

THE BROOKINGS INSTITUTION

GEOGRAPHY OF H-1B WORKERS

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**Welcoming Remarks:**

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**Framing Remarks:**

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**Presentation:**

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**Response:**

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Ombudsman  
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**Panel Discussion:**

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## P R O C E E D I N G S

MR. ANTHOLIS: Good morning. Welcome. I'm Bill Antholis. I'm the managing director at Brookings and I'm particularly delighted to have been asked to welcome you today because this issue is one that I've followed over the years and had quite recently had direct experience with and have followed it more closely since, and am thrilled to see the work that our metro program has done.

Among my jobs at Brookings is to help our research programs take advantage of the depth and breadth of our research across the institution on big challenges, particularly those that connect the local to the national to the global and back again. And our Metro Program has been the leader in that effort. In fact, that phrase, "local to national to global and back again," came from Bruce Katz, who I'm introducing right now. And it's really part of the spirit of Brookings these days and Metro has lead that charge.

In an increasingly global world, where products are made and which countries benefit is obviously a complicated matter. It is, of course, a legitimate question with unemployment persistently high and growing levels of inequality, but that debate happens at all levels of employment, income, and skills, in all economies. We've seen it again in the U.S. with the recent uptick in debates about outsourcing and manufacturing, from clothing to equipment, but it also takes place at higher levels of employment and skills, including those of insourcing.

Global integration has led to a larger high-skilled global workforce, including bringing high-skilled workers from countries like India and China. And, as I said just a minute ago, I felt this directly earlier this year when I was in South India, and I happened to be there during the President's State of the Union Address. Like many Indians, I was up at 7:30 a.m. to watch the address, and many groaned, I'm sure, when

the President made a point of calling for efforts to limit outsourcing. Yet, earlier in the week, local newspapers had been abuzz with his weekly radio address in which he gave many Indians hope that he was ready to open America's doors further to tourists, foreign students, and fledgling entrepreneurs.

So it's clear that the U.S. and the world has benefited enormously from the intellect of educated and enterprising people from emerging markets such as India. The expanding global pool of ambitious and educated people has provided a significant opportunity for innovation, both abroad and in the United States.

Obviously, demand for higher education is high in places like India and China. Prime Minister Manmohan Singh has been prompted to promise a thousand new institutions of higher learning in that country, but that won't happen any time soon. The U.S. higher education system is still considered the best in the world and foreign nationals flock here to take advantage of it. Half of all doctorates in the STEM fields are granted to foreign nationals and many foreign-educated workers come already with some of those skills and brings strong credentials and a drive to succeed.

Both China and India have provided high-tech workers to America's economy through the H-1B visa program. That program does not just abstractly link these countries to America, it actually links concrete places there to concrete places here, and I found this out in India. As you may know, about half of the 200,000 temporary work visas, H-1Bs and others, that come to America are granted to Indians. About half of that number, one-quarter, of all H-1B visas come out of South India in our U.S. consulate in Chennai, which really serves two cities: Chennai and Bangalore. The other half are spread across consulates in megacities, such Mumbai, Hyderabad, Delhi, and Calcutta.

So, taken together, that is a network and coalition across India that is

only starting to emerge and be self conscious. Today's event will draw down on the U.S. side of that story, how American employers and where American employers request H-1B visas so that they can obtain the skills that they need in distinct metropolitan areas.

So today we will have a couple of discussions after Bruce's introduction on those metropolitan economies and how employers located in them are linking themselves to places in India and China for the skills they need. These requests are generally thought to come from the Bay Area and the New York tri-state area, but as you'll see, a surprising range and diversity of American places are looking for these skills from abroad.

As Bruce Katz has said, and as I've plagiarized elsewhere, the world is not flat. It actually is a world of connected network of economic hilltops. So, today's event will start to sketch where America's high-tech grounds are located and how they are building bridges overseas and how we benefit from a global skills economy. Today, in short, we're going to have a discussion that epitomizes how Brookings research goes, in Bruce's phrase, from the metro to the global and back again.

So, with that, Bruce Katz. (Applause)

MR. KATZ: Good morning, everyone. First of all, I just want to thank Bill for those comments because, you know, having your managing director of your institution spend a good portion of time in India and China and then come back changes really how those of us who are here day to day, week to week, in Washington and in the domestic metros, how we think about our work and the global connections.

I also want to congratulate Neil Ruiz and Jill Wilson and Chamoli Chatterly for exceptional work. You know, to take a report like the one that has been put out today from start to finish, with all the data complexities and all the analytic complexities, is like a boot camp. And I think they've just done a phenomenal job, so

thank you for that.

Some context. This report is part of a broader initiative called The Global Cities Initiative, which is a joint product of Brookings and JPMorgan Chase, and it starts with a particular perspective on a macro growth model and then takes it down to the metro level. And the growth model that we've tried to sort out over the past several years has been boringly consistent. Post-recession, the U.S. must pursue a different kind -- shape a different kind of economy, one that's fueled by innovation, one that's powered by low carbon, one that's driven by exports and global engagement, one that's rich with opportunity.

So that's a different kind of vision than the economy that we had pre-recession, which was primarily characterized by consumption and debt. Try to export more, waste less, innovate in what matters, produce and deploy more of what we invent, actually build an economy that works for working families.

There is no American economy. What we really have is a network of metropolitan economies, and in this country a hundred metros, 12 percent of the land mass, two-thirds of our population, three-quarters of our GDP. All of our metropolitan areas together: 84 percent of the population, 91 percent of the GDP. These metros pack a powerful punch and that's why at Brookings what we've tried to do is to unveil the particular assets, the distinctive competitive advantages of each of these metropolitan areas.

So what's the fuel? What's the way to get to the next economy? It's obviously skilled workers, not only to generate new ideas, but to produce the advanced goods and services that are going to keep our firms competitive. This places us not only in the competition for customers, but in an increasingly mobile and fluid world, in a competition for the best talent that the world has to offer.

The H-1B visa program today is just a piece of that. It holds tremendous potential, not only in attracting skilled workers from abroad, but in a less well-understood portion of the program, upgrading the skill levels of the American workforce to meet the demand in the future.

We've got some big challenges, as the report spells out. Most of the recent growth in bachelor's degrees granted by U.S. institutions have not been in the STEM fields: science, technology, engineering and mathematics. But jobs in these fields are projected to grow considerably faster than other jobs over the next 10 years, so we've got some big skills mismatch issues between the skills that our colleges and universities are providing and the skills our future employers will seek.

So H-1B, you know, is critical to help our firms remain competitive. Obviously that's a macro perspective. That's how most of these conversations tend to happen in Washington, the macro, the big picture. We're taking it from macro to metro given what I said before that these metros power our economy and they have very distinct assets. So what this report fits into is a broader suite of inquiry where we take particular issues around manufacturing, advanced services, innovation, exports, foreign direct investments, skilled workers -- what we would call the traded sectors -- down to each of the metropolitan areas. We call this "*Moneyball* for metros." If you've seen the movie or read the book, right, measure what matters. If you understand what's critical to your growth and what is the secret to your distinctive assets, then measure it and hold yourself accountable.

As Neil's going to describe, metros vary dramatically in their demand for H-1B visas because they have very different starting points. And I think what you'll see out of this presentation, both with regard to metros, but also with regard to the size and the scale of the company seeking H-1B visas, it's not a cartoon, right? It's not only

coming out of Silicon Valley. It's not only coming out of large companies. So, you know, looking beneath the hood is absolutely critical.

And finally, just going back to the broader context of global cities. It is absolutely critical from our perspective that as the U.S. goes forward at the national scale, but, frankly, at the city and metro scale where the economy actually concentrates and agglomerates and locates, that U.S. cities and metros begin to relate in a more systematic and structured way with their trading counterparts.

The world essentially is evolving as a network of trading cities, with a seamless migration of people, goods, capital ideas, and services flowing back and forth. And H-1B visas sort of fits in that. And the India story that Bill was playing out is fundamentally emblematic of that. So that's the context. It's a broader context about how the country writ large moves to a different kind of growth post-recession, and how metros power and fuel and lead that transition.

And with that I'm going to introduce Neil Ruiz, senior policy analyst, associate fellow at the Brookings Metro Program, co-author of this report, and he'll walk us through the finding. Thanks. (Applause)

MR. RUIZ: Good morning, good evening, and good afternoon as well to everyone else who's watching from abroad because we have a wide audience as well on webcast. Thank you, Bruce, for that introduction and thank you very much to all of you for participating in this event.

I first want to take this opportunity to recognize my two co-authors, Jill Wilson and Chamoli Chatterly, who have laboriously worked with me over the past year on this project. The three of us are grateful to others here in the Metropolitan Policy Program who also contributed to this project.

The research we are releasing today analyzes a decade of H-1B worker



applications, over 2 million employer requests for high-skilled foreign visas. We use this data to paint the first-ever picture for demand for these skilled workers at the local and regional levels across the country.

As Bruce noted in his remarks, the great recession and slow recovery have only heightened the demand for skilled workers to help American firms compete globally. A skilled workforce provides the foundation upon which metropolitan areas can transition to the next economy, one that is fueled by innovation, powered by low carbon, driven by exports and greater internationalization, and rich with opportunity.

The question is, where and how should America's metro economies find those skills? In this presentation I will make three main points. First, the H-1B program connects U.S. employers to high-skilled workers. Second, metropolitan areas drive demand for H-1B workers. They are the places where employers utilize skills and these skills needs vary from place to place. And third, the U.S. must match the supply of skilled workers to metropolitan demand. It's time for a smarter approach.

So let's begin with the first point that the H-1B program connects the U.S. employers to high-skilled workers. More and more the high-skilled workers that U.S.-based employers seek can be found not just at home, but also in foreign markets. This is particularly true for STEM workers who have science, technology, engineering, and mathematics training.

Take engineering. According to the National Science Foundation, Asia is producing 56 percent of the world's engineering bachelor's degrees, followed by 17 percent in Europe, and just 4 percent in the United States. How then should other parts of the world contribute to the deepening search for skills among U.S.-based employers and their wider regional economies? This leads naturally to a discussion of the H-1B visa program.

The program as we know it today is a product of two key pieces of legislation: the Immigration Act of 1990 and the American Competitiveness Act of 1998. The program has a two-pronged approach for increasing the supply of skilled workers to U.S. firms.

First, employers apply for H-1B visas for high-skilled workers for specialty occupations. These occupations are defined as requiring theoretical and practical application of a body of highly specialized knowledge and attainment of a bachelor's degree or higher in the field specialty. The one occupational exception to the H-1B bachelor's degree requirement is, not surprisingly, fashion models, who make up less than 1 percent of all H-1B requests. (Laughter)

There are two types of organizations requesting H-1B workers. Private firms account for the vast majority, 90 percent of all H-1B requests. Research and nonprofit organizations and government organizations make up the remaining 10 percent of all requests. But overall, demand is spread widely. In 2011, a total of 70,000 companies and organizations requested H-1B workers. More than half of them requested only one H-1B worker.

Demand from private firms is subject to an annual cap set by Congress for newly issued H-1B visas. Currently that cap is set at 85,000 visas, 20,000 of which are reserved for foreigners holding graduate degrees from American universities. Visas are granted to employers on a first-come, first-serve basis. Applications are accepted beginning on the first business day of April and are closed as soon as the cap is reached.

Private firms requesting H-1B workers come from a wide variety of industries. They include information technology producers, such as Microsoft, Intel, and Ripro; management consulting firms, such as IBM, Deloitte Consulting, and Accenture; globally competitive manufacturers, like Caterpillar, Qualcomm, and Cummins,

Incorporated; and financial services giants as Ernst & Young, Goldman Sachs, and JPMorgan Chase. The 100 employers with the most H-1B requests account for 20 percent of all applications, and more than a quarter of these employers are Fortune 500 companies.

Universities, nonprofits, government research institutions form the second category of employer requesting H-1B workers. Unlike private firms, these organizations are not subject to the annual visa cap under the H-1B program. Many rank among America's largest and most prestigious research universities, such as the University of Michigan, University of Texas at Austin, Harvard, MIT, and the University of California system. Many of their requests are for STEM workers, professors, and medical doctors conducting research or residencies at university hospitals. The National Institutes of Health also request large numbers of H-1B workers in the health sciences.

While H-1B workers come from all over the world, Asia dominates as a source region. About two-thirds of visa recipients come from India and China, with India representing a majority of all visa recipients. Other countries represented include Canada, the United Kingdom, South Korea, and the Philippines.

In terms of skills requested slightly less than two-thirds of all H-1B applications are for STEM occupations. Computer occupations and engineers are the most highly demanded fields. Top non-STEM occupations include health practitioners and financial specialists.

The second, less well-known prong of the H-1B program uses revenues from visa fees to support U.S. workforce development efforts that aim to reduce the need for high-skilled foreign workers over time. Between 2001 and 2011, the H-1B program generated about a billion dollars in visa fees. Two government agencies have responsibility for distributing that funding: the Department of Labor's Employment and

Training Administration, or the ETA, and the National Science Foundation. The majority of dollars fund short-term training, about two years in length. These grants are distributed by the ETA on a competitive basis to local workforce training centers or public-private partnerships. The NSF had distributed another 357 million to support postsecondary scholarships for students to earn STEM degrees and to K through 12 systems to help inspire children to pursue STEM fields.

This brings me to my second point, which is that metropolitan areas drive the demand for H-1B workers. In 2010 and 2011, 106 metropolitan areas across the country averaged at least 250 H-1B requests annually. We call these high-demand H-1B metros. They house 67 percent of the national workforce, but concentrate an astounding 91 percent of all H-1B requests. The 10 metros with the highest number of H-1B requests are among the country's largest regional economies. They range from the nation's largest requester, New York, or Los Angeles, San Francisco, San Jose, Washington, Chicago, Boston, Dallas, Houston, and Seattle. These 10 metros alone account for 56 percent of all H-1B requests.

But another groups of metro areas exhibit a high demand for H-1Bs relative to their existing workforce. They have what we call high H-1B intensity. The top 10 metros for high H-1B intensity range from the larger metros, like San Jose, New York, and Seattle, to smaller metros, like Columbus, Indiana, and Durham, North Carolina.

A closer examination of the H-1B program in four metro areas portrays how demand for these workers tracks the distinct economic profiles of these places. The San Jose metro area, home to Silicon Valley, is most likely the first place that comes to mind when discussing demand for skilled workers and the H-1B visa program. It ranks among the top 10 in total requests for H-1B workers and is the number 1 for H-1B demand intensity. The technology industry dominates demand for H-1B workers. You

could see here the top employers requesting H-1B workers include Apple, eBay, Yahoo, and Intel.

Demand for H-1B workers in the New York metro area is not a high-tech story, but rather reflects its specialization in high-end finance. New York had nearly 53,000 H-1B worker requests on average between 2010 and 2011, highest in the country. The top employers requesting H-1B workers are in finance, including Goldman Sachs and JPMorgan Chase. About half of H-1B requests in the region are for STEM occupations, ranging from financial specialists, business operation specialists, and computer occupations.

But the demand for H-1B immigrant workers also lies well just outside just the largest metropolitan areas. With a population of just over 75,000, Columbus, Indiana, is the smallest of the H-1B high-demand metros, but it ranks second in demand intensity. The metro is characterized largely by its manufacturing sector, which accounts for one-third of all employment in the metro area. The majority of H-1B requests are coming from one major employer: Cummins, Incorporated. Cummins is an advanced manufacturer specializing in clean technologies for automotive engines. The firm has experienced exponential growth over the past several years, even during the recession, and its requests for H-1B workers, especially in engineering, have followed that trend.

Finally, Rochester, Minnesota, exemplifies a number of other small areas dominated by research and medicine that exhibited high H-1B demand. The Mayo Clinic is both the largest employer in the metro area and the highest requester of H-1B workers. Seventy-one percent of all of Rochester's H-1B applications come from institutions not subject to the annual visa cap, the highest share of any U.S. metro. With 2.6 H-1B requests per 1,000 workers, the large majority of the region's H-1B applications are for life scientists and health practitioners.

