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MOBILIZING TALENT FOR GLOBAL DEVELOPMENT

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Introduction and Moderator

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P R O C E E D I N G S

MR. RUIZ: Good afternoon. I am Neil Ruiz, and I am Nonresident Fellow in the Global Economy and Development Program here at the Brookings Institution. On behalf of the Brookings Institution and in coordination with the World Institute for Development Economics Research at the United Nations University, it is my pleasure to welcome you to our discussion of Mobilizing Talent for Global Development.

Migration is a very hot and deeply contested topic. If you frequently watch CNN on primetime with Lou Dobbs and also the politics surrounding the last attempt at immigration reform in the United States, you cannot avoid the large focus on the negative aspects of immigration. In the U.S. as well as other OECD countries, it is easy for policymakers to get caught into a web of creating policies to restrict the movement of people into their countries. For developing countries, there has been a large focus on the negative aspects of migration in particular around the brain drain and human capital losses as a result of high-skilled migrants such as doctors and nurses leaving their countries for the developed world.

Today's discussion will take a fresh look at the more positive aspects of migration. As some of you already know, one of the most easily measurable positive aspects of migration has been the focus on the estimated $300 billion sent by migrants worldwide. But there are other types of international transfers that migrants bring about that have a big impact on their countries of origin as well as in migrant destination countries. The flow of people's talent, knowledge, skills, and networks, something that is a little bit more challenging to measure, is the focus of today's discussion. This many policy implications in destination countries as we have seen with Bill Gates of Microsoft lobbying Congress to increase the H1B program in the United States, as well as in developing countries where there have been attempts to figure out strategies for replenishing or getting compensated for the human capital losses or finding ways of leveraging their large diasporas abroad for local development.

The main focus today will be a book edited by Andres Solimano titled "The International Mobility of Talent Types, Causes, and Development Impact." This book is an attempt to fill this gap. The focus of the book is understanding the determinants and development impact of talent mobility and also how there is much to gain with the global economy if it is effectively managed.

Before we turn to our featured speakers, I would like to provide brief introductory remarks about each speaker and the discussants. Each of you should have a copy of each of their detailed bios. First we will hear from the book's editor Andres Solimano who is

Regional Adviser at the United Nations Economic Commission for Latin America and the Caribbean. He is also formerly a Country Director at the World Bank and also the Executive Director for Chile and Ecuador on the Inter-American Development Bank. He has published numerous books and authored articles on growth, development, globalization, and of course on international migrant.

Our second speaker and one of the chapter authors is AnnaLee Saxenian. AnnaLee is currently the Dean and Professor in the School of Information and also Professor in the Department of City and Regional Planning at the University of California, Berkeley. She is a renowned expert on regional and economic development, Silicon Valley and Route 128, and her most recent book, "The New Argonauts: Regional Advantage in a Global Economy," published a couple of years ago by Harvard Press basically shows how brain circulation by immigrant entrepreneurs from Silicon Valley has transferred technological entrepreneurship to emerging regions in China, India, Taiwan, and Israel.

After the speakers present their findings, we will have two experts who will provide comments and discuss the relevance of the findings to current policy debates and issues. We will first hear from Michael Clemens who is a Research Fellow at the Center for Global Development here in Washington, D.C., where the heads research on migrant. He studies the effects of skilled worker immigration on developing countries and he recently complied the first nearly complete count of African born doctors and nurses living outside of Africa.

And lastly we will hear from Danny Leipziger who is currently the Vice President for Poverty Reduction and Economic Management Network at the World Bank. And he was also the head of the World Bank delegation to the sixth WTO Ministerial Conference in Hong Kong. His vice presidency is in charge of a group that includes a trade department that works on the migration of people. He is also co-chairman of the Migration Steering Group within the World Bank. So we will start with Andres.

MR. SOLIMANO: Thank you, Neil. First I would like to thank the Brookings Institution for being the host of this book launch and also for you to be here this afternoon.

This book is the result of a project that we undertook at the UNU-WIDER, which is World Institute for Development Economics Research, based in Helsinki in Finland, in collaboration with the United Nations University which is placed in Helsinki and thanks to the generosity of the Finnish government who finances the center. This book is a collaborative effect of several people, AnnaLee Saxenian who is one of the authors, and we also benefited from contributions from people of the World Bank, of OECD, of the UNU and scholars from different parts of the world who wrote different chapters here. So this is a sort of collective work. And also this was a joint collaboration within the U.N. system between -- and WIDER, so this is a sort of joint project in a way between the two institutions.

Let me turn to the more substantive part of the book. We will highlight some main issues that considered in the preparation of this book and then we'll turn to issues like what do we mean by talent, what is the sort of classification of talent that we use in the book, highlight some of the development impact of this international talent, discuss some policy issues, and if I have time, to provide some numbers to give some empirical flavor to all these discussions.

The first point is that as Neil presented it, in this book and in this project we were not concerned about massive migration. The numbers are around 200 million people who reside in countries different from the places that they were born. Here we are studying a small group or subgroup or elite in the general migration process, what we call the migration of talented people. The name is a little bit metaphysical. It is not very clear to say what is talent. You can use some proxies like people with -- education, but there are many people who have very good ideas and have accomplished important things in life who have migrated and they haven't attended university so it's not exactly the same thing. But our idea is people who have special skills, special talent, capacities, drive, to create things. Can be goods, can be software, design, it can be a sort of art. We have a chapter devoted to the cultural sector also in this book. People who bring new ideas that ultimately can create new wealth but that's not necessary the direct link.

