, obviously it's Silicon Valley, it's Massachusetts, and Boston. It's been in New York. We all want to try and replicate. I try to get Northern Virginia, with the data and the cyber, and all that. Just sort of replicate all of that. I'm not so sure it's really a policy initiative that is an impediment. At the end of the day to be successful, you've got to sell a product or do something that people actually want. You got to put a conducive environment. You got to be able to grow, and grow quickly. You got to have a good tax framework that actually allows you to make money. And, I think those are probably the most important things that you probably can do.

You know, the one thing we talk about when businesses are moving around and haven't been mentioned -- and listen, as any governor in America would like to tell you today, I wish we didn't have to

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incentivize at all. I mean, I can save state money, I can put more into education. We'd all be happy with that. But, I'll be very plain. I'll be very straight with you. If you're not doing some incentives, you're knocked out of the game immediately. Not because your state may not be great, but what hasn't been mentioned -- most of these companies that move around hire consultants. And, they're the biggest problem because they have an incentive -- in fairness, this is their job -- to get as much money as they possibly can. So, you can get knocked out before you even know it, and the consultants just say, no we don't want you. And, you never even get to talk to the CEO of a company. But, they're -- that's a big problem. This is a big business for companies who are starting and moving around. They hire consultants, and to them, it's all numbers and how much I can actually get out of the state to get them to move to my state.

MS. VANEK SMITH: John, when you were doing your research, is there anything that you saw that

seemed like a -- either a policy or some kind of legal hindrance to productivity and start up growth?

MR. HALTIWANGER: Well, here -- I think we're all kind of looking for the silver bullet. Right? We'd all like to say, here's the one factor that helps explain why startups are down, and they're not growing as fast as they were before. I guess I'm skeptical that it -- that there is one. I guess I -- I very much appreciated the -- I'll say the Hamilton Project here, including what we just saw before. I think there are a whole variety of issues. We talked earlier about our -- in this new environment, what's going on in terms of antitrust. I think we need to worry about it in this new network externality environment with large, mature firms. I think we need to worry about occupational licensing. I actually think we need to worry about zoning restrictions because, indeed -- so rather than -- I know people said, oh we're worried about all the clustered activities. Actually, that clustered activity is probably a good thing. So, in some respects, a

problem is there are too many zoning restrictions in California. So, we're not putting enough resources in these clusters. So, I don't actually think there's a single thing.

What I have seen by the way, I did want to mention, it's kind of a silver lining in all this, is what we see in the current data -- and remember people were kind of puzzled by this, how can this be true? That there's this decline in entrepreneurship, and decline in productivity. We actually see a rapid rise in the dispersion in productivity across businesses going on right now. And, that's like -- Jason said this earlier -- that's like 500 dollar bills on the sidewalk, in the sense that for some reason, we're not doing two things, we're not -- for one, moving the businesses that are well below the front tier up. And, two, you could say those businesses that can't do that, they aren't contracting and shrinking. And, the ones that are at the top aren't growing. So, that's kind of consistent with -- lots of people here are -- there's lots of innovation going on out there.

And, I'm -- this isn't really answering your question about what's exactly doing this, but I think the evidence is, we're aren't picking up the innovation in terms of its productivity potential. That makes you somewhat optimistic, if we can figure out how to reduce the barriers. Whether it's barriers to entrepreneurship itself, or whether it's barriers to high growth activity. So, again, let's -- back again to the policies we've heard today. I think we need to push on all these kinds of different dimensions. I think Ronnie's concern seems reasonable to worry about. The occupational licensing seems quite reasonable. Is there a silver bullet? I just don't think there is.

MS. VANEK SMITH: What do you mean by dispersion of productivity?

MR. HALTIWANGER: So, here's what's really striking inside industry. So, you're going into as narrow industry as you'd like. And, what you see is that, for example, that the business at the 90th percentile has productivity which is 60-70 percent

larger than the businesses at the 10th percentile. And, you ask yourself the question, how could that even be? How are they even surviving? And, the answer is, partly, they're not. That slowly but surely, that's what the creative destruction process is. There's experimentation, the ones that succeed grow -- I mean the ones that are high in productivity grow. The ones low in productivity shrink.

So, we're seeing just enormous dispersion in productivity. As we look around the world, when we see a country having low productivity, they tend to have high dispersion in productivity. It's as though they can't move the resources. So, flipping that point on its head. So, we know China and India have had just tremendous growth. What's really going on there? Their productivity dispersion, which was enormous, is shrinking. They are improving market incentives, so that indeed, they are bringing the less productive firms up to the frontier. And, they're also reallocating resources away from the less productive to the more productive businesses. So,

just as a -- it's not telling you what the cure is, but it's certainly telling you what the diagnosis is. The diagnosis is, indeed, we've got enormous productivity dispersion. And again, remember -- let's think about what I just said in terms of 60 or 70 percent. It doesn't take that much to move resources. If you take resources away from the 10th percentile in business, and either you bring that 10th percentile business up to the 90th, and/or you literally make it so that the 90th percentile business is that much larger. There's enormous productivity gains to be had.