Metros both large and small are at the forefront of demand in the H-1B visa program. These four metro areas show that H-1B visas are not only being demanded by Silicon Valley, but also metro areas that are centers of American finance, manufacturing, and medicine.

This brings me to my third and final point. The U.S. must match the supply of skilled workers to metro demand. Our research highlights two key priorities for matching highly skilled workers to the needs of metropolitan economies.

First, we must increase responsiveness to fluctuations in H-1B demand. Currently, the H-1B visa cap is not responsive to fluctuations in demand for H-1B workers in U.S. metropolitan areas. Demand far outstripped the cap in the late 1990s. And by the time Congress finally lifted the cap in 2001, the dot-com bubble already burst. Congress failed to react to changing economic needs in the mid-2000s and let the cap expire as demand grew. Since then, the annual visa cap for private employers has been reached every year. This is not surprising because the cap is set nationally by Congress without any deliberate method for receiving input from regional businesses that have a high demand for H-1B workers or from labor market analysts who understand the distribution of skills among U.S. workers.

In response to this challenge and in line with other groups, like the Migration Policy Institute, we recommend that Congress create a standing commission on labor and immigration. We recommend that this commission include a dedicated, nonpartisan H-1B panel to consider and respond to metropolitan demand for high-skilled labor. This panel should make annual recommendations to Congress and the President on H-1B visa levels and priorities, informed by analysis and expertise around the demand and supply of skilled workers at home and abroad. The panel dedicated to the H-1B program should include recognized experts in the fields of business, economics,

immigration, and representatives from federal agencies and a business research organization.

The data presented in this report provide one example of the information this panel could use to inform its recommendations. In addition, input from metros, including their local employers and business groups, workforce development groups, and educational institutions, would provide complementary qualitative information regarding regional skills needs.

The second priority is to more deliberately target education and workforce development resources to meet longer-run metro needs for high-skilled labor. As I said before, \$628 million of the H-1B visa fees have been distributed for technical skills training grants at the local level. Ideally, many of these skills employers seek from abroad would already exist in the metropolitan workforce, but, unfortunately, visa fees are not currently targeted to address the longer-run skills needs implied by the geography of H-1B demand.

Collectively, the 106 high-demand H-1B metros received only \$3.09 per capita in skills training funds from 2001 to 2011. Other metros with far fewer H-1B requests by contrast received \$15.26 per capita for technical skills training. Indeed, the four metro areas featured earlier have a high demand for H-1B workers, but received a very small portion of these funds, if any at all.

The bottom line is H-1B-supported workforce training does not match H-1B workforce demand at the regional scale. We recommend that the program instead target worker training to metropolitan areas with a high demand for H-1B workers in the specific occupations for which employers are seeking skilled foreign labor. Metro leaders can then collaborate with local stakeholders to create smarter programs to help train their existing workers for jobs available today and in the future.

This is already happening in metro areas like Wichita, Kansas. The Kansas Engineering Excellence Project, or KEEP, is a skills training program funded by the ETA. We will hear more about this later this morning from its executive director, but this supports workers in completing advanced degrees in high-demand fields in aviation and aerospace, occupations that might normally be filled by H-1B workers. Private employers work with Wichita State University and the program to train students for the jobs that will be in demand in the near future.

Other metropolitan leaders can take advantage of the data that we released today to more smartly target their workforce training to their skills needs. Metro organizations can use our metropolitan profiles to inform their applications for ETA grant funds by identifying the specific skills and employers behind H-1B demand in their regions. All these data are available at the following website noted on the screen and on the handouts.

In conclusion, to move forward in the national debate about global economic competitiveness, policymakers must understand local demand for foreign skills in the United States. Until now, the discussion around high-skilled immigrants and the H-1B visa program has been highly polarized, conducted solely at the national level and lacking geographic information about employer demand. Our metro economies are driving the nation's demand for global skills. They need a seat at the table to maximize the value of the H-1B program for our businesses, our workers, and our economy to grow. Thank you. (Applause)

So we will now have a dialogue between experts who will discuss the national implications of our research. And it's my pleasure to introduce you to the moderator of this discussion, Edward Schumacher-Matos, who's the ombudsman for NPR. Edward has spent more than three decades as a journalist and editor in the



nation's most prestigious news outlets, such as *The Washington Post* and *The New York Times*. He was also the founding editor of the *Wall Street Journal's* Spanish and Portuguese editions in Latin America. In 1980, he was part of the team that won the Pulitzer Prize while he was at the *Philadelphia Inquirer*. He was most recently a director of the Migration and Integration Studies Program at Harvard University, which is fitting for this morning's discussion.

Given that immigration is such a polarizing topic, it makes sense that someone who's a mediator from our most prestigious radio outlet can help mediate our discussion this morning. So Edward, the floor is yours. (Applause)

MR. SCHUMACHER-MATOS: Well, it's nice to see that we have such a good turnout today. I don't know what's more contentious, trying to moderate issues of integration or what I'm doing at NPR now, trying to moderate issues of media and claims of bias and so forth at NPR, but. (Laughter) So, I look forward to our discussion here and to the questions afterwards.

We have two very, very distinguished panelists to talk about this. Jared Diamond is a senior fellow at the Center on --

MR. BERNSTEIN: Jared Bernstein. I'm Jared Bernstein.

MR. SCHUMACHER-MATOS: I'm sorry, I had forgotten. (Laughter) That's because I view you as a diamond is why.

MR. BERNSTEIN: Jared Diamond, now that would be a distinguished speaker.

MR. SCHUMACHER-MATOS: Yeah. No, I think you're -- for our purposes you're far more important, so forgive me.

Jared Bernstein's a senior fellow at the Center on Budget and Policy Priorities, and prior to taking on that position, he was the chief economist and an

economic advisor to Vice President Joe Biden, and he was executive director of the White House Task Force on the Middle Class and really having to deal with these very sorts of issues we're talking about here today.

And then Vivek Wadhwa, who is a star on these kinds of issues, is vice president of Academics Innovation at Singularity University. He also is very involved at Stanford, at Duke, and at Emory, and is in great demand as a speaker on so many issues, both in the media and in various conferences and so forth.

So, we heard a very good paper. I think it was very good research. I think it's added something to the field by taking the debate down to the metropolitan level and what we need to be looking at, not just nationally, but locally as well on this issue.

So, I have a number of questions that both go to the substance of this study and talk a little bit about the politics and policy that are recommended at the end of the study.

First, I mean, to you guys, have they hit on something? Does it really matter? For the economic development growth of the United States, do we really need to increase -- see, we had two years of lifting the cap. A lot of folks say that we don't really need to lift the cap, that we really need to focus on the training, leave the cap where it is, force the training through, you know, economic demand internally. And a lot of this is just a lot of smoke and mirrors by people in this room, and it's not really important and we're missing the point. You guys, you look at it from an economic point of view, you look at it from a training innovation point of view. Why don't you guys give your response to this report?

MR. BERNSTEIN: Okay, can I start? Is that okay?

MR. SCHUMACHER-MATOS: Sure.

MR. WADHWA: Certainly, certainly.

MR. BERNSTEIN: Yeah, I think we are kind of missing the point, and so I'm going to take a few minutes as my intro, and we'll do more of a discussion.

First of all, let me say -- and don't count this against my time, because I just want to say that I love the Metropolitan Policy Program, as a lot of you do, you get a million e-mails every day. Whenever I get something from them, I open it and I learn something, and they send a lot of e-mails, so. (Laughter) It's a real commitment on my part.

I like Bruce's point about macro to metro, but I tend to think of the Metropolitan Policy Program as sort of the microbiologist of the economy, and no one does a better job of drilling down, and this paper is a good example.

MR. WADHWA: That was a (inaudible).

MR. BERNSTEIN: No, no, but, in fact, there is no money changing hands, at least as far as I'm concerned today, so if you know differently, let me know.

MR. WADHWA: No, they didn't pay me. I thought they might have paid you. (Laughter)

MR. BERNSTEIN: Well, that's a problem, but we'll deal with that later.

Okay, so let me make a few comments and introduction.

First of all, let me be very clear, because I'm going to be a bit of a skunk at this very lovely garden party, I view immigration as a positive economic force. There are economists and advocates on the left who don't quite get there, and I think they're generally wrong. I think high-skilled immigration is obviously a particularly important input in an economy like ours, as speakers have said so far today, but so is low-skilled immigration. I think we shouldn't forget the importance of that also, not just in terms of inputs into the American economy but in terms of the opportunity and mobility for people who want to come here and improve their lives.

But let's not confuse permanent residence immigration with the non-immigrant visas of the H-1B or the L-1 programs or any of the non-immigrant visa programs. I think we have to be careful to distinguish between guest worker programs of which I've always been wary.

In fact -- and I'm very much a "mend it, don't end it" program. This may sound a little more ended than mended, but that's not where I am. In a sense, I'm amping up my views here, because I think they may be somewhat underrepresented, and Brookings is always about balance. So, I want to be careful to make sure that I have that balance.

H-1B, L-1, which I put in a similar category -- I think people know what I'm talking about here -- looks to me like a particularly inelegant solution to something that I'm not even sure is a problem. "Inelegant" because there's no labor market test -- I believe it -- I think the evidence is that it creates downward wage pressure. These workers, particular the H -- well, both, but the H-1Bs are linked to their employers in a way that former Labor Secretary Ray Marshall has called indentured servitude.

And there's also some offshoring concerns here. I'm not as convinced -- well, I'll say more about the offshore. So, that's the inelegant part. What about this not sure it's even a problem, like the H-1B is kind of scratching an itch that isn't even there, which is kind of implicit in your question.

And no one does -- what I have not seen, including in this fine paper, is rigorous labor shortage analysis, real identification of a demand shortfall. Do not confuse H-1B demand with labor demand. They're not the same thing. You could have lots of employers seeking these LCAs, the H-1B applications, in a climate with very high unemployment even among skilled workers in the relevant occupations.

Now, the paper. It's the first regional analysis I've seen of that, and that

in of itself is an invaluable contribution. I urge them to keep going, and I'm going to suggest some directions in a second. I thought the part about upgrading worker skills is particularly important.

I also want to call attention to the magnitudes of the dollars involved here. That 1 billion, as far as I understand it, that's over, like, 10 years. And there were \$357 million -- with an M -- over 10 years for STEM training. That's peanuts, given what we're talking about here. So, I'm not -- probably you wouldn't disagree with me, but sometimes you have to focus on the magnitudes. People hear "billion," and they think, you know, that's a lot. In this case, it may well not be.

Okay, in the interest of time, I'm not going to go through -- I'm just going to tick off some concerns here. I commend you to the work of Ron Herog, Daniel Costa, the co-author who's here today who has raised many of these concerns. Problems or flaws with the H-1B program, there is no labor market test. All it takes is an employer attestation. They don't have to do the labor certification that you do with an actual immigrant visa if you want someone to come over here for a job. So, there needs to be a labor market test. Below-market wages are a real concern here.

I ran into -- it's actually in a piece Dan Costa wrote. There was a quote from a renowned economist who said, "There is no doubt that the H-1B program is a benefit to their employers, enabling them to get workers at a lower wage and, to that extent, it is a subsidy." And the radical leftwing nut who said is named Milton Freedman.

I have some details on some of these in the discussion later, but (inaudible), so let me be quick here.

I mentioned that the visas are held by the employer rather than the worker. I see this as deeply problematic. When an H-1 or and L-1 worker's legal status is dependent on the employer there, it's ripe for exploitation, poor working conditions; and

these folks have little recourse if they -- in too many cases, if they decide they don't like that condition, well, they can just go home. And I mentioned Ray Marshall's quip that that sounded like indentured servitude to him. I think that's way too harsh, but I think that the linkage to the employer is something is that could be and should be fixed. And, in fact, in the Durbin-Grassley legislation that I think would repair many of the flaws I'm mentioning, it is fixed.

Look, on the offshoring piece, we'll probably get into offshoring -- I won't say much about it now -- there is some linkage, more correlation, the causation, between the, you know, sort of body shop approach to H-1B recruiting versus the employers themselves. So, when you're talking about a Tata or, you know, the Infosyses of the world of folks who are applying for lots of H-1Bs and they, themselves, are outsourcers, I think that there have been some linkages made between that, and then offshoring back to the home country. And I think that that is a matter of concern.

I am very much -- I am perfectly comfortable with offshoring. It's a global world, and offshoring happens. But I certainly don't want to incentivize any more of it. That's one of the reasons why I'm critical of Mitt Romney's territoriality plan, by the way.

Okay, well, one last point here, and it's an important one. I was actually struck in the presentation by this point that the U.S. must match supply and demand, that the U.S. must match supply and demand through government intervention. You didn't say those words, but that was implicit: that the U.S. must match supply and demand through ratcheting up H-1B, which I view it. Okay, I'm going to be a Tea Partier here. I don't usually get to be, you know, a dyed-in-the-wool classical economist here. That's too much government intervention for me. I don't see why the labor market shouldn't be the mechanism that matches supply and demand. And if every time there's a labor shortage -- and, by the way, I haven't seen any establishment of labor shortages in any of this

research -- if every time there's a labor shortage, a real one, you rush to stamp it out by increasing the supply of those workers, then the market can never adjust. Markets actually should adjust. Wages should go up. It's a horrifying thought, wages could go up for somebody somewhere. But wages should go up. Wages should adjust upward when there is a demand, a shortage. We shouldn't rush to increase the supply of guest workers in particular to offset --

MR. WADHWA: (inaudible) your time's up.

MR. BERNSTEIN: Oh, okay.

MR. WADHWA: You know, the reason why I'm cutting him off is because when I started my academic career I was saying exactly the same things he's saying. I was saying there are no shortages, H-1B visa should be abolished.

MR. BERNSTEIN: No, I didn't say there's none. I'd say we need to show (inaudible).

MR. WADHWA: I understand it. But I went to the extreme and I became a hero for the anti-immigrant groups. Then I started researching it further and further, trying to figure out what exactly is going on here. I took on Bill Gates on one occasion, challenging him on this whole issue of, hey, there are no shortages, you're just exploiting migrant workers and so on. I was a hero with these two or three academics who live in the ivory towers and, you know, repeat the same things over and over again about H-1Bs are bad, H-1Bs are bad, H-1Bs are bad. This is exactly the camp I was in until I started researching it much, much further and realizing that it's a lot more nuanced than meets the eye.

Then I started interviewing these dozens of people who, you know, go online and post nasty comments on the comment boards and, you know, who are harassing Neil and his team over here. (Laughter) What you find is that they're typically

middle-aged workers who's skills are out of date. I hate to say that, but that's the harsh reality of it. And now I'm going to get some nasty death threats for saying this again in public, but when you start looking at their resumes and interviewing them, you'll realize that they really are out of date, out of touch. They live in the wrong region of the country where the jobs aren't. And when they go for interviews, they don't impress the employers. Therefore, they don't get the jobs.

I started spending time with the -- so, I limited a lot of people in the corporate world, because I came from the corporate world. I came from a tech world. I'd been a tech-C or I founded companies, and I was friends with some of the most senior execs in these tech companies. I started looking at the other side of it, and then I moved to Silicon Valley, and what I saw was a completely different universe, that in this universe it's not about money. The cost of labor is not the issue over here. It's about competitiveness; it's about speed-to-market; it's about getting the best and the brightest.

You know, we have Cummins here example. Cummins has taken fire for hiring all these foreign workers. But look at the income of Cummins. It's now 60 percent global. In other words, they're only getting 40 percent of their revenue from the United States. Do -- have senators and congressmen and -- you know, the French demand that Cummins hire a hundred percent American workers doesn't make sense. The company will be out of business. They won't understand what's happening globally. They won't be able to get the best and brightest.