We decided to take a sort of fresh look at the topic because this topic international talent was dominated by the ideas of the 1960s and 1970s that emphasized more the problem of the brain drain, particularly the idea that developing countries invested substantial amounts of money in people in universities, paid their high educations, and these people because they couldn't find good job possibilities in their own countries immigrated to richer nations and you can lose that investment. Here we took a more positive twist and say both origin country or source country can benefit from this migration, it is not a one-way exit of qualified human resources necessary. There is a circulation and countries can get some benefits of these people who have either worked or studied abroad as students getting their his or her Ph.D. or masters work abroad for a few years and then come back home and go to the university and bring ideas, no contacts, new knowledge, both sides may benefit. Also entrepreneurs, and I think AnnaLee is going to discuss more on this topic.

There is one point though that we are more pessimistic or we shed some yellow lights or red lights in migration in the health sector with a general thinking that international migration of talent in other areas can be a win-win situation but when you have migration of medical doctors, nurses from the Philippines, from South Africa, from Ghana, from poor countries that have their own serious health problems and then you see these personnel leaving, then you have a serious problem.

In the book we classify talent in three ways. One is what we call directly productive talent. I mean people engaged directly in production or investment or in actual production of goods and services. Here we have migration of entrepreneurs, of managers, and technical migration. Chapter 5 by AnnaLee, is devoted to international migration of entrepreneurs, managers are also discussed a bit in that chapter. In Chapter 10, not only managers in the international private sector from corporations, but also in the international public sector, there is a very interesting chapter on mobility in the U.N., IMF, World Bank, OECD, the international public sector and how people move and why, what are the career prospects, and what the salary level differences. What is one set of the talent that we studied in the book.

The second is tied to the academic sector, scientists, scholars, and very importantly, graduate students because graduate students are the entry point for getting -- and the third area is talent in the social and cultural sectors. Here we highlighted two areas that we thought are important. One, the medical sector I just mentioned, and then the other is the cultural sector. You see writers, musicians, artists, media-related people writing and doing their work abroad Mario -- writes on Peru but he is sitting in Madrid or in London -- Marquez in general wrote his book in Barcelona or in Mexico -- is based in California writing on Chile (inaudible)

In the book we distinguished five main factors, there are more that we call the determinants of the international mobility of people. Here we talk about international mobility as different from international migration because according to the U.N., for a person to be a migrant he or she has to be at least one year abroad away from their place of residence. Here we are talking about entrepreneurs, people who commute between let's say Silicon Valley and Bangalore or other places and they live 2 or 3 months in one place and the rest of the year in the other. So they are not permanent migrant, these people who move around. And I think that that is probably the most important consideration but not the only one, international differences in earnings and what economists call more generally development -- if the U.S. has a per capita income of $36,000 -- and then you have your neighbor in the south in Mexico with a per capita income of $4,500 you see a difference of 6 or 7 times -- the average per capita income of one country to the other -- people will go from the lower per capita income country to the higher per capita income country. These are national averages and here you have to compare let's say salaries of university professors in Mexico and university professors in the U.S., the profit rate that they can make in the U.S. versus

Mexico. But in general, the first approximation is that develop gaps are very important -- salaries in Russia for a physicist or a mathematician is $1,500 a month and the same person is paid 10,000 British pounds in the U.K. you may think that people will leave Russia and go to the U.K. So it's this big salary differential that matters a lot for migration. It's not the only consideration -- people look at the faculty of the university they go to, the critical mass, and it's not just salary -- not any salary differential -- you don't have to (inaudible) but the rough picture is that this differential is very important.

That's one factor and here in one graph we explain that in that way. Here there is a double causality. On the one hand the development gap and the income per capita differential from one country to the other drives migration of talented people or general migration but this is -- so you have the development gap leading to the exit or the return of talent. But you have a second causality or a second equation if we will put it in more mathematical form, would be from the exit or the return of talent to the development gap. So if your economy is in a crisis or in the economy it is very difficult to do business, there is a lot of business regulation, bureaucracy, corruption, all the sorts of horror stories that we listen to from some developing countries, and perhaps your entrepreneurs are going to lave, that can exacerbate an already existing development gap because there will be less investment, less productivity growth, and then the exit of your talent engaged in directly productive activities can in turn sit back and widen the development gap.

On the other hand, this will be a vicious circle. The vicious circle would be that that country through some economic reforms there are some prospects that the economy will take off and start attracting professionals, you start attracting your bright students from abroad, some entrepreneurs who have left before, and then they come to invest and work in their home countries, that country reduces or narrows the development gap. So you have that causality and that is a very important factor --

Then we list the other factors. The relationship between capital and talent is important. Here again it can go both ways. Here capital can go to where talent is, the professionals, the people with the right skills. So Microsoft may decide to open a plant in Bangalore rather than importing engineers from Bangalore to work in Seattle for example. So either capital goes to where the talent is or talent goes to where the capital is, so there is a relationship between capital and talent that is important for human capital and fiscal capital or human capital and financial capital that's important to keep in mind. So you will have a north-south movement, capital going to the south from the north, or you have people coming from the south going to the north, both combinations. So we think that you have to study this issue in a more -- looking at all the factors and not just talent in isolation.