MS. VANEK SMITH: Ronnie, I have this question, I think might be interesting to hear your answer.

MR. CHATTERJI: Sure. Yeah.

MS. VANEK SMITH: It's -- what is the Blue Sky policy you would implement to support new firms?

MR. CHATTERJI: Oh, who's got --

MS. VANEK SMITH: I'm wondering because you spent all this time thinking about this issue.

MR. CHATTERJI: Yeah.

MS. VANEK SMITH: Was there any policy --

MR. CHATTERJI: Was this one not good enough for you, this is my Blue Sky policy. (Laughter)

MS. VANEK SMITH: Is there a runner up?

MR. CHATTERJI: So, let me talk a little bit about what John mentioned, which is, I'm a big believer in the idea that we do need to support new businesses. What I've learned from John's research is that new businesses are sort of the driver in the economy. They happen to be small, so sometimes we get confused. However, because new businesses don't exist yet, it's really hard to figure out how to do that. So, what I favor, is sort of, building infrastructure that people can take advantage of. And, it might be an entrepreneur, it might be an existing company, it could be a high school teacher with her class, you know? Investing in broadband would be a great example. In North Carolina, we have an association in the Raleigh, Durham area between a bunch of municipal operators, universities to create next generation

broad band. And, that is sort of government funded, and industry funded as well, I believe.

So, you can do those kinds of things. They don't favor any specific firm of any kind, but they lay a common infrastructure. And, there's some research -- I think it's still emerging, I wouldn't call it conclusive -- that finds some associations, correlations between broadband access and entrepreneurship. But, this highlights the other issue which is, we don't know actually a lot about what works in entrepreneurship. We're just beginning, and some of the people in the room are here, like Josh Ganz, and of course, John's done work on this. We need more evaluation of what works in entrepreneurship. We just finished this huge evaluation, Robert Fairley and coauthors of the GATE Program, Growing American Through Entrepreneurship. And, they find a lot of training programs for entrepreneurship have mixed or no results. So, think about that for a second. We're doing all this training. We're mentoring all these people. We have

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all these accelerators. And, a really rigorous study is finding it actually, probably doesn't work.

So, what I want to do with the Main Street Fund is, every dollar that's put out, I want to put 20 cents toward measurement and evaluation. Now, all the policy people in the audience, their eyes roll, because measurement evaluation is for nerds. But, at the end of the day, we're never going to figure out what works unless we evaluate. And, if we make that part of the grant, and even if we do something that hasn't been done before, we set it up in a way that it can be evaluated. That's really key with this programs.

So, that would be my way to generate one of these Blue Sky policies. But, to me, it will never be picking certain firms. It shouldn't be figuring out which firm to subsidize, it should be setting the broad base infrastructure that anyone can use. As long as we stick to that, I think, we can't go wrong with these kinds of economic policies. The one issue, though, is it's not -- there's not often that ribbon

to cut. There's not that announcement, and politically, these things are really hard to see. And so, for voter -- it's seriously, okay what's going on? This takes 20 years to develop. And, that's why the political incentives around it are relatively weak. And, I think that's one of the big challenges we've got with policy.

So, we need to couple it with the other things Governor McAuliffe was talking about. Being aggressive with telling the stories of our states and our cities. Right? Investing in people as much as we do places. I think there's a lot of investment in places. We're trying to recover struggling places. We should really think a lot about the people, and their mobility, as well. Because they -- moving to another place is sometimes a quicker way to mobility than waiting for the place you're in to revive. And, those are tough decisions to make on the political level as well. So, those are the kinds of things I think about. I'm also with John, I don't think it's a silver bullet. That's why I kind of designed the Main

Street Fund to be able to fund a bunch of different programs, all small, to see what works.

MS. VANEK SMITH: Governor, I'm wondering -- I mean you tried many, many different things to kick start Virginia's economy. Was there any one thing that you did, that you found to be the most helpful in helping small businesses? Or bolstering entrepreneurships.

MR. MCAULIFFE: New businesses.

MS. VANEK SMITH: New businesses, I'm sorry, yes. New businesses, not small, mature businesses.

MR. MCAULIFFE: The most important thing for me, I mean, this is what I did. This is what I ran on. So, I was personally invested in it. There's nothing better to have a governor travel, face to face, to recruit a new business to your state.