The data Neil showed, (inaudible) showed up there had 4 percent of the engineers at the BA level in the United States. Four percent. So, in other words, if we protect the jobs at that 4 percent, we close ourselves off to 96 percent. Are we better off getting the job 1 percent from all over the world and getting them to come here and compete in America rather than having this closed-minded obsession we're protecting



jobs?

The way America's become what it has is by being competitive, by getting the people who are over here to compete with the best in the world. And guess what, Americans got smarter. They became more astute. Yes, sadly, there was some unemployment as a result of that. But that is a casualty of capitalism. Capitalism stinks in the economic system, because it creates rich and poor, and it causes people at the bottom to be left out. But, you know, this is why America is the only leading economy in the world, because it knows how to compete. That's what competitiveness is all about.

So, now we can, you know, close our minds and say that, look, we want to protect these unemployed workers who are -- you know, whose skills are out of date. Or we can say that we want to continue to compete and make the pie bigger for everyone, that we want to make -- but by having more competitive companies, by having more Googles and Microsofts and Intels, what we end up doing is creating jobs in an ecosystem for the skilled and for the unskilled. We end up boosting the economy and making America more competitive.

So, we can decide do we want to, you know, protect a few thousand jobs in America -- maybe it's a hundred thousand jobs in America I'm talking about -- versus the tens of millions of other jobs that we might create if we start opening up.

Now, let's get to this report. What the value -- so, I've been fighting these battles, I switched sides, and I became an enemy of these anti-immigrant groups. I mean, they kept saying what they were saying, and I kept talking about all the, you know, things I'm learning. And on this H-1B issue, what this report that Neil and his team did was shed a very important light. It proved that the problem isn't a national problem. It's not that you can say that there are shortages or there are not shortages, you need more H-1Bs, you don't need H-1Bs. It depends on region. If you look at the date, what it

shows you is the regions which are the most competitive, where all the action is happening -- New York is rising rapidly as a tech center right now. You've got to go there and see how it's booming, how much innovation is coming out of New York now for the first time. Well, guess what. New York is also the area which demands H-1Bs the most.

The next in the list, if you count San Francisco and San Jose together, is Silicon Valley. Well, no surprise on that.

L.A. L.A. has a defense industry. You know, in that region, there's a lot happening there. They need H-1Bs.

So, if you start correlating the data that Brookings produced, along with innovation and growth, you'll find it is a pretty strong correlation. And what does that tell you? It tells you that when you have innovation and when you have entrepreneurship, when you're creating jobs, you need more talent. And if the American workforce doesn't have the skill, you bring it from abroad. Even if the American workforce does have the skill, I would argue you want to bring it from abroad because you want it competing. The same way in sports. In the NFL we recruit from everywhere, okay? We find the best we can get from everywhere. That's what we want to do in tech, because tech is a competitive world. It's not this closed, isolated world where you protect workers and you're obsessed with numbers, and you have government dictate policy.

MR. SCHUMACHER-MATOS: Well, I think you guys have launched so many big issues right here, I think I'll just let -- Jared, you should respond to that.

(Laughter)

MR. BERNSTEIN: Look, with respect (Laughter) -- no, we don't have (inaudible).

MR. WADHWA: Wait a minute. I was respectful, also.

MR. BERNSTEIN: And I want to match your respect and even see you

and raise you in the respect category. (Laughter)

MR. WADHWA: You're wonderful, my friend.

MR. BERNSTEIN: You've seen a lot on the ground, you know, more than I have. But I think a lot of what you just said lacked precisely the nuance that I thought you were going to go for. So, for example, I don't know if you were characterizing my position or somebody else's position, but I was very clear that I'm very supportive of immigration for many of the same reasons that you mentioned. What I didn't hear in your presentation -- or I should say what I heard in your presentation is this conflation of immigration and guest worker programs. They're not the same things. And I what I find worrisome are the guest worker programs with the flaws in H-1B, one-two.

There was not a shred of -- it was all anecdote. What we really need here is some evidence, and that's what I associate with Brookings, and that's particularly what I associate with the Metropolitan Policy Program. And that's just where I wanted to push you on your paper. You now have the only known database, that I know of anyway, of the LCAs of this metropolitan level. Start linking it up with measures of actual labor shortages and labor demand. If you want to look at the work of Michael -- well, anyway, I can show you some very good work, if you're not familiar with it, on how you measure that, but it has to do with unemployment rates, replacement demand, wage trends.

On the wage side, I simply don't see the labor shortages show up, and that's where you have to --

MR. WADHWA: You have to come to Silicon Valley. It's very easy to sit in your ivory towers and have these discussions, okay? Come to Silicon Valley, look at the, you know, the way Google and Microsoft and Facebook are out gunning each other, out competing for talent. I mean, they're offering million-dollar bonuses right now. The salaries are rising, shooting to roof in Silicon Valley. Same thing in New York City. Look

at the salaries. The data is there. You just have to look for it.

MR. BERNSTEIN: So, I --

MR. WADHWA: But the thing is you have to look at it for the regional level, not at the national level. Look region by region, and you'll find the answer.

MR. BERNSTEIN: Again --

MR. WADHWA: And the other thing is I actually agree with you on a key point about how bad H-1Bs are and how temporary worker programs suck.

MR. BERNSTEIN: Okay.

MR. WADHWA: They're awful. (Laughter) It's the wrong solution, because what it does is it creates the entire wage volume you're talking about.

MR. BERNSTEIN: Exactly.

MR. WADHWA: What happens is that right now if you're one of my students at Duke downward from the masses of engineering management program to graduate from one of the finest programs in the world, okay, you want to get a job, you happen to be Indian or you happen to be Chinese, guess what. Your wait time is in the decades. So, these kids graduating now, first of all, they have a hard time getting jobs, because you have these anti-immigrants saying H-1Bs are evil, H-1Bs are evil, anyone that has them is evil. You can't hire them, so they don't get jobs. When they do get jobs, then they're stuck in the same job for decades. So you start it for the computer programmer. And let's say you become a systems analyst or a project manager. You have to go back to the end of the line and start your entire process again. You go back again decades. So, guess what happens. If you're any employer, you focus on the people who are more likely to leave. You give them the biggest salary increases, because you're worried that Google will snatch them away. If you're now 10 years into your visa process, you're working for the same company in the same job, the employer is

happy, okay? But you're screwed basically. You're stuck. You can't go anywhere. So, you're taken advantage of. Your salary is lower than what it should be.

MR. BERNSTEIN: Right, exactly.

MR. WADHWA: And you're stuck in the same old job. And the worst part of it, which really concerns me, is you can't start a company, because I've documented that 52 percent of the startups in Silicon Valley from '95 to 2005 were founded by immigrants, by people like me, okay? People like me came here, and typically 13 years after arriving, they started companies, which boosted competitiveness as they employed more workers than the number brought in. They made the buy bigger for everyone. They made America what it is. However, because of this backlog that you'll agree, there are a million skilled immigrants right now as of 2007 waiting for green cards. Nobody (inaudible) right now.

MR. BERNSTEIN: So, I'm glad we agree on those points, and we might agree that there are fixes, ways to improve the guest worker programs. As I started, mend, don't end. And, again, I think Durbin-Grassley is helpful in that regard. You might want to think about including some of that in your future work. But the idea would be to have a real labor market test and to have some mechanism to avoid this downward pressure on wages so, for example --

MR. WADHWA: The real market test is corporations. They will not hire anyone that's not right for them. Let them hire what they want to. Why do we have to tell companies who they can hire? This is not Communist Russia or Cuba we're talking about. This is America.

MR. BERNSTEIN: Well, okay, you can --

MR. WADHWA: Let companies hire anyone that they need.

MR. BERNSTEIN: So, I think --

MR. WADHWA: And let them pay market wages. If you work for company A, you're not getting paid enough, you can move to company B. You'll do that, then company A will pay you your market value.

MR. BERNSTEIN: Well, okay, so that, I think -- first of all, moving from company A to company B is a good idea.

MR. WADHWA: Right.

MR. BERNSTEIN: I agree with you, and that means you have to break the linkage with the employer who controls your visa.

MR. WADHWA: Agree. Let's fix that.

MR. ROSEN: Let's fix that. But then, secondly (Laughter), there's a thing that we inherently disagree on, and I think you either are somewhat misunderstanding the actual policy or the law itself. Look, you are not supposed to hire an H-1B worker if there is an available American worker to do that job. Now, it's often very --

MR. WADHWA: Can it be any worker. I mean --

MR. BERNSTEIN: No, it has to be appropriately skilled, so.

MR. WADHWA: So, that's where the problem is, skill. What tech companies need is people with the best skills, who can write --

MR. BERNSTEIN: Right.

MR. WADHWA: -- that know the latest technologies, who are -- you know, the difference between an average programmer and a great programmer is often three to nine times in productivity.

MR. BERNSTEIN: Let me just finish --

MR. WADHWA: We want those super programmers.

MR. BERNSTEIN: I understand.

MR. WADHWA: You're going to force them to hire an average programmer just because there's someone in the country who happens to have that skill? Does that make sense? Is that America?

MR. BERNSTEIN: I think there needs (Laughter) -- look, if the attestation doesn't work, which is -- this is the law. I mean, you may want to change the law, but this is the law. The law says that you have to at least say you've tried. Now, you don't have to really try; you have to say you tried.

MR. WADHWA: If you can hire an American, companies would rather not spend the legal fees.

MR. BERNSTEIN: It's starting to feel like cable television. (Laughter) CNBC.

MR. WADHWA: All right, I'll be quiet.

MR. BERNSTEIN: Thank you. Let me just finish. And you will have ample time to respond, and our poor moderator is getting to (Laughter) -- I should bring you back in here.

MR. SCHUMACHER-MATOS: Great job. I don't have to do anything.

MR. BERNSTEIN: So, the spirit, as well as the letter of the law, is not as you're characterizing it. What you're basically saying -- you'll have a chance to rebut this -- what you're basically saying is, look, employers should be able to hire whomever they want to meet the skill demands of that job, and if that means bringing somebody from abroad they should do so.

MR. WADHWA: Exactly.

MR. BERNSTEIN: That's what -- right.

MR. WADHWA: That's what I said.

MR. BERNSTEIN: That's not H-1B. That is simply not H-1B. H-1B says

if you can't find that worker here, then you can bring that worker from abroad. The problem is there is not a standard, a work test, to establish that and I think there should be. That's all.

MR. SCHUMACHER-MATOS: Well, I think -- if I might say -- I think there are so many studies that it's probably impossible to develop a good standard, particularly one that's timely.

MR. BERNSTEIN: Labor certification.

MR. SCHUMACHER-MATOS: I thought that's where you were leading with your first discussion when you were saying that, you know, quoting Ray Marshall --

MR. BERNSTEIN: Right.

MR. SCHUMACHER-MATOS: -- when we don't have the thing. I know we have a representative here from the Chamber of Commerce. I see that the study recommends having some sort of an independent --

MR. BERNSTEIN: That's a good idea.

MR. SCHUMACHER-MATOS: -- a commission to be able to set what the level should be and so forth. And yet the great fear of an independent commission is precisely where I thought you were going, which is it may be un-American. It sort of like smacks of central planning.

MR. WADHWA: This is Cuba.

MR. SCHUMACHER-MATOS: Can a commission really set a measure to mat. Is it always going to be a year or two behind the curve? Should you not let the market decide what it should be? And so there have been a few proposals that come back and try and bridge the differences between you, and the latest was, in fact, presented here at Brookings through the Hamilton Project, which is a study by Giovanni Perry (phonetic) about going to an auction system and say Gary Becker (phonetic) is



(inaudible) and other people. The economists all love auctions as a form of being able to decide these kinds of things. (Laughter) What about that?

MR. BERNSTEIN: Why don't you go ahead?

MR. WADHWA: I think that would be a great idea. Absolutely. Let the market decide.

MR. BERNSTEIN: See, if the market decides, then you can't really take the position that Neil espoused, which is, and I quote, "U.S. much match supply and demand implicitly through ratcheting up H-1B applications." That's not a market solution. That's a government solution. So, I'm all for letting the market decide, but let's not artificially tweak supply to get there.

MR. WADHWA: You know, I think California should be allowed to set its own immigration policy, frankly. (Laughter) You know, take California as an example, okay? You know, Silicon Valley desperately needs talent. They're not worried about bringing too many people in who are going to become unemployed. They're worried about increasing their tax base, increasing the -- you know, getting the state back to health. What's the government doing? It's allowing farmers in Iowa -- I mean, Senator Grassley -- to dictate how many workers can work in Silicon Valley. I mean, Silicon Valley doesn't tell, you know, Iowa how to plant its seeds or, you know, what crops they should grow, okay? Why should they be telling Silicon Valley how many skilled workers they can have and from where, what technologies they should have, who they should hire? Why should you have regions that don't have any requirements for skilled labor dictating to higher regions with high demand what they should be doing?

MR. SCHUMACHER-MATOS: We have a conceptual difference here, and I think you both presented very great arguments for the -- and everybody has to decide for themselves what side they want to take on this issue, and it'll be a major policy

debate.

Let's take the flip side of it, then, about why don't we have those Americans who are performing at this much higher level? Why aren't they available? And this I notice in the report -- and I pick up a little bit on your point, Jared -- that when we look at the amount of money that these fees are generating and we look at what's being done with that money, I mean, I thought it was appalling when, actually, the amount of scholarships for Americans to study STEM funded by this program amount to \$5,000 a year. What's that? Nothing. So, what should be done? I mean, the program -- even the training that goes on is for technicians, not for PhDs.

MR. WADHWA: What we could do is spend the money where it's needed.

MR. SCHUMACHER-MATOS: So, what should be doing? Should we rethink our education? I mean, you know, who's going to be hiring those technicians? Should we rethink our whole STEM education, and should the money be spent in a different way?

MR. WADHWA: The money should be spent where it will have the most impact. Right now, the shortage is on the metro areas, yet we're spending money in other areas. We're skilling up labor in areas where it's not needed. Isn't that brain dead?

MR. BERNSTEIN: Right.

MR. WADHWA: Why not spend it where it's needed. This is the point that the report makes.

MR. BERNSTEIN: That's one of the points the report makes, but the second report is -- that's the geographic point. The second point is should you be putting it into technicians or should you be putting into the people who hire technicians?

MR. WADHWA: Let the market decide.

MR. BERNSTEIN: You've got money for training. Now we're talking about education.

MR. WADHWA: I would offer companies money for training. Let them spend it on bringing in new workers and spending it on those workers.

MR. BERNSTEIN: I don't --

MR. WADHWA: Why should government get involved with things that --

MR. BERNSTEIN: Well, you're trying to say the government should give up the whole education system?

MR. WADHWA: Let it be scholarships, and let people go and study what they want when the job (inaudible).

MR. BERNSTEIN: Well, I --

MR. SCHUMACHER-MATOS: This is where we're going.

MR. BERNSTEIN: So, I pretty strongly disagree with the notion that you'd want to give this to companies or sort of let the market -- I think we actually have a market failure, and I think that that's partly what you're describing, the idea that our educational system doesn't seem to be generating an adequate supply of workers with these particular skills. However -- and, again, this is an assignment for the Metropolitan Group as well as other scholars here at Brookings. It's not as clear to me as it is to you, and, look, I get it that you might see this at the ground level, at the anecdotal level. I'm not at all disparaging that, not in the slightest. I very deeply respect what you see on the ground. But the plural of anecdote is data, and it really does have to show up in what you keep disparagingly calling the ivory tower static. It really does have to show up there. And I don't think that we have great evidence of a shortage of supply of STEM workers. In fact, there was a front-page article the other day about quite high unemployment rates among certain workers. I think it was in the STEM field, more related to biology than IT.

And so the first thing we should do is actually learn more about the depth of the problem but, that said, I don't know, I'm not sure that you could really lay -- I'm not sure that, you know, the H-1B fee program is the way to get from here to there. I think what's more worrisome in this regard is the extent to which we're deeply cutting what's called the non-defense discretionary part of the federal budget, which is the part of the budget that actually pays for education and training.