Then you have talent and technology and here there is a complementarity. To develop new technologies you need people with the right skills, the right knowledge, so it goes together. Also in the book we discuss the issue of concentration and collaboration because let's say an IT expert alone will do very little if there are no other IT experts in the city or in the place they need a critical mass -- and policies also are more favorable for the migration of high-skilled people, international investors than for unskilled and poor migrants. There is a dichotomy here so these developed countries or high-income countries need software programmers and they have much more open borders than for the people who come and pick oranges at the farms in the south. There is social stratification in migration. Like in -- society there is social stratification, and in international movement of people also there is stratification and policies respond to that in some ways.

For the development impact here we just very schematically discussed the relationship between talent affects economic growth -- productivity and investment. That's one way. And also talent affects human welfare not only through direct reaction of goods and services, but through direct effects of -- important like health which is very important for welfare, culture, ideas, more than just material goods. Also talent and inequality go hand by hand. Here there is an interesting discussion. For example, you have the magazine Forbes and the magazine Forbes runs an article on Carlos -- in Mexico and compares him with let's say Bill Gates in the U.S. or other guys, both very rich. Bill Gates will not be very good example -- operating system and it's not really competitive. But probably in the other one it was more clear that you get a franchise to run the telephone company for 5 years or 6 years you're more likely to do better in life than if you don't get that franchise, so it depends if it's purely on talent on or political view or both.

But in general, with talent labor economics talks about winners take all markets. The tennis player that wins the Australian Open or the U.S. Open gets let's say $1-1/2 million as the first prize and the second one is $300,000 or $50,000. There is no difference of -- between the first and the second. In the last game one was more tired, didn't like the weather, so he lost, but it's not that the other is four times better than the other. So it's a winner take all market. So the one that makes a big game gets high rewards and that can create problems for income distribution. Particularly in the bottom here, there are obstacles to develop talent for people of low income groups, the middle class, so there is a lot of talent and (inaudible) but they have no access to the university, they don't have access to credit if they want to set up a company, so they cannot realize their talent. So talent is a gate to prosperity and to high income and not everything is under your control. So you can have a second income distribution here that is important.

Just to try to finish, we discuss some policy issues in the book in the different chapters. One is simple, not simple, it's an important issue more of a statistical nature which is an information gap. We really don't have very good data. The World Bank has made progress in that area but still we don't know particularly from people who are leaving from developing countries, where, what is their educational level, their characteristics. So the direction, the magnitude, the characteristic of talent mobility, we still need more basic information of who is leaving, where, to which sectors, what is their backgrounds. So that's one point.

The other is to put we believe the issue of talent mobility more on the development agenda. Usually the development agenda has been historically more tied to trade issues, to capital mobility, now to migration. Migration is still a highly debated topic in the development agenda, and here within the whole topic of migration we are talking about a small group with big impact. That's the distinguishing factor and one issue that we think is important. The other is that in this book we again stress more the potential mobility of people rather than just taking the very pessimistic view that it's all brain drain. But also we caution that brain drain or brain circulation is both a consequence of development gaps that we observe in (inaudible)

Also two topics, and I think I will finish with this. One is the issue of failure in the reward structure. People with high abilities are very sensitive to rewards and to pay structure and we think that particularly in developing countries, but not only in developing countries, there are two types of failures that policymakers should tackle. One failure is in the working of markets and in general the incentive structure, whether it's for rent seeking that can penalize innovation and entrepreneurship. Also matching failures between jobs and abilities of people is a problem of what is the right skill to fill the new jobs that the economy creates. And there are failures of what we call the institutions and the state. Maybe the university -- paying particularly in developing countries salary is too low, the career possibilities for talent are limited, and don't have too much money to do research, and they leave. Also for talent that is engaged in productive activities, we highlight the importance of property rights and the patent system.

And the other is the nature of the state, this is a big area and very complex, but to what extent the state is dominated more by the logic of (inaudible) the other is the relationship between education and talent that is discussed in the book (inaudible) is always profitable for entrepreneurial talent in the U.S. You have examples like Bill Gates dropping out from Harvard or the founders of Google who didn't complete their Ph.D. at Stanford and they left. And for people who have a very high drive for business it doesn't pay to be 5, 6, 8 years in education so they go directly to business (inaudible)

Finally, just two or three numbers. I think we also emphasize in the book that new knowledge is very concentrated in what we call the north, the high-income countries. The percent of expenditure on research and development is much higher in developed countries and developing countries, scientific and technical journals are highly concentrated in OECD high-income countries. Here we took the price to talent (inaudible) and here you see physics, chemistry, medicine, economics. You see the U.S. top in the rankings and then followed by the U.K., Germany, then France, Japan, Sweden. But still it's interesting that migrants, for example, in the U.S. out of 114 people who got the Nobel Prize, 33 are migrants.

Technical talent, high concentrations in the north. That's another message that we have in the book. The international distribution of talent, of resources -- are highly concentrated in high-income countries. Still we keep our optimism that developing countries can develop from this circulation, but still now if you take a snapshot of the situation -- the inequality in the distribution of talent in the global economy more or less replicates international distribution of income or wealth. I will stop here. Thank you very much.

(Applause.)