MS. VANEK SMITH: This is the overseas?

MR. MCAULIFFE: Overseas. As I said, I went to five continents. I went to 35 countries, hundreds of trade missions. By far, and you know, I was chairman of the governors -- National Governors League

-- I would tell the fellow governors, you know, I didn't spend my time trying to steal businesses from other states because that is a very expensive business to do it. It just -- literally because of the site selectors, it just costs you a lot of money. Huge opportunity for new businesses who want to come into the American market, who have no place here -- for them to come in. And, I will tell you, by far was the personal calling card of a governor. I mean, as a governor goes into a state -- into a country, there is nobody he can't meet with. Let it be the president of the country, whatever. They roll out, and that is by far, for me, the most effective. Because I said, we don't -- we're okay incentivizers, we're not big on that. We don't need to do it. As I say, we're pretty much at full employment now, in Virginia, but we wanted those new businesses -- new startup businesses to come in because, you know, you got to build that ecosystem to do it. And, that's why we've invested so much in accelerators, you know, with the cyber

accelerators we have, and the work we do on data, and so forth. It's important.

MS. VANEK SMITH: So, you were essentially importing the entrepreneurship in a way?

MR. MCAULIFFE: Totally, because in a way, many of these countries, and you know, I brought a lot of businesses back from Israel. I mean, I went all over the globe. China, everywhere. There are a lot of very entrepreneurial businesses out there who want to crack into the U.S. market. It's a -- as I used to tell my fellow governors, this is the best you can do. Because you don't have to pay as much to get them to come. It's a new business, new entity, and you know, they're looking to hire a lot of people.

MS. VANEK SMITH: I think we're close to our time, but if anyone has a final thought to share.

MR. CHATTERJI: I'll just say, one thing that hasn't come up in this panel is the connection to inequality, both across racial and gender lines, and also regional within states that Governor McAuliffe talked about. So, one thing to think about when

you're creating new businesses. There's these predictive analytic models right now that Scott Stern, and Jorge Guzman at MIT are working on, that kind of predicts which businesses are most likely to grow fast. What's really interesting about that is, if you use historical data to figure out which businesses are going to be the growth businesses, unfortunately, they're pretty narrow in terms of their demographic profile. Right? As Steve Case said, you know, the number of venture capital back deals that go to men is incredibly high, it's not very diverse in the number of founders.

So, when you use these models to pick what businesses are going to be the new, great businesses, you might end up with a very narrow slice. Right? It's looking like high tech businesses that will be fundable by VCs. So, that's an issue we need to really carefully consider. I'm all for new businesses, but unfortunately, if we look at predictive analytics, it's going to basically tell us

these demographic things that are not going to widen the pie for everyone.

Second thing is regional. Right? When you recruit these big businesses, it's often that they're going to locate in the center of your state -- economic center. So, I'm in North Carolina. We have three economic centers, the two bigger ones in the Raleigh, Durham area where I live, and Charlotte. But, the places that are struggling are our rural counties. Right? So, we have tons of great businesses coming in to Charlotte and the Raleigh, Durham area, but it's really hard to get those big companies, beyond like a data center that won't employ that many people, to get in those rural areas. And, that is -- could exacerbate, the regional inequality that I think is at the heart of a lot of political issues and economic issues in states like North Carolina, and I dare say Virginia as well. So, that's one thing to keep an eye on as you go forward with all these economic development policies.

MR. HALTIWANGER: Just real quick, I think one of the challenges is -- both for policy makers, but even for the -- I'll say the financial community, I'm going to say is to embrace the experimentation, and embrace the likelihood of failure. I think even in the VC industry, we've sort of seen a change in structure. I don't know what to -- is cause or effect. So, the VC industry in the 1990s was funding a lot of early stage startups, most of which didn't -- which were failing. But, some small fraction did phenomenally well. They were also funding them to -- because they were, indeed -- the outcome they were looking for was going public. For a firm to really grow rapidly.

More recently, it seems like the structure of the industry -- it later states of funding. So, not all this early stage with all this failure, but also the outcome is good thought, rather than grow. So, what's happened there in the industry? Is that related to the -- to all the factors that are sort of driving this downturn, or there's something again

going on, even in the financial industry? They aren't embracing, I'm going to say, the experimentation and failure. Back again to the 1990s, we embraced it then, we had an enormous pace of failure, but we had enormous productivity growth that went along with it.

MS. VANEK SMITH: So, we should fail more?

MR. HALTIWANGER: Yes.

MS. VANEK SMITH: Well, with that, I would like to thank the Hamilton Project and the Brookings Institution, and my three wonderful guests. Thank you. (Applause)

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