MR. WADHWA: I think that's in Neil's next report. You should look at it. I mean, just look at the job banks in Silicon Bank. Count them up and he'll have the data that he wants. It's quite simple.

MR. SCHUMACHER-MATOS: Well, you're doing this wonderful work with Singularity University.

MR. WADHWA: Right.

MR. SCHUMACHER-MATOS: What could we be doing for an education system that feeds into this whole issue?

MR. WADHWA: Wells, what's happening -- you know, my article yesterday in *Foreign Policy*, the title of it was "Why the Manufacturing Jobs are Going to be in America, not in China." And if you look at the way technology's advancing, it's much, much faster than anyone can imagine. The new technological jobs are going to be much different than the old technological jobs are. Sadly, our policymakers, you know, I have data from 20 years ago, they don't understand how fascinating the changes --

MR. SCHUMACHER-MATOS: You're not supposed to point at Jared when you say that. (Laughter)

MR. WADHWA: But the point is that there's a lot happening. We should skill Americans up on the technologies of the future and spend more on workforce training. I'm very much for now teaching them about the latest -- giving the latest skills

and making them more competitive. That's what we should be putting up for --

MR. BERNSTEIN: I have a great anecdote for you. You'll like this.

MR. WADHWA: No, you're data; I'm anecdote.

MR. SCHUMACHER-MATOS: Now you switch to anecdote.

MR. BERNSTEIN: I'm switching -- yeah, I've got to anecdote.

MR. WADHWA: I'm going to start giving data out then.

MR. BERNSTEIN: Yeah, because I'm not getting enough love for my data here, so let me push the anecdote.

I worked for the Labor Department in the mid-'90s. I was the chief economist office in the Labor Department. And this is when the folks from Silicon Valley came in, some of who may well be in this room, and said we need to raise the cap on H-1Bs. And we economists sat around and listened to them, and after a few minutes it became clear what they were saying is for the first time in our history we're seeing upward pressure on wages; we're seeing wages go up; we have to now bid wages up. This was the '90s when every -- you know, mid-'90s. Everybody had to bid wages up to get and keep the workers. We have to bid wages -- we're actually facing higher labor costs, and we're coming to the government for relief. And, to me, you know, that was precisely the market signal that you'd want to incentivize more kids to stop going to finance and getting into -- you know, smart kids to stop going into finance and get into IT. These market signals, these price signals are critically important, not just from an academic sense but from the functioning of a well-functioning economy. And the idea that you'd want to, you know, take a fire hose out and essentially put out that market signal by increasing caps in a guest worker program strikes me as quite wrongheaded.

MR. WADHWA: You know what, giving another anecdote, an analogy to what you're talking about, that would be like California saying that look, we're only going

to admit students from California in our universities because our students have to compete; therefore, we have to equip them better. What would happen? You would have state after state get weaker and weaker. You want competition.

MR. BERNSTEIN: Well, you'd like open borders, right?

MR. WADHWA: Not open borders. Not totally open borders, but you should allow companies to hire the talent that they need from wherever they need it. Why should we be communist over here? Why should we be now looking backwards 50 years.

MR. BERNSTEIN: It is not communist to control --

MR. WADHWA: It is. It is. (Laughter) That's good, but you're -- I'm kidding.

MR. BERNSTEIN: That's a pretty radical view, I'd say. I just want to tell you. I'm not saying it's wrong. I think it's wrong. I'm saying it's radical. (Laughter)

MR. WADHWA: Let America compete. We're in trouble. We need to get out of this mess.

MR. BERNSTEIN: It's not communist to control your labor.

MR. WADHWA: There are amazing people all over the world who can come here and start companies and boost this economy.

MR. BERNSTEIN: Help me out here. (Laughter) It is not communist to control your labor flows.

MR. SCHUMACHER-MATOS: Right. Picking up on that point --

MR. WADHWA: Go ahead.

MR. SCHUMACHER-MATOS: -- more and more economists are beginning to question the effects of globalization and have been looking mostly at it on the monetary flow side. Somewhat on the trade side. You're taking it now to the tech

labor side. Is it possible, with what you're proposing, that all we're doing is opening up a race to the bottom?

MR. WADHWA: No, it's not, no.

MR. SCHUMACHER-MATOS: And that for the United States -- for the United States as a nation -- you say the United States can compete, when this thing called United States compete and the other things are all these 300-some-odd-million Americans being able to compete in this world, is it the race to the bottom that you're -- suddenly they're competing one-to-one with Indians at a much lower wage level and that some day we're all going to benefit. Yes, the economy -- all the economists will tell you that some day we'll all be -- you know, the world productivity will go up, everybody's richer, but from here to there huge costs. Should it not be more managed, like the original Bretton Woods system, post-World War II system, paying our way there in a more gradual way?

MR. WADHWA: Let me give you two answers. Number one, there's a same debate that's existed in America since the beginning of time where you've had wave after wave of immigrants coming here with the previous wave saying hey, these new ones are taking our jobs away. If we bring too many of them away, we will become less competitive; we'll have more poverty, and so on. The exact opposite happened.

The second thing is I'm now advocating skill development. I'm now talking about bringing in people who are the best in their fields from all over the world to come here and to work for our companies, make them more competitive, because our companies are mostly shipping their goods abroad. The majority of the revenue that our biggest companies get is from abroad. It makes them stronger; it makes them richer. It makes America richer. And I'm talking about limited skilled immigration here of the best and the brightest.

And the other thing I want is for anyone who wants to starts a company here to be able to get a visa to start a company here. And if they've created a few jobs after a few years, give them a green card; they've proven themselves.

MR. BERNSTEIN: So, I think that globalization is, A, a force for good; B, here to stay, part of our reality of events in even emerging economies; and C, has true costs and benefits. The problem with the discussion too often is it's only discussed as a benefit and the cost -- you become, again, sort of a skunk at the garden party if you raise costs. So, I think that's less of a case now, because it's much more conventional wisdom among economists that the cost side matters, too. Even, you know, stalwarts like Paul Samuelson have written articles about some of the costs to workers in advanced economies who are hurt by global competition. So, that's very real. And I think we have to be mindful of that when we discuss this issue.

I think in terms of high-skill immigration, it actually makes a lot of sense in many ways, you know, if you'll -- very liberal economist Dean Baker has argued that you should really ratchet up high-skilled immigration, because that would put some of the downward pressure on these skilled premiums that have been one of the factors driving inequality. But, you know, in his view it would actually make physician services cheaper, for example, if we ratcheted up the supply of doctors from abroad. By the way, you know, the AMA might have something to say about that and licensing issues work as a kind of -- to the disadvantage of that kind of solution. Meanwhile, at the low end, there is, you know, very aggressive immigration coming over the border. In many cases, workers without, you know, what do you call them, credentials -- you know, not illegal immigration -- undocumented, Americans undocumented.

So, you know, I think at the low end of the labor market, we kind of implicitly bless all this undocumented immigration. It's a very sloppy, unsustainable thing.



At the high end, we kind of restrict a lot of it, in some cases to protect the incomes of elite occupations -- workers only. I think those are both wrong. And I think the guest worker program as it's structured -- and I think we kind of agreed on this earlier -- exacerbates those problems.

MR. WADHWA: It sucks. (Laughter)

MR. SCHUMACHER-MATOS: Well, you're touching on them by bring in undocumented immigration. You're not touching on the whole issue of greater immigration policy and how the H-1B and skilled workers fit into that.

The conversation we had over breakfast was, you know, why can't we just focus on H-1Bs and skilled workers; it's, you know, the best thing for America. You questioned about whether or not it may be. Is it even possible, politically, to focus only on this issue, whatever the solution is, or do we really have to have some kind of a comprehensive immigration legal -- comprehensive immigration reform?

MR. BERNSTEIN: Let me start, because I have a -- you know, I worked for the White House not that long ago, and I can tell you that it is possible and not only possible but probably and in fact one of the fewer areas in immigration that you actually can talk about. Pretty much everybody agrees that we should have more high-skilled immigration. It is widely agreed upon. Actually, the folks who tend to oppose it in various cases tend to be those groups with whom high-skilled immigrants would compete, as I mentioned earlier. So, I think that it's actually one of these sorts of marginal areas that could actually have bipartisan agreement.

It's interesting to me that you've got Durbin on one side and Grassley on the other side. So, this is an area where we actually might be able to fix some of the flaws that I've been stressing and that we agree on.

MR. WADHWA: I mean, I'm saying there should two or three simple

things. Number one, increase the number of green cards available. That'll fix the entire stress on the H-1B system. The reason why salary destruction is because people are stuck, they're in limbo, they're gone, change jobs, they can't start companies. That'll be a huge, huge boost, okay?

And then there's this poor country limit, poor country cap thing, which is screwing up the entire system. There's a maximum of 7 percent for many countries that can get green cards. It just doesn't make sense.

And then we need a startup visa, that anyone who wants to come and start a company here which creates jobs, let them come and start their company. The American workers, let them stay. Very simple fixes. And you'll cause a major shift in the economy, and all of this costs zero. I'm not talking about trillion-dollar bailouts. I'm not talking about subsidies. I'm not talking about, you know, massive government programs. I'm talking about something that costs zero and both sides will agree on.

MR. BERNSTEIN: So, I guess the point that I maybe made implicit I should have made explicit. What I was saying is I think the kinds of things I was just describing, like Grassley-Durbin, are politically possible. I worry that some of the more broad, comprehensive immigration reform, increase green cards, those are much heavier political lifts. Much heavier. I'm not saying they're bad ideas, but they are -- I was kind of -- it's plausible that if Congress ever starts working together again that they could actually work on the kinds of things we're talking about here. And what you're talking about would be good, but that's further down the road politically I think.

MR. SCHUMACHER-MATOS: I will repeat what I said at the Hamilton thing, I think it's 5 to 10 years down the road.

MR. BERNSTEIN: Yeah, at least.

MR. WADHWA: Well, what's going to happen is that you're going to find

tech centers sprawling in India, China, Brazil, all over the world. Google's last company is company competing with other world class companies, and we're going to wake up and say, hey, what happened over here? How did these -- you know, how did our American-educated people, American-skilled people go there and build their companies and say why they would let them here? We're going to be looking back and wondering why we lost all these hundreds of thousands of jobs. There's, you know, a trillion dollars of potential opportunities that could have been in America. That's a sad thing 10 years from now.

MR. BERNSTEIN: Well, picking up on that, going back then to the education issue, one thing is that you educate people with these certain skills; the other thing is that they're innovators.

MR. WADHWA: Right.

MR. BERNSTEIN: You can argue that, you know, America still has a sort of climate and a sort of diversity and all those sorts of things that lead to innovation that India and China don't have.

MR. WADHWA: The India and China education system is awful, really bad. But when Indians and Chinese come here, they become fiercely productive, you know. I mean, a seventh of all the startups or 15.5 percent of the startups in Silicon Valley founded by Americans, despite 6 percent of the Silicon Valley published would be Indian.

MR. BERNSTEIN: But that's here. I'm talking about competing with what's out there.

MR. WADHWA: Yeah, but now what happened over the last five or seven years is that you had, you know, tens of thousands of skilled immigrants who were here, who were educated here, who, you know, basically grew up learning the American

way, and they were forced to go back because of our brain dead visa policies. So startups started forming their companies over there. You're seeing hundreds of startups sprouting in places like, you know, Delhi, Bangalore, Shanghai, Beijing, which should have been here.

MR. SCHUMACHER-MATOS: But we're in a metropolitan group here. Is there anything that cities and metropolitan areas should be considering as they talk about this whole issue, not just to talk about training and education, but also to encourage innovation?

MR. WADHWA: It's safe in the United States to have their own visa policies, their own sanctuaries for skilled immigrants. Start your company here; we'll protect you from the feds. (Laughter)

MR. BERNSTEIN: So, if you succeed from the communist policies of the United States (Laughter) --

MR. WADHWA: Difficulty for the United States. I said communist policies. There are some academics and some nativists are advocating, okay, to be precise.

MR. BERNSTEIN: Just to be clear, I --

MR. WADHWA: That changes capitalists.

MR. BERNSTEIN: -- disassociate myself from any of those --

MR. SCHUMACHER-MATOS: Those are good comments. I'm actually the advocate of the market solution here.

MR. WADHWA: Good.

MR. BERNSTEIN: So, I think that the thing -- a couple of things on the last few exchanges. One is that I am less worried than you are about innovation either here or abroad. I continue to see evidence of innovation, particularly in high tech but also

in other important areas advanced batteries, clean energy -- well, advanced batteries is a subset of clean energy, but, you know, solar, geothermal. I've seen, particularly in the clean energy field, lots of interesting innovation breaking out. I'm less worried about that. And I'm also, by the way -- I think it's absolutely imperative that some of the emerging economies begin to innovate as well. I don't see that as a threat to us as well. I see that part of the matrix of globalization, and God bless them. Their gain is not necessarily our loss.

Secondly, what I do see as a problem -- there's a great -- there's a really important statistic. The Kauffman Foundation's done good work on this. Actually interesting, Bernanke himself was talking about this.

MR. WADHWA: Be careful, you're sitting next to Mr. Kauffman.

MR. BERNSTEIN: Yeah, so I understand.

MR. WADHWA: (inaudible)

MR. BERNSTEIN: You guys have done good work on this.

One of the things that you see is that startups, it's not that there are fewer -- it's not that the pace of startups has diminished. The pace of startups has been fairly constant. It's that startups haven't grown very much. They haven't had that kind of burst-out, gazelle-like employment growth that you need to see. It's one of the reasons we've been stuck in this floggy kind of recovery. Typically, it's the small firms, as they grow, that lead us out, and we haven't enough of that. And nobody really knows the answer. But I think it has to do with something called allocative (phonetic) inefficiency. I think I made up that term, so let me explain it.

MR. WADHWA: What is it again?

MR. BERNSTEIN: Allocative inefficiency or, you know, inefficient allocation.

MR. WADHWA: Oh, okay.

MR. BERNSTEIN: I think what we've done over the past 10 years, 15 years is allocated too much of our natural resources in finance and in financial markets and in financial instrumentation. That's another kind of innovation and not nearly as productive for the economy as the kind we're talking about. And so I think that the venture capital side of the economy has actually not been able to support the kind of innovation and growth of our startups that it did, say, in the '70s, '80s, and '90s. And that's problematic.

MR. WADHWA: Let me add, I agree with part of what you said, but a lot has changed over the last decade. It used to be that the cost of starting a technology company would be millions of dollars. You'd need 2- to 5 million in venture capital. Today, 30- to \$50,000 is enough. You can build innovative medical products. You can build innovative clean tech products. You can build innovative robotics products for small amounts of money, which means that entrepreneurs can do today what only governments and big research labs could do even as recently as a decade ago, which also means that entrepreneurs anywhere in the world can do the same that we can do here today, that they don't have a handicap anymore and venture capital has become less important.

So, it's this new world that we're in which is going to redefine us. So, that's why I'm saying it's all about people; it's all about talent. We want every smart person in the world being here and outside. Yes, we want India and China and other countries to do well. Good for that. But right now our economy is sick. I mean, we're really in bad shape here. My concern is how do you boost this economy over the next three to four years and get things humming again so then we can be benevolent and say hey, India and China, do well.

MR. BERNSTEIN: Now you're kind of getting into something that's a little bit different, which is our economy's current illness. And believe me, man, that does not have to do with an insufficient supply of labor. That's on the demand side. And, you know, increasing labor supply in a climate of weak labor demand is just going to make unemployment higher.

MR. WADHWA: You need more startups. So, more startups -- this way, if you've got a startup visa or let's say that out of the million skilled immigrants you say anyone who starts a company can now jump this line and get a green card. You'd get tens of thousands of new startups, which would employ hundreds of thousands of workers. That's a quick zero-cost fix.

MR. SCHUMACHER-MATOS: Let me come back to the supply with two supply questions, then we'll open it up to questions at 20 of.