MS. SAXENIAN: Thanks, Andres. It's great to be here. It's actually really nice to be here. The weather is so beautiful. I sort of feel like why not come to Washington, D.C., in April. What a lovely place to be. And I have to say that I'm also delighted to be here at Brookings. I've spent so much of my life reading stuff written by people at Brookings and it's like this is my first time to actually be in the building. So thanks for having me here. I will say that I'm a bit anxious about speaking because I know this room is filled with people who know a lot about development and I actually don't come to this from a development background, I come to this from studying Silicon Valley. So the case studies that I'm going to show are really inductively informed pieces of research that fit into this broader framework but I didn't come to this trying to understand development. I came to it trying to understand globalization, but I came to see some very important developmental impacts.

Two sort of caveats before I continue. One is that in this field, the data challenges are huge and anybody who tries to understand global flows of talent will find that there's very little data on global flows of anything, and if the data exists, it's not disaggregated by geography very well or not be subnational units, it's not disaggregated occupationally, all the things that you would really like to get a handle on this stuff is very difficult. And that's by saying of also saying that since Andres left I can say I don't always follow instructions right and he put the classifications up there and the people who I talk about in this case which is one of the chapters in the book cut across all of his classifications so I'm not sure that there is a clear a distinction between entrepreneurs, academics, managers, policymakers, in the communities that I've studied. They tend to be the same people in this high mobility, very small as he said, elite that exists traveling sort of between nations.

The way that I was driven to this was to understand why do we get innovation in peripheral economies, high-tech industries, entrepreneurial activity in places like Taiwan, Israel, or even India and China? The short answer to the story is that we've seen the shift from brain drain to brain circulation and Andres has laid out some of that argument so I won't go over that. Suffice it to say that Silicon Valley was a tremendous beneficiary of the brain drain. For several decades Silicon Valley absorbed the best and the brightest engineering students who came to do graduate work in the U.S. from all over the world. It was heavily by dominated by Asians because they were the ones who came, but today 53 percent of the Silicon Valley engineering pool is foreign born. Just to give you a sense of the importance to the economy, and moreover, I don't have the data here, but many of them have spent decades marinating in Silicon Valley and they've learned a different system. They've learned a system of entrepreneurship, they've learned about venture capital, they've learned about a way of doing business that's very different from the way of doing business in their home countries. So this is a story now about people who came to the U.S., studied, were absorbed into this very dynamic labor market in the U.S., learned a different model and then have decided to go back to their home countries.

What I suggest in this chapter is that you can move beyond a kind of core periphery story in these instances. The sort of core periphery story is that technology, capital, and skill reside in the wealthy developed nations and the poor nations are underdeveloped suppliers of natural resources, cheap labor, for corporations that are all based in the core. There is a new variant that was developed with the East Asian -- which says they become fast followers so Taiwan and Korea are not just cheap labor, but because they have a state that can imitate very quickly, they're fast followers and they reap the benefits of the innovation that happens in the core. Or another variant is that you have these global supply chains. But the story is the core still dominates the production network but you have activities that are not just unskilled labor in the periphery.

What I want to suggest is that in fact in these cases Taiwan and Israel in the 1980s and 1990s and then in some way in some urban areas in India and China you're seeing a kind of shift from the peripheral toward the category that I would call high-tech clusters with innovation and entrepreneurship because of this circulation of talent. I think the implication is that you shouldn't just look at global companies anymore when you study the global economy, you should look at these technical professional communities like the ones that were created in Silicon Valley and then have gone back to their home countries and while Indian, Chinese, Armenian, and Filipino immigrants come to Silicon Valley, they tend to hang out with each other. They speak the same language, they share ethnic identity, and linguistic capabilities. They tend to create associations that share information, sort of the self-help network that you would think of in a Chinatown type of situation except in a very high-skilled context. These technical communities are the main actors in the story I'm going to tell and they are able to go back to their home countries and we'll see they take not just skill and technology but institutional know-how and a set of relationships.

The second thing that I think you learn from this is that it's not just the nation-state that matters in the economy and this is why I'm so upset about the data. I might be able to get data on China, but it is very hard for me to get data on just Guangzhou or just Beijing or just Hyderabad in India. But it's not just about low-cost labor and that there really is a process that we can observe in these cases of upgrading through entrepreneurship and innovation that happens and therefore also rapidly rising wages in formerly peripheral regions. I'm not going to say much about why not. I think we know why now. Transportation and communication is cheaper, corporations are breaking up. The old vertically integrated corporation doesn't really exist anymore. You've got a supplier networks and software platforms that will allow you to exchange huge amounts of information real time across long distances so you can actually be designing a chip across thousands of miles online with somebody so that essentially distance is not a disadvantage to collaboration in product design or product development anymore. This is the data on entrepreneurship in Silicon Valley and it is very old actually, but in the late 1990s, Indians and Chinese started close to a third of the technology companies in Silicon Valley.

The first chapter of this story that I don't tell in this book is that immigrants bring tremendous wealth and jobs to the U.S. But I think even more important is that they go home. What do they do? Immigrants are able to look back to their home countries and identify skills, knowledge, opportunities, that nonnative-born people cannot identify. So they know who are the bright graduates of which universities, they know how to find and make connections in the right institutions if they need to do business. Heaven forbid that I would ever have to go and try to set up a business in India or China. I would just be hopeless. Whereas if you were born in India or China, you actually know how to navigate those institutions and often in the case of Israel and Taiwan these are often people going back and working with their former classmates, their college classmates to start businesses, to transform policy, to develop their own home economies.

So how do they contribute back? One of the first trends was immigrants working in big U.S. corporations, Intel, Texas Instruments, Hewlett-Packard, they would go back and up the development office of their big corporations in India, China, Taiwan. That's one way, is that they start feeling out the groundwork. Sometimes they start their own businesses from that. Sometimes they advise other companies, their friends. They might be moonlighting, they may stay in the U.S. but invest in firms in their home countries. Often they would build partnerships. You might set up a firm in Silicon Valley and put the development office in India. There are many different cross-regional models that are emerging right now.

The second, and actually since I wrote this chapter I've come to increasingly believe that perhaps the most enduring and important impact that these high-skilled migrants have on their home countries is their ability to transform domestic institutions. There's a lot of research right now on diasporas and diaspora impacts but those don't necessarily change economic trajectories. They may help address poverty. There's a lot of work measuring patents, co-publication -- effects, a lot of those things, but none of them actually show a causal mechanism by which as Chinese get more patents they contribute to transforming the domestic economy. How does that translate? Even if you co-publish there are a lot of Chileans co-publishing articles with Americans. It's not clear to me how that translates into development impact on the ground. And it seems to me that the one place, the literature is always changing, but I've not been able to see -- obviously the most significant impact would be if you had a significant number of talented migrants going home permanently. In general that's not been the case. There are a few exceptions. Taiwan and Israel have benefited from reverse brain drain and India and China are sometimes the decided exceptions, but it is very small percentages that really go home permanently to live. There's a lot more people who circulate back and forth and help redefine institutions and the economy without making the full move back. And all those cases -- Armenian origin -- all those cases where people have tried for decades and decades to tap the diaspora and it hasn't worked. So it seems to me that the enduring changes that these mobily talented can make to institutions can be very important and they make contributions in capital markets, in education, in redefining research and regulatory regimes. I call these the New Argonauts, by the way, and it's just by referencing the Greek Argonauts who faced great hardship in their mythic attempt to gain the Golden Fleece. These are people who are going home, often they say they're giving back, but a lot of times people go back because they think professional opportunities are better there. They have access to the

China market, more access than anybody else, and there's a huge I believe economic motivation in the mobility which goes along with what Andres said, I'm just saying it in a more argumentative style. They see that there's a perceived economic opportunity.

So you can think about these talented migrants as search networks that globally are able to locate partners that they can work with to solve problems or may be customers, so the diaspora networks are very effective search networks. Venture capital turns out to be a very effective research network. What does venture capital do? You seed a lot of experiments, you try a lot of different things, things fail, but you learn. And then you monitor carefully all the outcomes and you learn from monitoring outcomes what works and then you reapply that. So it creates a very nice sort of positive cycle when it works. One of the things that my chapter does is trace the efforts of returning migrants to set up venture capital in their home countries. Venture capital in Taiwan has been extremely important in changing that economy.

So let me just move beyond this and quickly tell you the story. I'm going to tell very quickly the stories about Taiwan, Israel really parallels Taiwan, and then some brief looks at China and India. Just to give you a flavor of the kind of process that happens in these cases, in the 1970s Taiwanese policymakers were dismayed at the brain drain but they went and they talked to overseas Chinese in Silicon Valley and they helped think about education policy, long-term strategies. But of course at that time Taiwan was simply a source of cheap labor for multinationals. It was known in the U.S. as cloning, cloning Macs and PCs. They hoped to create a venture capital framework, some R&D agencies, they upgraded the universities. Essentially they over decades created an environment that would help attract people back and make it more attractive. The Hsinchu Science Park is known as the center of this activity although it also extends very much into Taipei with the PC industry.

Essentially what happens is they set up the venture capital industry. The stock market boomed in 1987 and you see this up-tick in returns. So for decades and decades you had very, very little return. The blue line is some of the returnees to Taiwan from the U.S. with very little return for decades, and suddenly in the late 1980s and early 1990s you see a huge number of people returning to Taiwan and they essentially become partners. What I argue is that they became partners for Silicon Valley. The Hsinchu region became the manufacturing partner for the Silicon Valley design, product definition, product design capabilities, and over time as you had entrepreneurial activity in Taiwan, as you had experimentation, government policy, Hsinchu moved from being what I call a sibling to Silicon Valley to a full-fledged partner and at the same time that pushes Silicon Valley up the value chain too. So that one of the main innovations of the Taiwanese IT industry is this IT foundry which actually reshaped the entire semiconductor industry because it forces it to vertically disintegrate and there's a lot more entrepreneurship. So essentially you're creating a cycle that you can't see here where foreign education feeds into the brain drain but then people return, they start creating venture capital and entrepreneurship and you get a cycle of entrepreneurial experimentation and feedback loops into the country.

This then leads into the China story because somewhere in the late 1990s you have a large Chinese population in Silicon Valley that's watching Taiwan and is watching Taiwan take off and sort of wondering about what they can do. The first thing is really throughout the 1990s the Taiwanese moved their large-scale manufacturing across the straits to Shanghai and also southern China and get huge economies of scale, cheap land, cheap labor. In China their mass-manufacturing moves across. There is also a lot of state involvement in setting up manufacturing capability. Hsinchu is forced to move up the value chain again and become better at global logistics and design and even attempting to find their own brands and you start this cycle of entrepreneurial experimentation in returnees from China directly to China as well as from Taiwan to China so now you have a triangle of these clusters. It's not all of China, it's not all of the U.S., but it's these clusters that are interacting. And there's Silicon Shanghai, I could talk a long time about it, but essentially it parallels Taiwan very closely. Technology firms, professional service providers moved, venture capital, lawyers, banks, returning firms, experimentation, it's still not perfect. The capital markets are broken. Venture capital doesn't work that well. But you see a dynamic that could over time transform that region in the same way that you saw Taiwan, shortages of talent, rising wages. I think one of the more troubling things is the interaction between domestic Chinese IT companies and these returning companies is something that will need to be worked out in China.