On the supply side, how do we control or even to what extent do you think there are abuses of the H-1B system, of companies that, and I think especially of Indian companies -- we all know they do this -- bringing people in. They can actually find people locally if they really wanted to, but they want to bring their guys over from India. I mean, to what extent do we have that kind of an abuse?

MR. WADHWA: Every government program is abused. Medicare is abused. The tax system is abused. We have corrupt politicians. D.C. is corrupt, okay? Does that mean that we now, you know, cut off Medicare and cut off systems? There's abuse of any system. So, really, 10 percent of these visas are abused by sleazebag Indian companies. (Laughter) That's why the case. But you know something?

MR. BERNSTEIN: That's a technical term. (Laughter)

MR. WADHWA: Ninety percent are not. You have the good companies: the Infosyses, the Wipros, the Tatas, which are solid, respectable companies. You know,

the anti-immigrant groups are attacking them left, right, and center trying to portray them as evil companies. They're not. They're very technical companies.

MR. BERNSTEIN: Do me one favor. Just grant me one thing. Stop calling them anti-immigrant groups. I mean, there's --

MR. WADHWA: There's enough phobic anti-immigrant groups, my friend. I've dealt with them. (Laughter) I get death threats from these people. I mean, by the time we're done with this thing, this is going to be all over the Nazi websites. (Laughter)

MR. BERNSTEIN: Well, that -- you know, I --

MR. WADHWA: You know, I live this thing. You haven't received threats like I have from these whackos. You know, on Twitter, on e-mail, you know, I'm hounded by these anti-immigrants for saying what's right for America.

MR. BERNSTEIN: Well, first of all, let me just say that it's very important in the audience where we don't have too many whackos.

MR. WADHWA: We don't know yet. (Laughter)

MR. BERNSTEIN: You know who you are, yeah. Yeah, right. When we get to the Q&A, we'll figure it out, oh, yeah.

But it's very important I think in this audience to recognize that you can be critical of the flaws in guest worker programs and still be adamantly pro-immigrant. I just want to make that very strong point.

I think, in answer to your question, I do think that the kinds of fixes that I've advocated -- if you read the work of Ron Hearsa (phonetic), he's very good and articulated.

MR. WADHWA: He says the same thing over and over again. The guy is a nutcase academic as far as I'm concerned. You can quote me on that. (Laughter)



MR. SCHUMACHER-MATOS: Who? Who?

MR. BERNSTEIN: It's someone who writes --

MR. WADHWA: He says the same thing over -- for the (inaudible) -- go  
and read his --

MR. BERNSTEIN: There's nothing wrong with saying the same --

MR. WADHWA: For the last 15 years, the same thing over and over.

MR. BERNSTEIN: I say the same -- you say the same thing over and  
over. (Laughter)

MR. WADHWA: No, I don't.

MR. BERNSTEIN: Yes, you do.

MR. WADHWA: (inaudible) I've evolved, okay? He's still trying to sell  
his books. That's all he does is try to sell his outsourcing America book. I mean --

MR. BERNSTEIN: Come on, there's nothing wrong with being repetitive  
if your solutions have yet to be embraced. (Laughter)

MR. WADHWA: He lives in Rochester. He's never been to Silicon  
Valley as far as I know.

MR. BERNSTEIN: Shh. Wait, wait, wait. Okay, just wait. Don't forget,  
this is not cable. (Laughter)

The labor market has -- we both agree on setting a higher wage floor. I  
think we both agree on separating the linkage with the sponsoring employer. I think  
those fixes are important. But let me just show you something. This is in the paper from  
just the other day, July 14th. Tata Consultancy Services, the largest information IT  
provider, has applied for 5,900 H-1B visas for America this year up from 1,400 -- up  
1,400 from last year. It was 4,500 applications and they say, "The challenge of these  
rejections, especially in the L-1 category, continues. It's still in the 50 percent range, so

we've changed our focus and opted for H-1B visas." Okay?

Now, to me this is kind of a classic example of what I'm talking about. You have Tata Consultancy -- Tata, TCS -- which, you know, you're calling, you know, one of the good players, and I don't disagree with you --

MR. WADHWA: (inaudible)

MR. BERNSTEIN: -- I don't disagree with you relative to some of the others. But I guarantee you, there is no labor market test going on there. There is a general sense, probably --

MR. WADHWA: Well, you're talking about (inaudible) people.

MR. BERNSTEIN: Let me finish. Let me finish.

MR. WADHWA: In a population of 306,000 workers is what we're debating over here.

MR. BERNSTEIN: No.

MR. WADHWA: We're making them the villain. We're saying we have to cut off the lifeline of Silicon Valley, because Tata brought in 6,000 H-1B visas.

MR. BERNSTEIN: It's not --

MR. WADHWA: This is silly.

MR. BERNSTEIN: It's not --

MR. WADHWA: I mean, look at the real numbers over here. Fifty-nine hundred workers, and we're debating whether they should be allowed to bring in 5,900 workers. They're going to cause unemployment in America? Let's get real over here. Maybe 300 of them were not qualified. What's the big deal over here?

MR. SCHUMACHER-MATOS: Okay, let's -- go ahead, Jared.

MR. BERNSTEIN: Smart policy is not made by hand-waving and anecdotes and --

MR. WADHWA: But --

MR. BERNSTEIN: -- you're taking everything I'm saying --

MR. SCHUMACHER-MATOS: Let him finish.

MR. BERNSTEIN: You're taking everything I'm saying and say -- and, you know, as if I'm sort of, like, undermining the system and talking about --

MR. WADHWA: Six thousand workers --

MR. BERNSTEIN: We're talking about communism and secession. I mean, that's just not smart. We want smart policymaking here. And all I'm saying is that when someone says in an economy that's stuck at unemployment north of 8 percent where, you know, over 5 million people have been unemployed for at least half a year, to say that we are now, A, ratcheting up our H-1B applications up 1,400 and we're doing so because we're getting rejected on the L-1 side, there's no reference to labor shortage. And in an economy like ours with such flack demand and excess supply, to me that's part of the problem.

MR. SCHUMACHER-MATOS: Okay. Let's stop here. Let's stop here. Neil, will you come up and join us?

Neil is co-author of this report, and we're going to open it now to questions to any of our panelists. So, please raise your hand, wait for the microphone, and state your name and your organization.

Yes, ma'am, right here in front.

MS. ORCHOWSKI: Thank you. I'm Peggy Orchowski. I'm the congressional correspondent with a Hispanic outlook on higher education and have written a book on immigration called *Immigration and the American Dream: Battling the Political Hype and Hysteria*, part of which is a lot of the rhetoric that I really wish you wouldn't use: anti-immigrant and nativist and all that. That really isn't necessary in a

place like this.

It seems that the big problem with temporary worker programs is that the jobs we're talking about are temporary. After all, the idea is that they're replacing Americans who become obsolete. But if you make the temporary worker permanent, they're going to become obsolete, too. They're going to constantly need a new working force that is the best and brightest, so-called, but they're really just young people who've got the latest skills. Same way on the bottom level. Once you legalize the illegal workers who are working in the fields, they're not going to do those jobs, so you're going to need people.

So, how do you solve this inhumane, maybe, problem of having people temporary when all jobs are temporary at this point?

And the other thing I'm wondering is about --

MR. SCHUMACHER-MATOS: Just the one question so that we can have other people ask questions. Thank you.

MR. BERNSTEIN: Well, maybe some of our -- just to give us a rest, do you guys want to tackle that?

SPEAKER: I'd actually like to address one of Jared's comments, if I could.

MR. SCHUMACHER-MATOS: Absolutely, and then we'll get to your question. We won't forget. It's a good question.

SPEAKER: First you mentioned the article about STEM workers being unemployed, and I just wanted to bring up the fact that STEM workers are still better off than others. Their unemployment rates are lower than those who don't have STEM degrees.

MR. BERNSTEIN: Yeah. Unemployment rate is probably, like, around

4 percent right now, but typically it's around 2. So, I think that's even in your paper.

SPEAKER: Yeah.

MR. BERNSTEIN: Or in some similar paper.

SPEAKER: But, secondly, I wanted to address your comment about, you know, we said that we need to match skills to demand, and you said that we are calling on the U.S. government to be the only way to do that. And, in fact, what we're saying is that we need to make these decisions based on evidence, including on evidence at the local level, and that's why we're advocating for the standing commission that would be able to do those labor shortage analyses that you called for -- and maybe you'd like to be on the commission (inaudible) -- to make these decisions based on evidence, including evidence at the local level.

MR. BERNSTEIN: Thank you. Good answer.

MR. SCHUMACHER-MATOS: So, and who would like to answer the --

MR. BERNSTEIN: Okay.

MR. SCHUMACHER-MATOS: -- audience?

MR. WADHWA: Let me address that. You know, first of all, I don't like this temporary business at all. But what happens when you bring permanent workers in, then they buy houses, they'd start companies, they add to the economy. It's false that, you know, 1 percent coming in from abroad takes the job of another (inaudible) who's already here. This is the same discussion that's happened in America generation after generation. What happens is that when you bring in people who are, you know, energetic, who, you know, can contribute to the economy, they make the pie bigger for everyone. They create more jobs. This is what immigrants have done. Skilled immigrants have created more jobs than they've taken away. That's what I'm advocating. Bring in the, you know, the caliber of people who can contribute and let be here

permanently. No more of this of short-term visa thing, no more H-1Bs. Bring them in on permanent resident visas. Take a chance on them.

MR. BERNSTEIN: So, your concern seems to be that if we make temporary permanent, then somehow we'll still have a need for temporary workers. And I just don't know if that's right. So, for example, you mentioned, say, the seasonal workers, many of whom are of course documented on seasonal visas, like, you know, they're working in the fields, and if they had green cards then they wouldn't do that anymore. You know, I've always been wary of the argument that there are jobs that Americans won't do. I've always been wary of the argument that you give somebody a card and the job that they would do yesterday is a job they won't do today. I think that what really matters is the quality of the job, the wage level, the benefit level, the security of the job, and if the quality of those jobs improved, I suspect people would be perfectly happy to stay in them if they were adequately remunerated. I mean, that's just sort of basic economics. But I think it's true.

I think one of the problems that we both have -- maybe all of us have, and you as well -- with the nature of the guest and the temporary workers is that those jobs often are exploited with below-market wages and lousy working conditions. So, I don't think we can assume that those jobs have to stay as tough as they are.

MR. SCHUMACHER-MATOS: Neil.

MR. RUIZ: I just want to clarify a thing, that just to remember that the H-1B program is a dual-intent program, and when we interviewed about 16 -- you know, besides the data, we actually interviewed a lot of the companies, and we learned that a lot of them use it for different reasons. So, the H-1B program is actually not just a temporary guest worker program, but there's a lot of companies on day 1 already and telling them to get a green card. But they know that because of the citizenship it takes --

and the backlog -- it takes a lot of time. So, I think that the problem -- when we are exposing them for the first time again, looking at the local level, the data only allows us to look at the demand at the broadest level. But what it does expose is the H-1B programs are dealing with a lot of different types of visas all in one -- different types of uses. So, I just wanted to clarify that, because I know that's been heated here.

MR. SCHUMACHER-MATOS: Got a question here?

SPEAKER: Thank you.

MR. SCHUMACHER-MATOS: Can you please stand?

MS. PLASA: Okay. I'm Sonia Plasa (phonetic) from the World Bank, working on migration and (inaudible) issues. I wanted to congratulate Neil, who was a former colleague working with us.

I want to disagree with you that a lot of the immigrants going back to India, China, and Brazil has been because they couldn't get the permanent resident. China has embarked on a huge innovation program with a lot of money --

MR. WADHWA: I agree with that.

SPEAKER: -- India on that, also, and then Brazil is growing. But I wanted to get more than your views, because the innovation policy system, the innovation system in the United States, I don't think that this is working well, okay? And I would like to know exactly, because you were posing the questions on the education policy and the training, but you haven't come out very clearly. First, because a lot of the PhD students (inaudible) of the United States also go to other countries, because they cannot find a job here, their payment is very low, especially in the science. Everybody is going to Europe, but the (inaudible) losing the competitiveness. And if you go to the NIH, you see that. I wanted to know why no more American students are entering into these areas and, second, what do you propose in terms (inaudible)?

I agree with you. It has to be free; open competition will get the best. But, at the same time, there has to be mobility of talent. I haven't seen any discussion of much recognition of the skills for developing countries. You can get a job here if you are educated here. But there are very good people graduating in other countries. Haven't seen that discussion.

And, second, I wanted to hear your views, because I work in developing countries, and over here it says don't even try to propose that people move freely as skilled people, because there's a brain drain. We have to retain the best people in the countries. So, I wanted your views. Thank you.

MR. WADHWA: Yeah, the answer to your inquiries would take me two hours to cover. (Laughter) Best thing, go to my website, wadhwa.com, W-A-D-H-W-A.com. I write for a lot of publications about all this. I publish a lot of stuff on it. You'll find most of the answers you're looking for. I've written about it.

MR. SCHUMACHER-MATOS: Would the rest of the audience give a brief --

SPEAKER: Education.

MR. SCHUMACHER-MATOS: On the education. Just the education, American education part.

MR. WADHWA: It's different. I mean, the issue, why don't Americans get in STEM? Because the excitement isn't there. The motivation isn't there. Why don't the top students from Duke and Howard and so on get into tech? Because the investment bankers siphoned off the best, you know, people directly from the top, and they go and start engineering the fragile system versus engineering solutions for society.

Why aren't more agencies like Silicon Valley? Because of fear of failure and the mentorship networks and so on are lacking. It's a whole series of complex



discussions we can get into. No one answer.

MR. BERNSTEIN: I would just add just one point. In part of this question that you just posed here, you sort of blew by a point that I thought was quite important. You intimated -- correct me if I'm wrong -- that there are a lot of STEM workers here who can't find work. I thought you said that. Okay, so that very much -- just so I'm very clear with people, even though it's obvious I want to connect the dots. I mean, Bruce said this; others have said this. There is a -- you said something to the effect that there is a very large skill shortage. That doesn't sound like a very large skill shortage. Now, you may have been -- that may be cyclical, you may be talking structural. But we need to learn a lot more before we, I'd say fairly blindly, go around saying there is a big skill shortage.

SPEAKER: I would agree with that. In fact, we haven't said there's a shortage. But I think we need to look at that more closely. In fact, depending on what studies you read, some say that we're, in fact, producing more STEM degrees than we have jobs. But there's evidence that people are being diverted from STEM occupations into other fields. You mentioned finance. So, that's something that needs to be studied more closely.

MR. RUIZ: And I think this is why we go back to the reason why we need a standing commission and why we made it that way in terms of a panel, the nonpartisan panel, because this is, again, the first layer of the data that's available. We still need a lot more data from the BLS, NSF, all these different -- and could layer it all together and actually could test this for actual shortages. We tried to do it. We actually tried to push it, push the boundaries of what we can do but weren't able to do that. But I think what we were able to do is that I think that this commission could also -- also for the interest for employers, is that, you know, data is lagged. It takes at least a year to sift

through. It took us a year to clean up the government data.

MR. SCHUMACHER-MATOS: Neil, if I could pick up one of the next points, isn't the best way to know what skills are lacking is to just let business hire what skills they need? I mean, what makes you think you can -- and this picks up a little bit on Jared's part -- what makes you think you can really know all these things in a timely fashion from here in Washington with a group of experts, especially if they come out of the Labor Department? (Laughter)

MR. RUIZ: No, that's like we don't think it's the Labor Department.

MR. BERNSTEIN: No, it's the Labor Department that's got to do with it. And I knew we had somebody here from the Chamber of Commerce and I meant to -- I wish you were up there to talk about these things.

Their fear is that this commission will be dominated by the Labor Department where there's an attitude to restrict, as opposed to an attitude. You know, their fear is it would be an attitude to restrict. That's why they don't want -- they wanted to stay away from it. There is some ways I know that -- there are ways around this that people are talking about. But anyway --

MR. WADHWA: We need to have California and New York be allowed to set their own policies.

MR. SCHUMACHER-MATOS: But I wanted to ask you that, Neil --

MR. RUIZ: That's why in this panel for the first time, like, what we looked at -- what we suggested is that there should be a business resource organization, because when we went around talking to different businesses, you know, everyone's going to tell you, we need more skilled workers if there's a shortage, right? But, you know, like, wait a minute. How do we assess it? We need something more objective.

MR. SCHUMACHER-MATOS: They always say that.

MR. RUIZ: Yeah, so we need something more objective, so that's why we have the Labor Department, we have the NSF, then we have a business resource organization. They can hash it out together, looking at objective facts. So, I think that's why we actually put a business resource organization --

MR. WADHWA: You know, I want Arizona to be allowed to close their doors if they want to do that. Silicon Valley and New York should be allowed to open their doors as widely as they want. And let's see who wins.

MR. SCHUMACHER-MATOS: Here in the middle.

MR. ASSAD: Hi. My name is Matthew Assad (phonetic). I'm a foreign service officer. I've issued H-1BVs (inaudible) served out there in India, and I'm currently working for Congressman Peters from Michigan.

My question is -- and I really appreciate your study, because it highlights some of the regional diversity within our country, and it suggests also the mismatch in labor markets that occurs within our internal market. Companies are willing to spend \$10,000 to try to pay for workers that come from overseas. What I might suggest also as a policy remedy is to look at the internal relocation expenses that companies are willing to pay and the hiring for jobs within the United States, because if we can't get people to go to Silicon Valley, is it easier to hire someone from overseas than it is to hire from Detroit, for instance?

Your comments on internal labor market flexibility, government support for relocation expenses, how do we ensure that maybe that \$10,000 the company is willing to spend on someone from overseas instead goes to someone from Atlanta?  
Thanks.

MR. WADHWA: That's a really important issue you raised.

MR. BERNSTEIN: Yeah, good question.

SPEAKER: I'd just like to say I think that's a great question, an important issue. And one thing that makes that even more difficult to address in this economy is that a lot of people are underwater in their mortgages, and it's going to be even more difficult for them to pick up and move across country. So, I think you raise a good point.

MR. WADHWA: I think that's one of the root problems over here, frankly.

MR. BERNSTEIN: And I guess the only other thing I'd add is I think there's been some agreement on the panel today that the H-1B program is inappropriately used to put downward pressure on wages. I think if there were more of a labor market test than a wage floor, that would actually incentivize workers to come from other places to be more mobile, to try to boost the internal labor market. It's really the notion that I was describing before of letting market signals work and not trying to jam those signals with too much public policy.

MR. SCHUMACHER-MATOS: We have one last question in the back.

SPEAKER: Hi, my name is (inaudible), and I'm from the Census. My question is whether or not when we're looking at amending the program, there's been discussion about having some kind of clause where's there's, like, an equivalent compensation or protections of labor rights. I think the issues with the guest programs is that these questions are -- that people are evading appropriate compensation levels, or people are putting workers at risk of exploitation. So, when we're looking at the solution, that this is a very kind of Band-Aid to these problems, are those part of the conversations, and is there evidence to support the need for that?

MR. BERNSTEIN: I'll just quickly respond. Yeah, I think there is evidence to support the claims that we've made, that I've been making on those issues, although a lot of it is pretty anecdotal. I would admit that. But I think if you look at this -- I keep talking about Durbin and Grassley only because it's kind of the -- you know, it's the

bill that tries to deal with some of these problems -- you'll see that it does try to introduce a labor market test, a wage floor, and particularly in the context of your question, the potential for exploitation. Break that lock, that linkage between the sponsoring employer. I mean, if the sponsoring employer controls your fate -- and they are not all evil by any stretch of the imagination. Most of them are ethical, perfectly law-abiding people, but there are enough anecdotes to lead you to believe that -- and just logic -- to lead you to believe that that's problematic.

MR. WADHWA: You know, my view is that the more government laws you pass, the more controls and labor market tests and that, the more jobs you're going to create in Washington, D.C., and the less jobs you're going to have in the rest of America. Let the market do its magic, take care of all these limits, let workers come and work for companies and shift jobs if they don't get paid enough. The market will equalize salaries on its own. Companies don't want to have to relocate foreigners from here and deal with all the cultural issues and all, you know, all the bureaucratic issues. They'd rather have someone local if they get that person. But right now we're just starting it by -- every time my friend, Jared, says something, it's yet another government law that is required. More bureaucracy in D.C. We need less bureaucracy, less workers in D.C., more in Silicon Valley, and that'll fix the economy.

MR. SCHUMACHER-MATOS: Our authors get the last word.

SPEAKER: Okay, I just want to address your question. There are a couple of protections currently built into the program already, and one is the programming range, in that employers are required to pay the prevailing rate for that occupation. That's recognized in, you know, national surveys.

And then the other one is fraud prevention, and there USCIS conducts unannounced site visits to these employers. They interview the workers, find out if

they're actually doing the jobs they were hired to do and if they're getting paid the prevailing wage.

MR. RUIZ: So, basically the (inaudible) on Jill's point, it's already been built into the program. And I guess that some of the proposals are to make an increase to that. And I know from talking to employers, they told me that they've had a big increase in on site visits the last past couple years.

MR. SCHUMACHER-MATOS: Well, that wraps it up. I think we've had a profound debate, clearly. I mean, this wasn't a love fest up here. (Laughter)

MR. BERNSTEIN: Sure it was.

MR. SCHUMACHER-MATOS: No, but it really exposed the issues in a very articulate way on both sides and all based on an excellent study, an excellent presentation. I think these folks deserve a round of applause.

SPEAKER: Thank you.

SPEAKER: Thank you.

MS. LIU: Let's get started so we can end promptly at 12:00. So I want to welcome everybody back from the commercial break and to the second half of Meet the Press. There's no doubt after the lively discussion from the earlier panel that I as moderator just think that this is going to work by being self-moderated, so I almost want you all to start talking yourselves.

We have the great benefit of taking the analysis, taking that morning discussion about H-1B's and the national implications from immigration policy and work force policy and begin to ground it to the metropolitan areas and to the employers who are the sponsors of the H-1B visas.

So we have the benefit of having four really distinguished guests with us today. Let me quickly introduce them. We have two employers on this panel, one

capped and one uncapped, and that first is Lelia Crawford, who is to my left, and she is the Director of International Students and Scholars representing Emory University. And Emory University is one of the largest requesters of H-1B's in the Atlanta area. And Atlanta actually ranks 12<sup>th</sup> among metropolitan areas in its level of H-1B demand.

Over on the far left is Bill Kamela who is the Senior Director of Education and Workforce for Microsoft Corporation. Again, Microsoft represents today the employer with the highest request for H-1B workers in the country, working in the positions most filled by H-1B, which is in computer occupation, scientists, analysts, and in a city, Seattle, that has one of the highest overall demands for H-1B workers.

Beyond the employers, we also have Keith Lawing, who's sitting next to Bill, and Keith is the Executive Director of the Workforce Alliance of South Central Kansas, which is a workforce national board in that region. And he is one of those organizations that has received the ETA grant from the H-1B visa fee, so he can talk to us about how they're using those fees to grow the domestic supply of skilled workers in that region.

And then lastly, but not least, a good friend of the program, Sean Randolph, who's the President and CEO of the Bay Area Economic Institute, who obviously represents a very robust area, we talked a lot about it today, both Bay Area represented by San Francisco and San Jose. Together, that region represents approximately 30,000 requests for H-1B workers, one of the highest concentrations of worker requests in the country.

So why don't we start with a question that I want to direct to everybody, which is, you know, there's no doubt Jared has put out a challenge which is that the H-1B visa program — that all of you, in fact, who are the major users of the H-1B visa program is contributing to the downward pressure wages in the country. So what I want to do is

ask each one of you to respond to that and really give us a sense of the nature of your own demand for the skilled workers in terms of the types of occupations they're being used for, how does it contribute to the competitiveness or value of your institutions in your region, and just what your experience is of the program in general. So let's start with Leila.

MS. CRAWFORD: My institution, Emory University, employed last year 629 H-1B employees, and that's probably about one percent of our work force. The occupations in which we hire H-1B employees are mostly in the biological and biomedical science fields. We do have workers in health sciences and also in the physical sciences. So those would be our three top areas that we hire H-1B employees.

They contribute mostly to our research efforts. Emory University's medical school and health sciences contributes a lot of biomedical research and health sciences research, and the H-1B employees are hired mostly in those areas. We do have a few H-1B employees in other areas, but the majority are concentrated in those fields and mostly doing research activities.

MS. LIU: Great. Bill, why don't we go to you on the other employer side?

MR. KAMELA: This program is a critically important, though small part of our work force nation-wide. Just to give you some stats on how important it is and the challenges we have right now in the United States, I asked our HR folks to pull our latest numbers.

As of today, we've got about 5,200 job openings in the United States, of which about 3,100 are for computer scientists and computer science engineers. They start at \$104,000 a year, and they also get a stock grant and a merit increase immediately.



So we are having a heck of a time finding the right kinds of folks to fill those jobs. And really it's exacerbated by the reality of some of the other numbers, Amy. We know that last year, for instance, there were 1,600 computer science PhD graduates in the U.S. Roughly 55 to 60 percent are foreign nationals. That leaves about 700 folks for the entire country to hire in any one year in computer science. For business, academia, and government, it just isn't enough, not even close to being enough. And so our pipeline is desperately short of the kinds of workers we need.

And, in fact, computer scientists with the latest BLF data shows that one in 10 jobs in the United States now require a computer science background, so incredibly important, yet we have a real shortage in our stem pipeline moving forward.

MS. LIU: That's helpful. Sean.

MR. RANDOLPH: A couple of things really resonated, Amy, in this report. It wasn't a surprise that the Bay Area has the greatest intensity of demand for H-1B. I think what was important in me reading it, though, was the focus on the smaller companies. I think there's a lot of identification with very large companies like Microsoft to have a need for very large numbers and Intel and companies like that. But actually the report shows that a lot of the demand is from very small companies, one and two requests per company.

So in the Bay Area, before coming out here I talked to a lot of companies and lawyers that work with small companies, and there were some really I think pretty compelling examples that the demand is coming from small and medium sized companies, typically entrepreneurial companies, new, young, start-up companies.

One example of a company I talked to, 150 employees, just a couple of years old, growing as fast as they can, they're bursting at the seams, and they need people in computer science and electrical engineering.

And so in the Bay Area, the growth, the demand is driven by the technology industry, and the demand is for people with degrees, bachelors or masters typically in computer science and electrical engineering, and they can't find them. They're looking everywhere they can. They go blind. They don't care where they get them, universities here or around the country, and even IITs in (inaudible) they're looking wherever they can get them. About 20 to 30 percent of their positions right now are vacant. And they can make offers to people from H-1B if they hit the cap, and they've got to keep plugging, but they can't find the people.

So I would think, Bill, that a large company has resources and options. Small companies that are entrepreneurial, they're trying to grow, they don't have many options. I think they're the ones that are between a rock and a hard place, and I think that's where the growth in employment that we're looking for, the entrepreneurial, the innovation based growth is going to come from, and I think that's where, for us, the biggest problem lies.

MS. LIU: That's very helpful.

MR. LAWING: Thank you, Amy. I just want to start by thanking the Brookings Institution and the Metropolitan Policy Group for doing this report, shining attention on this issue. I want to compliment Neil and his team on the report that they did. I think it raises some excellent topics, things that we really need to look at at a policy level.

In Wichita, Kansas, we are the air capital of the world, and that's a pretty bold statement. We build airplanes, use the very familiar brand names, Cessna, Beechcraft, Boeing, Learjet, and the nature of the H-1B visas that we see are in these engineering fields, manufacturing and engineering. There's also a very strong R&D component at Wichita State University. We have the National Institute for Aviation

Research. And actually about 70 percent of the research FAA does is done through --

But one of the larger numbers that you would see a part of the metropolitan area, it's a critical niche, and there really is a skill shortage, and that's what these employers are looking for when they're using the H-1B visa program, and I don't see that being, at least certainly in our region, any kind of downward pressure on wages because of the numbers. We're talking about 260 last year. They're still very robust, and that's a small percentage of the overall engineering professions in Kansas and in our region.

So I think it's a valuable tool that is helping to drive innovation, and that's what our aviation industry is looking at right now. And these are the folks that are helping them create that innovation that's going to create future jobs and keep their businesses healthy and growing.

MR. RANDOLPH: Could I ask, Amy, the question about driving down wages? This particular company I mentioned, their starting wage is \$125,000, and so they're not looking to pay H-1B less than that, they'll pay them the \$125,000, anybody they can get, they'll pay that much. So I don't think there's any evidence in Silicon Valley and the Bay Area that H-1B's are driving down wages. We're probably at full employment in that sector and that's the issue right now. And I think frankly on a national level, 85,000 -- there are undoubtedly cases that would prove the rule that these are being used to drive down wages, but 85,000 in the sea of national employment is a drop in the bucket. I know in our region, it's not driving down wages. I can't see how other than on a micro company by company level it's really going to have that kind of impact.

MS. LIU: And I think this conversation already reinforces why this is so important and different at a regional scale, the nature of the labor market test, and so I want to come back to that. I want to touch a little bit on the immigration and implications

first before we have a conversation about skills.

You know, a lot of the, you know, in a global economy, we talk about the mobility of talent. And I think Vivek even said this morning that firms really need to be able to tap now a global labor force, and that's what I think H-1B represents, is that there's an enormous demand for labor regardless of the border, and we're tapping global supply.

Yet we're in a U.S. market that, as Jill mentioned, is actually putting a real damper on mobility. Because of the housing situation, a lot of folks are kind of locked into the mortgages they're in. So when I hear, you know, Sean talk about the fact that a lot of small firms have a real hard time tapping workers, they're going to be stuck mostly from a regional labor market unless they can really pull that supply from somewhere else.

So what I'm really curious about is, let's talk about mobility for a minute. Given your experience with H-1B, the much more internationalized work force that you have, how does it change your position about immigration policy so that you can continue to be on the cutting edge? Do you each, as organizations of a region, have a position about the immigration debate so far? And I'll open up to any one of you.

MR. KAMELA: Go ahead, Sean.

MR. RANDOLPH: From a regional standpoint, I think we, and it's hard to speak for the region, but business economic development groups would have the perspective that the cap needs to be addressed. I think we would say also that we need to look at the limitations on Green cards. I mean these people are in the country, they're graduating with advanced degrees. Many of them would have loved to have stayed here, and we know in our own region there's an amazing record of how many world famous companies and less than world famous companies have been founded by people who

came to our universities and went to work in research labs and founded companies in venture capital, and it led to tens and tens of thousands of people being employed in Silicon Valley. And so I think the question of the pipeline through the Green card process needs to be addressed along with this. This doesn't get us to the education issue domestically, I'm sure we'll get to that in a minute, but I think we need to address both of those issues.

MS. LIU: Leila, do you have a thought on this given the fact that you work with international students all the time?

MS. CRAWFORD: Yes. Well, as you know, academic institutions are not subject to the cap, and so in terms of the supply of H-1B's, that's not necessarily an issue for us. But in terms of moving our students, international students, into the work force, I think the issue is very real.

Even in our work force, in terms of the H-1B's that we employ, the idea of them not being able to get Green cards is a real problem for us, as well. And we see a lot of them who really want to stay, and we really could use their talents, their skills at the university going back home because of the length of time that it takes to get a Green card, and so that's a real issue for us, as well, the whole Green card issue.

MS. LIU: Great. Bill.

MR. KAMELA: Yeah, there's no question that it's having a huge impact at Microsoft, in it and around the country, and I should have started by complimented Neil, as well, because this really is groundbreaking work, and it shows how important this program is to a wide variety of industries across the country. But at the end of the day, if we are being hamstrung by the fact that because of government inefficiency, we lost 300,000 Green cards, these folks should have their Green cards.