Then finally I'll wrap this up by saying the pattern that I've described for China also begins in the late 1990s and after 2000 with India and Bangalore or Hyderabad, these sort of subregions of India. India again starts out body-shopping, cheap labor for multinationals, maintenance and coding for big American companies. Infosys and TCS were bringing Indians to the U.S. and paying them very little in rupees in order to work for American corporations and over time they moved them back home. They innovated in the process of large-scale software development. Indian managers go back to set up development centers. Venture capital gets established. You get startups that are cross-regional, a very similar flow of entrepreneurial talent, successful entrepreneurs and managers in the U.S. going and advising the government about how to reform telecommunications law, how to reform capital markets. Obviously India has a lot of challenges as well, infrastructure, still base. This is the pattern I'm describing that has a very nice up side for the home countries, but one of the downsides is that you create these enclaves, you create these agglomerations or these clusters of talent and skill that tend to reinforce themselves. Firms keep going to Bangalore even though there is tremendous traffic. And they'll decentralize a little bit any different than Silicon Valley. The costs are extraordinary and yet firms want to be in that talent pool, in that labor market. They want to have the depth of know-how. So you've got some inequality that results from this circulation of talent and one only hopes that policymakers can use the wealth that's generated by these clusters created by returnees to then effect policy and redistribute more broadly. And there's a picture of Bangalore for those of you who haven't been there recently. In IT you have Silicon Valley that's now leading new product definition, architecture. Think about the iPhone. Taiwan specializes in global design and logistics. So the iPhone, they're probably designing the motherboards in Taiwan and then they're putting it in China to manufacture it and that's low-cost, high-quality manufacturing. So already you're getting a product that taps -- and then you have Bangalore which is making high-quality software and services so these IT products in today's economy are coming from these specialized clusters and the regional interaction mainly through the movement of people is benefiting both the regions and the entire supply chain.

I think I'll wrap up just with a few concluding thoughts. In certain cases you can mobilize high-skilled talent and their impacts are less as a sort of stock of technical skill or patents or whatever than as helping to redefine a set of institutions in their home countries that clear the way for development. Then they create this self-reinforcing advantage. They learn by collaborating across regions with partners in other parts of the world. And the upside is that potentially you're spreading growth to these parts of the world that have never seen it, opening up huge new markets and opportunities. The challenge will be to deal with the uneven development that goes along with it. Thanks.

(Applause.)

MR. RUIZ: Thank you very much AnnaLee and Andres, and now we're going to be turning to our discussants. Michael Clemens will first make comments followed by Danny Leipziger.

MR. CLEMENS: Thanks very much, Neil. Thanks for inviting me. It's a real pleasure to talk to you about this book, a superb book. I really recommend it to the people in the room or anybody who's interested in this issue. You've seen for yourselves that the authors are very, very experienced, are sensible, nuanced issues on this issue and the idea in this book reflect that. I can't tell you how refreshing that is because I'm going to give you just a few comments based on the experiences of somebody who has looked a lot at African health workers abroad. In this area you see just crazy ideas being sent around. A few weeks ago in the "Lancet" an ostensibly scientific publication, came out with the recommendation that recruiters of African health professionals be arraigned in International Criminal Court, that is, state-sponsored violence is the answer to this issue. In that kind of climate you can imagine how refreshing it is to see some good ideas on it. This was the week of February 18 to 22, that the "Lancet" issued this recommendation. If you email me I'd be glad to send you the paper. I don't remember the author's name.

I want to give you a few thoughts that I had while reading this and my glass as I read it was half empty and half full. It was half empty in that I wanted more focus on the migrants, the skilled workers that we're talking about as people, as individuals. The way in which my glass was half full was that I really loved the policy recommendations that emerged from the analysis, the nuance in them, and especially a raft of things that they don't say.

This is a group of Filipino nurses who live and work in Oregon and Washington State in the United States. I put these people up here to make sure that they're in the room. Very, very often when people talk about especially African health professionals you hear words being used like poaching, stealing, taking, and I find it all most offensive because we're really talking about voluntary movements of people who have dreams, aspirations, civil rights, human rights. For the economists in the room, human resources, although they are that, but they're human beings as well -- are part of social welfare. Those aren't just platitudes. They have a very important policy implication that I'll talk about briefly. I want to show you some of the data that lead me to think along these lines.

These are numbers from the Labor Force Survey of the United Kingdom. They jump around a lot because they're scaled up using sampling from very small samples so you have to sort of squint and look at the central tendency of these lines. This is people who tell the labor force survey person I was born in each of these African countries and I am a registered nurse. You can see in gray here Nigeria going up in the late 1990s from a few hundred to a few thousand. In blue is South Africa going from about 300 to about 3,000 around the year 2000. The smallest country on this graph is Zimbabwe, and look at that. You're seeing a bunch of people jumping off a sinking ship, collapsing economy. Zimbabwe's GDP per capita has gone back to the level of the early 1940s. Inflation is over 150,000 percent a year. The "ethical recruitment policy" of the National Health Service of the U.K. would have you believe that it is ethical to punish people for letting any of these people know that they have job opportunities in the U.K. That's what a recruitment ban is. It's illegalizing the provision of information, and I think at the very least the ethics of that are complex.