This wouldn't add one new person into the United States, but, in fact,

there are 300,000 Green cards that were backlogged that the government could not process in a timely fashion, and these workers, as Professor Wadhwa, said, are left in limbo for far too many years. That's why the per country bill is so important.

A number of other pieces of legislation in play right now on the Hill that are bipartisan in nature. Again, Professor Wadhwa mentioned the start of (inaudible). These are bills that are sponsored by folks like Jerry Moran, Marco Rubio, and Senator Coombs from Delaware, Senator Warner from Virginia, very much a bipartisan group of senators who are now looking at these challenges, because if we don't, then we do run the risk of making it too difficult for folks to stay here.

We know that wages are increasing exponentially in China and India. We know that those settings are becoming more hospitable. And so unless we deal with our policies on the front end, we will be as aggressive as we can. I commend you to look at our testimony from last July where we talked about these issues before Senator Schumer's subcommittee. We know this is one of the most critical issues facing our country, if we don't have the right talent to move forward.

Lastly, on portability, because Jared raised it and I wanted to just briefly touch on it. We absolutely support portability for workers. As soon as you decide you can find another job some place else, great. You shouldn't have to go to the back of the line, you should retain your place in line. That's unfortunately part of the current law. We, as do many other tech companies, support removing that barrier moving forward.

MR. LAWING: And just to touch on this real quick. As a local work force investment board, we view our primary customers employers, and we want to help them to get the talent they need in their businesses, so as far as any immigration policy is to H-1B visas, you know, our position would be to make it as flexible as possible to help meet that employer demand.

And again, anecdotally, I know of many cases to where, when the auto industry started to cave before the, you know, Great Recession, there were a lot of aviation companies trying to recruit talent from Detroit, but again, workers do not have the flexibility to get out of their mortgages to relocate. And so I don't think our employers are that interested as to where they get the talent as long as they can get it.

MS. LIU: That's interesting.

MR. RANDOLPH: One footnote, too, that we hear even from some of our companies like -- even federal laboratories that are such a cap, it's the prohibition of staffers working. There are a lot of educated people who come here who I've educated thousands, and it's a major hardship for them to come and stay here and work if their spouse can't work.

MR. LIU: Very interesting. So let me go back, let's attack this issue about labor market tests directly. I think we often hear that there is a true skill shortage in a lot of regions around the country, but it's hard to get the data to demonstrate this. And yet we also know that even while workers may be, or regions of employers are applying for H-1B's, there's a simultaneous effort to really grow that pipeline of skilled workers.

So let me start off with Keith. You are a workforce investment board, do you swim in data all the time? Tell us, in Wichita, Kansas, which, by the way, I think most of us know, are aware that there's been a lot of tumult in the aviation industry in Kansas with the decision by Boeing, the potential conversation with Beechcraft's ownership. Is that changing the demand for skilled workers in that region, because of these changing economic dynamics? And what's your sense of the skill shortage? You have numbers on that. Why don't you answer that first and then I'll follow up with you on what you're doing to fill that?

MR. LAWING: Well, what we're seeing, again, I think within, you know,

manufacturing certainly and I think industries across the board is the impact technology is having on the work place. You're going to need fewer people doing touch labor jobs because technology is making that process much more efficient.

And so what we are seeing, you know, we've had over 15,000 laid off from the aviation industry since 2009. And there are employers that are hiring, but they're hiring for a specific skill niche. You know, the use of composite materials is replacing sheet metal. And so there's a whole different skill set that is needed in terms of how you manufacture it, how you put it in place, how you test it, and that's really what we are seeing, and that's what's changing the dynamic.

The reality of the situation is that, getting back to full production in the aviation industry in Wichita will happen over the next few years, but it's going to occur with fewer workers, but the workers there have a higher skill set required by those employers, and so that's really what we're seeing. I mean, you know, we've got an unemployment rate in Kansas that is below the national average, but within our region it is at the national average and pretty much has been during the past couple of years. So we're a little anomaly, you know, as far as Kansas goes overall just in terms of our pocket.

But that is, to me, what we're trying to take on, is where – how we can better prepare these job seekers to update their skills to help meet that labor demand, and it's a very real thing.

You know, my office is at a work force center, and so I see a lot of people all the time that struggle with this, and again, we're trying to give them the tools to get rid of those barriers.

MS. LIU: And it's really, you know, it's just a real good reminder that we can have a high unemployment rate and a skilled mismatch at the same time.



MR. LAWING: Yeah.

MS. LIU: And so that's what you're revealing. Give us a sense of — you're one of the recipients of the ETA grant that is funded by the H-1B visa fee. How are you using that ETA grant to fill the skills gap then particularly around STEM fields given the mission of the program?

MR. LAWING: Our project is called, and Neil had a slide up earlier, Kansas Engineering Excellence Program, KEEP, we love our acronyms. And, you know, where we usually operate as a work force investment board, are the lower rungs on a career ladder with our work force investment act funds. We also have a national emergency grant that was invested into the region to help us deal with the large number of layoffs.

And so the KEEP grant is letting us compliment those efforts and build a stronger continuum.

We certainly are going to need more production workers and with a different skill set than what they previously had in the marketplace, and we've been able to address that very robustly, and I'm hoping a lot of people get back to work even with these conditions.

What we're able to do with the grant from the H-1B visa fees are focused on the higher end of the career ladder. And particularly in partnership with a group of employers and the National Institute for Aviation Research and the College of Engineering, we have the ability over the next four years to work with 100 people and target bachelors degrees, but also masters degrees and PhD's.

And this is where we're seeing some of the demand in the engineering fields, it's that higher level, and it's creating innovation that is going to spur job growth more at the production level. So this gives us a chance to really take a stronger continuum in our

approach. And another element of this grant is that we have the ability to help people with work experience opportunities. I think Neil, in the report, mentioned one of the challenges at the bachelor degree level, too many folks are still lacking work experience and that's keeping them from being hired. Through our grant, we're able to plant interns, part-time workers within companies while they're studying for that bachelor's degree, which we hope will, and we're confident will help make them very strong candidates when they complete that degree.

MS. LIU: Great. And then I think for the rest of you, what we all know also from the data is, H-1B's really do represent just a very small share of the overall work force, and particularly within your own companies or region. So that means, for the most part, we're still really reliant on a domestically sourced work force.

So what are each one of you doing to contribute or try to grow the supply of skilled workers so that you're not always having to turn to H-1B's as your back-up plan? So if you will. Let me ask, you know, Bill, you do a lot of work in the states.

MR. KAMELA: Yeah. Washington State is where we are headquartered, outside of Redmond, Washington. Believe it or not, Washington State has the fourth most STEM jobs in the U.S. and the fourth least STEM graduates. So we have an incredible mismatch even in a state where you've got companies like Amazon and real networks and Starbucks and Boeing and many others, so a huge mismatch. So we got together, and I think one of the things moving forward is, as we look to shrinking government, how do we create better public/private partnerships?

So we work with our great Governor, Governor Gregoire and other companies in our state, and we set up last year \$100 million STEM scholarship program in the state that we hope in the next 10 years will grow to a billion dollars. And it's for young people who are eligible for free and reduced prices lunches, because as you all

know, one of the great challenges in the STEM field is bringing in unrepresented minorities and also women into the fields, and so we're really focusing on that growth at a Washington State level, but, quite frankly, around the country.

We spent about \$30 million in STEM related work. We've got 16 FDE's, that that's all they do is try to encourage folks to get into STEM fields, young women especially in fourth, fifth, and sixth grade, telling them it's not just about programming.

We did all the work with James Cameron, for instance, on Avatar, so you can start working on projects like that. You can really tackle some of the one end challenges around food and water and communications and health. This is really what technology is about today, it is about solving the great challenges of the world, and that's what we're trying to convince young people to do through various programs, is to, in fact, let them realize, number one, that they can really make a difference, they will be paid extremely well, and these are the fastest growing sets of jobs according to the BLS in the nation.

MS. LIU: Great.

MR. RANDOLPH: I think there are some fundamental structural problems in our pipeline for STEM workers and in our region, just a couple of examples at the high end. H-1B has a very high nanotech laboratory, about 100 PhD scientists. Of those, 95 to 98 are from other countries. They say they would love to hire any American they can, but they can't get Americans to apply, and so they're from everywhere in the world but the United States.

The San Jose State University, state institution, is the single largest generator of bachelor and master's level engineering students in Silicon Valley and in California, that's 7,000 a year graduate, and it's sort of the work force, the day-to-day work force of a lot of Silicon Valley.

So a distressingly large number of the freshman entrants there have to have remedial English and math training before they can even begin to function as a freshman, this is coming out of a high school system. The high school system has an appalling number of drop-outs in Silicon Valley or San Jose. And so you've got that pipeline coming in, and then of the students who begin the engineering program, a very large percentage drop out before completing their degrees. I think PCAST has come up with a number, I think 40 percent nationally of the students who being science and engineering programs as freshman drop out before they finish those degrees.

And so when you look at that pipeline, the pipeline there, it's a very broken pipeline. And so there are issues on how we incentivize people. I think the engineering people in San Jose say, well, the students use hard work, it's really hard, they may not have the attractive scoutage when they get out, and so a lot of them drift off.

But I think some of the answer has got to be with our educational system, per se, and some I think with what Bill mentioned, that public/private partnerships, companies like Hewlett Packard and IBM, major programs and schools paid through a community college, and I think a lot of the answer must be -- certainly in California community colleges, there are programs where, for example, Genentech worked with Skyline Community College across the road to identify the -- they're going to need, they contribute equipment at the community college, and they develop a pipeline, that way. And now there's a new effort in California, very young, but I think it's the right direction, where all of these community colleges, of which there are many, many, 50 maybe, I don't know, about that number, they are all out of money. They work with employers locally, but they don't collectively work together. And now, for the first time, they are starting to organize -- state what an industry basis -- what does the IT

profession need, what does a biotech sector need? But it's the connections to the employers to understand the pipeline and develop a targeted training program that the employers will need a year or two down the road.

MS. LIU: So I was going to a follow up question to the three of you right now before I turn it over to Leila. And what I said when we prepared for this panel, I said I do not want to have a huge conversation about work force policy because that is another forum in and of itself, but it's hard not to have that conversation when we're talking about the need for skilled labor, particularly around STEM fields.

So let me stick to this conversation then. And I'm going to turn a little bit to Bill, but ask the three of you anyway, because Bill has had I think 17 years of experience both in Congress and in the Department of Labor working on work force issues. We have a work force intermediary at the regional scale. I do think that most folks believe that in order to fill this gap, we need to have better alignment between industry and the educational work force system. And we're seeing an enormous amount of experimentation between employer sponsored or industry driven solutions around community colleges, career tech high schools and other things, but they are a lot of one off innovation.

Microsoft is going to do their own training, FedEx is going to partner with their own community college, and maybe that's okay region to region because of the different challenges within each regional market.

But is there a way to better scale these regional public/private partnerships around skills? Because I don't think we have it as strongly aligned as we can across the country. Any thoughts on how to make this more of the norm, how to simplify existing policies at the state federal level to really encourage the demand driven approaches to these gaps?

MR. LAWING: I'll start. Go for it.

MR. RANDOLPH: Okay, making the easy ones.

MR. KAMELA: I think, number one, you touched on it, you know, around the skills mismatch. What we found, for instance, is, most folks don't have time to get a four year degree anymore if they've been dislocated from their current job, and we're talking about millions of folks unfortunately in that situation.

What we have seen is the great rise in certifications and professional certifications of a wide variety, industry recognized certification. We call them portable job credentials. You can work in Seattle, Washington or in Savannah, Georgia, and what we've seen is community colleges really taking the lead in this niche.

Ten years ago there were I think 35,000 certifications issued by community colleges. In 2010, that number was 650,000. It is greatly outstripping the number of associate's degrees that community colleges are now giving. Why? Because folks, you know, folks need to pay for their car, they need to pay for their rent, they need to put food on the table, they can't afford to wait times two to four years to get the kinds of skills they're going to need to get back in the labor force, and so that's what these folks are doing.

We used to think that other college meant that they dropped out after a few courses. Well, in fact, when you talk to the folks at the America Association of Community Colleges, they now know that other college meant these folks were getting very specific industry recognized credentials and certifications that will allow them to get into the job market much more quickly.

And I think that as the system revolves, I would argue that we need to put more emphasis on those kinds of credentials moving forward, look at tax credits around that area, and look at how we're delivering these services moving forward because the great

challenge Keith faces every day, he's got twice as many people coming in the door than he can serve, or three times as many, or four times as many. So moving forward, how are we going to start delivering this service? Is it going to be through the greater use of technology because we've got less person power to do that, and how do we do that in a joint public/private kind of way to make sure we still have the rigor, that we have the right composites in the course that, in fact, employers will recognize and then hire people that KEEP produces for them at their doorstep? And that's really what we're looking to do moving forward.

MR. LAWLING: Let me make a quick point on our grant. The focus of our grant are individuals who have been long term unemployed in the aviation industry, have experience, and we are trying to get them a degree or credential to help get them back. And we're also targeting women and minorities, as already been mentioned, in the represented engineering fields.

But I totally agree with Bill, we need a stronger alignment of industry recognized credentials. You know, as technology is changing, one of the things we've seen is engineers who have been laid off. We've been able to get them back in the work force after they go take a certification class offered by the College of Engineering, focusing in on composites or some new type of technology. So, in my opinion, and from what I've seen that's worked, a better alignment of academic credentials and academic programs to industry recognized credentials that can have a quicker turnaround time, that's going to help me and the programs we operate and my other brother and sister work force investment boards around the country do a better job of, you know, limiting the skills gap.

MS. LIU: That's great. Sean, did you want to jump in?

MR. RANDOLPH: I'd only add that I think we, again, we have two levels.

We've got the plan coming through the conventional university system of people who are going to be graduating with bachelors and masters degrees and paying attention to that pipeline. A lot of folks, they come out thinking there are no jobs in software and technology; there's a ton of jobs in software and technology. We need to kind of make it clear that they're out there, and incentivize people to stay in the program.

You know, even fundamental stuff like in California, you have to pay all teachers basically the same, you can't pay math and science teachers more. If we want to have more STEM graduates, why not pay math and science teachers more than poetry teachers? Poetry is wonderful stuff.

MR. LAWING: Or forgive their loans.

MR. RANDOLPH: Yeah, sometime like that. We have to start at that level and work our way up. Once we get to the actual place where public/private partnerships come in, which are extremely important, absolutely. Closer connection to industry, credentialing, and I think there's a lot of wonderful examples of what individual companies are doing in their communities, but they tend to be one off, like you said.

MS. LIU: Yeah.

MR. RANDOLPH: We need to scale those, and very often community colleges are the most efficient way to do that. Unfortunately, California is cutting back its community college system right now, but that's another issue.

MS. LIU: We're going to come back and talk about that. Let me let Leila jump in and speak on behalf of educational institutions and how you're trying to — I mean, again, you're using a lot of H-1B's for life science and biomed and researchers. Obviously you're growing your own talent, how are you thinking about this?

MS. CRAWFORD: We have several programs at Emory, and colleges and universities around the county have several programs to do this, because we need



them, as well, in our own universities, but we need people in STEM fields to be professors and researchers and otherwise. And so at Emory, we have three different levels where we try to encourage students to go into STEM fields for education. We also have programs with faculty and also with high school teachers. A couple of programs at the undergraduate level, we have the Hughes Undergraduate Program excelling in science, and that program, students who have been accepted at the university are asked to come in during the summer if they're interested in science, they're brought in during the summer, and go through a summer program where they take courses in science, they work in labs, and they go through a career education program, as well, so they understand what job opportunities are available in the field, and they work with people who are already in the field to encourage them, and once they enroll in school, the program continues with mentors and working with faculty and so forth.

We also have a summer program that brings students in, that the college students who are already there will have an opportunity to work in a lab with a faculty member doing research. And so a couple of programs for students who are already in college.

At the high school level, we have students who come on campus in the summer, as well, who take courses, who take college level courses taught by college professors in the sciences. And again, there's efforts to engage them in career education in terms of particular fields that they might want to enter. And we also at the high school level, as well as the college level, work with curriculum and faculty development in order to try to help faculty focus more on student centered learning and also on problem solving. A lot of times I think students get turned off because science is hard, but I think if you can make it interesting to the students, more of a problem solving, students that are focused, it makes it more interesting and students really get involved with it, and we're

having success in this area.

But a lot of times, I think it was mentioned in the panel previously, sometimes students get siphoned off into other areas where the basic science is required and then will not continue on to the PhD level, which is the level of skill that we need to employ at our university.

MS. LIU: All right. So I'm going to turn it over to the audience very shortly, so start thinking about questions you want to ask this panel. But let me just ask one final question to everyone. We had a robust discussion earlier today about federal policy, I'm going to put that on hold and assume that federal policy will continue to be broken and ask about states, because I do think states really do matter when it comes to regional economies.

And often times this program talks about the importance of state policies and advancing a lot of these regional dynamics, but we're also at a situation now where states are fiscally strapped, and particularly in the situation I know most about in terms of Washington and California. California is in a major budget deficit crisis. It has dramatically slashed funding for higher education and the community college system, which are the most important feeders for growing the talent, whether it's from what we've heard today from junior high school through the two year institutions and even through mid career.

And in Washington State, where the University of Washington has been a real partner to industry, particularly around computer science, has also seen massive cuts to their programs as a result of the state deficit.

So can we turn to states at this time to be a partner in solving our skills shortage? What's your prognosis on that? Do we see any good innovation underway despite the fiscal situation we see in states? I'm going to start with the folks from

California and Washington. Any optimism in there?

MR. KAMELA: I think you have to look at the states, they're still enormous resources. In California, the University of California system, the state's university system, community college system that's still the largest in the U.S., there is enormous capacity there. I think part of the fiscal problem, which is an urgent reality for all these different levels, is, I think they're going to need to retool, they're going to need to restructure and in some way redefine themselves because I think the old world isn't coming back. I can't see a day in the foreseeable future when they're flushed with cash again. And so that will probably require more partnership with business, with industry, more move to online education perhaps. Maybe that enables more outreach to people who need those skills development and makes it more affordable and easier for them, but I think it has to be part of a reevaluation of how education is delivered at the state level, that I think absolutely the states have to be at the table.

MS. LIU: Great. And think about your answers in 30 seconds so we can open up to the floor.

MR. KAMELA: I think there's a great opportunity out there in the states and I think some states are moving forward. I think part of the challenge is, if you're going to get kids into the STEM pipeline, we've got to figure out a way to make sure that we incentivize them properly in high school.

Right now there are only nine states in the United States that require math and science in their core, nine. And so if we are really going to increase our STEM pipeline, state policies have to significantly change. We have to have a better AP computer science test. Last year, there were less than 400 African Americans in this country who took and passed the AP computer science test, less than 400. There are over 100,000 taking the environmental science AP test. Last year at Howard University,

one of the most preeminent institutions in this country, they had 17 kids line up and enroll for computer science. They had 300 going into radio and television broadcasting. So again, we've got to drive at the state level working with institutions to say here's where the jobs are, here's what we're going to pay, how can we partner with you, whether it is something like the open learning institute at Carnegie Mall and where kids aren't staying in their statistics class 15 weeks four times a week, they're meeting nine weeks, twice a week, they're doing it in teams, and they're doing problem solving, so they actually remember what they learned at the end of the day, we need to do more of that in high school.

We need to encourage lots of innovation. And I know that we're ready to partner with anyone who wants to partner with us, and that's what I think it's going to take. It can't be the one offs. I know the Chamber wants to bring folks together, BRT. Lots of the business trade associations here in this town are saying what are the one or two things that business should focus on, so we are more than willing to come to that table and look forward to try to partner with any of you to do just that.

MR. LAWING: And let me just jump in real quick. Kansas -- states definitely have to be at the table, and they have to be partnered. Again, you do get a mixed bag because of the politics and some of those dynamics. Kansas this last legislative session passed a bill to support technical education. So if a high school student wants to take technical education classes, they will pay the community college or the technical college to come offer those classes to that student. If that student graduates from a Kansas high school and enrolls in a technical education program at a community college, that college, they will pay the tuition.

So that's one of the things the state is doing. But at the same time, our K through 12 system is suing the state because they're not giving adequate funding, so it's

a mixed bag, and again, we've got to figure out how we can make all that work.

MS. LIU: Well said. Do you want to add to this real quick?

MS. CRAWFORD: Obviously, because it's a mixed bag in Georgia, as well. I mean we have some very innovative things happening, but not enough.

MS. LIU: Great. Okay, so your turn. So raise your hands high if you have questions, and we'll start over here. Please identify yourself.

MR. NORTH: My name is David North, I'm with the Center for Immigration Studies, which is a think tank nearby here in Washington, D.C. I have one quick comment and one quick question. My comment is that the next time Brookings does something like this, I hope it's a little more balanced. There have been 11 voices up there on the stage, one of whom had some questions about the H-1B program, one of whom was neutral, and the rest of you seem to be enthralled by this program, which is, frankly, a very controversial program, and we haven't heard about the displaced workers, displaced American workers that have been created by this program, that's my comment.

My question is to the gentleman from Microsoft. There is a proposal before the Congress to have the staple bill, staple bill would involving giving Green cards to people with STEM degrees, advanced STEM degrees in this country, masters, PhDs in this country. And one of the proposals suggests that there should be no employer tie. Does Microsoft favor that program?

MR. KAMELA: We support a program that allows for more of the brilliant, young people who come to the United States in our critically needed STEM disciplines to be able to get their Green cards much more quickly. We think they should be tied to a job offer. Many of the bills on the Hill do, in fact, tie it to a job offer, we think it makes sense. But we don't think, as Jared mentioned, that they should be perpetually tied to that employer, they should have portability. So, yes, there should be a much

greater effort on the Hill to retain these brilliant, young individuals, but also we should allow them portability once they've gotten their job offer and begun working in the United States.

MS. LIU: Other questions? Go to the woman here.

MS. DESILVA: Hi, I'm Teresa Escobar DeSilva, I work at U.S. Department of Labor, Neil and Bill. I used to work for Bill, or with him, when I first started at DOL actually and he was at the Employment and Training Administration.

MR. KAMELA: I've had a very checkered past, clearly.

MS. DESILVA: I'm now in International Affairs and removed from this issue, but at the time, in 2000, I was on detail to Senator Kennedy's office and was working full-time on this legislation that's still in effect. And I can tell you, some things change and some things just, you know, stay the same. These are all the exact same issues that were talked about heavily back in 2000 and before that. They had already been going on for a long time before 2000.

And on the one hand, I'm very, you know, glad about the research that Brookings has done because it's a great contribution to what we know about it. We didn't have this kind of data, this knowledge, or any way of anticipating how the economy was going to change, how the industry, the labor market demands, et cetera, were going to change, so this is a great piece. I'd like to hear more comments from the panel about the idea of a National Commission because that could go either way. I'd just like to highlight that at the time that this legislation was being amended, in no way, shape, or form we were under the illusion that the H-1B skills training grants were going to solve all the problems. It was sort of an approach to get at what you all were talking about, the importance of public/private partnerships at, you know, local, or regional, or, you know, collective effort, because we knew that things are happening in different ways in different

parts of the country and there was no quick fix or easy solution at a national level, it was going to require this kind of collaborative involvement.

And the concern is that when you have national level lobbyists, they don't necessarily carry the same perspective and priorities or experiences as all of you do. And so back then, as I'm sure you do now, there's going to be some conflict and different push/pulls in terms of directions for even that commission. So, I don't know, what are your thoughts on that kind of approach?

MR. RANDOLPH: My impression is from the proposal from Brookings is that the metropolitan perspective would be hard wired into that. I think if that's the case, I think it would address your issue.

MS. LIU: Bill, do you want to jump in as --

MR. KAMELA: Yes.

MS. LIU: -- on a commission, but even whether the vision of the ETA grant has really -- even though it is a drop in the bucket in terms of overall work force funds, whether it's really played out to its mission.

MR. KAMELA: Yeah. And I will take part of the rap for this because I was at the Department of Labor for a number of years under both Bob Rice and Alexis Herman, and with my good friend, Jared, who was on the earlier panel, and we did work on this program, in fact.

The Department of Labor I think, I love the people there, it's a great bunch of individuals, but it is very much a vestige of the old OEO days. It's very much a second chance department, in my personal opinion. And so despite the fact that there were lots of pushes and pulls and internal discussions about where we should target these dollars, many of these dollars did not go, in fact, to jobs that are part of the H-1B system, they went to help people move up the career ladder, for instance, in health care,

starting out as a lab tech or a red tech, and hopefully he or she then moves up to maybe be an LPA or an RN hopefully down the road.

Great, great pipelines, whether it's in energy, financial services, health care, all beautiful things, but it really – the original reason that the cap was lifted in 1998 was, we said those dollars would be used to mitigate dependence on foreign labor. Well, to do that, then you've got to train folks in those fields and in those occupations, like Keith is trying to do in Wichita. Unfortunately, that program hasn't done enough of that, and I'll take the rap for that as much as anybody, quite frankly. But I think there is still a possibility to do that with what Jay Nolts is trying to do and drive some of these grants to more demand related fields, and I think, clearly, we need to do much more of that.

Employers can't just give folks the money and then walk away, so we have a responsibility, I think, to be much more involved with the Labor Department, with local boards. I sit on the National Association Workforce Boards, have done so for many years, and am very proud to do so, but I think all of us employers, we can't just complain about the end product if we don't get involved on the front end and talk about what kinds of skills we need and what these dollars should be used to train for moving forward.

MR. RANDOLPH: I think part of the value of the commissioned idea and maybe the market test of it is, does it help bring about greater clarity and depth of understanding in an objective, neutral way about what's really going on in labor markets as they relate to visas and green cards, because from time to time I'll hear a fact or an allegation and I wonder about that, I don't quite understand it. I've spent a fair amount of time talking to folks on both sides of the aisle and I've heard some pretty bizarre things with complete conviction, and I can't understand how you can believe that to be true, but, you know, just coming from a completely misaligned or different perspective, and at the end of the day, it becomes inherently political.



This debate is going on years and years and years. A lot of people I think on the Hill would agree that, yeah, objectively we should have a separate treatment of H-1B's and highly skilled immigrants separate from undocumented and low skilled immigrants.

But then it gets into partisan trade-off, well, we've got to have a comprehensive solution, otherwise Republicans won't be with us or whatever the case may be, and I'll get tied up into political horse trading, and so I don't think a commission is going to solve that, it's going to be political at the end of the day, but if a commission can bring further clarity and better understanding of the facts, then that would be an important contribution.

MR. LAWING: I totally agree, and I should have mentioned that. I've only been here 36 years in this town so I know there are people in this room with far more experience in this area. I've seen a few commissions come and go. The two that I've seen work are the Social Security Commission, it was short and very focused. The other one we could argue, Bowles-Simpson, though that didn't quite work out so well at the end of the day. But many other commissions have come and gone. Very, very difficult to keep both the political bent in place, and we know darn well that different folks in this town have a political bent. And number two, can we get the right kind of timely data to allow the right kind of inputs to make those decisions, because we make our hiring decisions based on three months projections. We don't do it three years out, we don't do it five years out. If the product is not selling, we terminate that line, we move to something else, and we move the people to something else. And so how do you allow for that flexibility with the right indices to get you the kinds of outputs you need at the end of the day?

MS. LIU: Other questions? We'll do here and then here, and then we'll

probably have to wrap up.

MR. SETTA: Hi, Matthew Setta, again, I'm with the Foreign Service currently serving with Congressman Peters from Michigan. And the question that I asked last panel was just about the need to increase domestic labor mobility, and how companies, you know, pay 10,000 in fees, not to mention the overhead costs of recruiting internationally, and what efforts are your companies making, whether it's Microsoft or other firms up here on the dais, to recruit domestically?

So instead of paying in \$20,000 to get someone from overseas, what can you do to perhaps give them some kind of break on refinancing their mortgage creatively, using Microsoft's credit line, for instance? What can you do to ensure that you're recruiting in the right marketplace in the United States? We're spending \$20,000 to recruit an overseas worker when it's really a labor mismatch within the United States. Within Washington State, you know, the fourth highest, but the fourth lowest production, what can we do? Can you talk a little bit about your domestic recruitment strategy?

MR. KAMELA: We recruit in every borough and hollow in America. We know every single computer science program in the United States at the undergraduate level, many of which we contribute to. We know every single computer science professor at the undergraduate level in every institution in the United States.

We have folks that spend every single day of their lives going to every campus, going to professional associations, using, quite honestly, social media, and a lot of affinity groups who then band together around social media to try to recruit. We'll go anywhere and everywhere.

I mean one of the big pushes right now is recruiting in the military for technical skills. We have a lot of brilliant, young men and women who served our country incredibly bravely and proudly over the last several years in Iraq and Afghanistan who are

now coming back and are having the challenges, how do they translate their technical skills in the armed forces into civilian technical skills. And so we're doing lots of work around certification and licensing at state levels, trying to make sure that these men and women can, in fact, come in, because they've got great work ethics, there are going to be a million of them in the next three years, and we think many of them are, in fact, a ready pool of workers.

So we spend an enormous amount of money and time and energy, we will continue to do so, but unfortunately, we still are coming up short in terms of the total numbers in our pipeline in the U.S.

MS. LIU: Let's take this last question and then wrap up.

MS. ORCHOWSKI: Hi, again, Peggy Orchowski, congressional correspondent with a Hispanic outlook on higher education. It's my understanding that H-1B has always intended to be just a temporary gap filler until Americans were educated to fill those gaps, but it's obvious it's not happening now.

But is now the solution to make those temporary visas permanent, and won't that inhibit the much, much harder and more expensive task of getting American education up to speed? How much easier just to take the millions of kids who have already been well educated in other countries, especially India and China? So will the permanization of these visas inhibit the other end?

MR. KAMELA: We don't think so. Let me talk a little bit about unemployment. The unemployment rate in the United States right now for folks in computer science and engineering is 3.1 percent. Most economists that I know think four percent roughly around, and Vivek could probably correct me, but we can argue about the unemployment rate, but it's real.

Also, we want to convert these people, and we do it on day one, as Neil

mentioned. We're one of those companies that converts our people immediately. We convert 95 percent of our H-1B's to green cards to become permanent U.S. citizens. We do so because they contribute mightily to our economy, as we've heard this morning. They create more jobs. They file more patents. They create their own businesses that then employ additional Americans, and we have examples of this all over Puget Sound. So there's no question that these folks are a net asset. We need to keep more of them in the United States, but we also need to really work on growing our domestic pipeline at the same time.

MS. LIU: Leila.

MS. CRAWFORD: We have sort of a different approach at Emory. The H-1B has always been a dual intent visa. So first they can be an intending immigrant on the H-1B. Most of our H-1B's are temporary at our institution, because most of our research is done on research grants that we get from the U.S. government and from private sources, as well. And so the person can be there to the extent of the grant. And so in that sense, they are temporary.

They may go on to other institutions, to work on other grants, and, you know, their intent may be to become permanent, but we do hire a few of our H-1B's in permanent capacities, as well, and so we really use it as a dual intent visa.

MS. LIU: Well, that brings us to the closing of the program. I say please join me in thanking this panel, but all of our speakers from today.

(Applause)

MS. LIU: I think we have covered a wide diversity of topics, and I really appreciate the folks who have been on the web cast this entire time, and also many of you who have just stayed with us for all three hours this morning, thank you for being part of this really robust discussion. Have a good afternoon.

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