Here's another example. I collected survey data on 1,100 African-trained members of the American Medical Association and Canadian Medical Association. What you're seeing here is a histogram of their year of arrival in the United States or Canada, the year they began living permanently in the United States and Canada. You'll see a lot of them having arrived in the 1990s, going back in time, fewer and fewer of them. I'm going to superimpose the exact same graph for the Nigerians. These are Nigerian-trained physicians. There are 127 people here, and in the rest of the data about 1,100. Notice that there are some years where the years of arrival of the Nigerians are below average, and somewhere they're above and then somewhere they're below. I was interested in finding out why this might be. These red years are years of military rule in Nigeria. Here is Sani Abacha. The green are civilian rule. Again I'd put forth that the ethics of making it illegal to tell anybody other than these people about their job opportunities elsewhere, of medial exceptionalism in migration policy as has been called for by people of the Harvard School of Public Health, they're complex and they're not simple. I'm not saying that they are easily one way or the other, but they're certainly not simply ethical.

Getting to policies is my second point and then I'll wrap up. I deeply appreciate the nuance especially that Professor Saxenian's work has brought to this entire field. Just think about going to the 1970s and telling people in Taiwan and India that this was going to happen. Absolutely unimaginable. The complexity, the unpredictability, the unplanability of what actually happened was unimaginable back then, and it would be hard to convince people that there would be unintended consequences of blocking the movement of everybody who Professor Saxenian just talked about. I would go even further and say that even extends to the area of health workers. This is an area in the book where you express concern. Very, very usefully you distinguish between different types of skilled workers. You talk about innovators and entrepreneurs separately from researchers, academics, separately from providers of critical services, and it's about that last group that you're most skeptical that some of the unintended consequences of restrictions of various kinds might be bad. I want to make maybe an audacious claim that all of the same wisdom applies to them as well. You alluded to the counts of African-born doctors and registered nurses that I did in nine destination countries which comprised most of the African health professional diaspora. What you're seeing here on the X axis is the number of physicians at the last census round from each of 53 African countries who are living and working in the nine destination countries I studied, mostly former colonial powers plus South Africa per capita in the country of destination. Here is Kenya and this X axis is telling you how many Kenyan-born physicians living outside per Kenyan and the Y axis is

Kenyan physicians per Kenyan in Kenya. The reason I made this graph in the first place, the reason I collected all that data, was to measure the brain drain. I wanted this data to tell me the negative slope of his graph. I had a hard time with that because this is absolutely unmistakably positive that the African countries that have the most physicians outside have the most. Here is Niger with 9 percent of its physicians outside and it has very few. This says nothing about causality at all. There is a simple correlation. What it does say is that to the extent that anything about having doctors outside causes you to have fewer inside in Africa, whatever that effect is which I make no statement on, it's completely blown out of the water in terms of what determines the size of the health work force by other things, incredibly complex things that are very difficult to understand or predict.

This is the same graph based on country of training now instead of country of birth, exactly the same thing. Here the same horizontal axis with child mortality, so high, very bad, low, good. Nothing about the fact that very, very few doctors have been able to leave Niger has made fewer children die there. The Philippines have come up frequently in this regard. Here we're just looking at all countries in the world. The Y axis is nurses per capita, registered nurses per capita, professional nurses, in all the countries of the world according to the WHO's Global Health Atlas. This is income per capita. The Philippines which has suffered terribly from the brain drain which is the number one sending country of nurses on earth which has given us more than half of the foreign-born nurses in the United States from one single country, the Philippines, which has given Saudi Arabia the majority of its registered nurse working force, where are you going it on this graph? There. This is a logarithmic scale, so this is 6 times above the mean, and above Austria and Great Britain. People are training up in order to leave and not everybody leaves. This is an example of the complexities, the unintended consequences that could arise just from blocking the movement of these people.

One last example and then I'll finish up. Is the Philippines unique as many people have asked me? Let's look at South Africa. Here is the same labor force survey data you saw before for South Africa. Number of registered nurses in South Africa. This is the blue one going from a few hundred in the late 1990s to a few thousand as recruitment really gets going around 1999 and 2000. This is the flow in the number of South African-born registered nurses registering to practice with the U.K. Nurse -- Council. The only thing to take away from this is that recruitment and movement really get going around a certain point in time. This red line is the stock of registered nurses in South Africa. And even if you squint at that you can't see any sort of discontinuity. How could that possibly be? Here are the number of people studying to become nurses in South Africa. Registered nurses, the green is enrolled nurses what we call LPNs in this country, the blue is enrolled nurse auxiliaries, what we call nurse's assistants. Add those up and exactly at the time that the recruitment really gets going, the number of people studying to become nurses almost doubles and the huge majority of this was in the private nursing schools, people paying for their own educations of (inaudible)

I think my time is up and I want to wrap up. The two points that I want to leave you with are that as I read the book I wanted much more focus on the people as individuals as bearers of rights rather than just conveyors of rights. And the idea that the health systems that are supposedly threatened by these movements are in fact so complex that I'm unsure that anything about them can be engineered from abroad with any sort of policies. We need to think about unintended consequences from all forms of coercion, even coercion-lite. And when I say coercion-lite I mean many people I speak to on this subject say I'm in favor of free movement but I just don't think that there should be active recruitment meaning that we have jobs available to Africans that Africans can do superbly but I'm going to make it illegal for anybody to tell people about them. Or they say I'm in favor of free movement but I think everybody should be self-sufficient in human resources for health. And I say that means zero migration, right? And say, no, no, I wouldn't that far. Say, no, that is the definition of self-sufficiency. Self-sufficiency means I'm going to take policy steps to make sure all of the very high-paying professional jobs are often for women in this country in the nursing sector are available only to nice people who happen to have been born here. That's self-sufficiency. All of these are forms of coercion because taking away a person's job has exactly the same effect as blocking them at the airport. And I would make the case that even in the sectors that you're most concerned about, there could be unintended consequences from anything along those lines. Thanks very much.

(Applause.)

MR. LEIPZIGER: Thank you very much for the opportunity to comment on this important book. I think Andres and company have done a very good job in pulling together both global and regional experiences and also having some smart things to say about the policy issues involved in global talent. I want to focus on two areas primarily. One is the issue of brain gain versus brain drain, and the second is the contribution of diaspora to fostering transfers of knowledge, technology, financial capital, including remittances.

As was mentioned, the World Bank is doing work in various aspects of this including remittances, brain drain, temporary migration, the gender aspects of migration, and mobilizing resources of the diaspora. So that's the public service announcement.

In terms of the first topic, I think the issue of whether or not there is a brain drain or brain gain obviously is an issue that has been around in development economics for a while. I think the basic point is that you have to look at the net effect of overinvesting in let's call it tertiary education and what the effect of that is both in terms of the individual as well as the country. In terms of the individual, you're investing with the probability that you can find a job outside. To the extent you succeed, that's good for you. Whether it's good or not for the sending nation we can discuss. But then there are a whole bunch of people who may overinvest and may be unsuccessful in finding a job outside in which case the benefit accrues to the country. There are some important questions about who pays for this and it seems to me that the more the individual pays for it the more we should take a pretty relaxed attitude for the reason that you said which is that we're not here to coerce people. On the other hand, if tertiary education is for example free then there may be a broader public policy question.

The book finds mixed evidence about this net transfer issue and whether there's a brain gain or drain, but there are a lot of other studies out there and I think the mild criticism that I would make is that we have to look at the chapters in this book in the context of what others have found. For example, there's a finding that in the U.S. in this chapter by Angel Ordinolo that there is a negative relationship between people who migrate to the U.S. and tertiary education rates in the sending country. That's a bit at odds with other findings and so I would just point that out.

Point number two is that I think I would argue that there's a bit more evaluation needed in some of the programs that countries have put in place to attract back some of this offshore talent. There are some programs in Mexico under a conaseed (?) program that tries to subsidize salaries, there's a program in Colombia that tries to forgive some of the debts of graduates if the come back. I think in the book there's a good discussion about policies that encourage the return of people and there's a range of interventions from financial incentives to land grants and the like. My personal view on this is it's a little bit like foreign direct investment which is everybody focuses on the tax breaks that supposedly are going to encourage a company to pick location A over location B and my instinct is that the companies are looking at a whole range of things, stability, quality of the labor force, et cetera. They really have pretty much in mind where they want to go and then they negotiate for the tax break and so the tax break doesn't actually determine location, and I think it's a little bit true for the individual returnees too. You're not going to necessarily go back to, to take your case, Zimbabwe if I told you that I'm going to give you X benefit because the trouble is there are 20 other things that are wrong and you're not going to bite for that. So I think there's the question of evaluation and it's very difficult to evaluate individual interventions when actually individual decision making involves multiple factors, as well as there's a bit of a problem of adverse selection, those that may respond to this incentive may not be the ones that you want to attract back.

Point three has to do with the health professionals. Michael already started a conversation on this about the calls for limiting the flows of people in certain sectors. The chapter in the book finds that these policies tend not to be overly effective which is probably a good thing because my bias is pretty similar to yours, Michael, although we haven't collaborated on this, which is that I'm pretty much imposed to controls and I prefer some sort of circularity to be encouraged via market mechanisms where people may go to the U.K. for 5 years and then they float back. But I think the idea that you would restrict employment in certain sectors I find not very appealing, and also from the development point of view I think not very effective.

How you attract or retain highly skilled people is another story and I think you an focus on income differentials which is sort of hard because in the U.K. you're going to earn 10 times what you earn in Malawi, but I think there are some other factors and I think some are discussed in the various chapters, but there are research facilities, your colleagues, the density of your professional family, as well as cultural issues. So I think just focusing in the income differential may be rather limiting in that sense.

I think the Bank is doing some work, you mentioned that data was scarce, I think we are doing work in trying to collect data on skilled immigration and things of that sort. I think just as an aside the examples of India, China, Bangalore, have an interesting characteristic to them which is these are really big countries. Israel is sort of unique. I guess I would say there are some differences from development perspective between the big and the small, and I think even among the small there are some differences. There's an interesting debate about Guyana which is I guess another source of nurses although at a smaller scale. It is smart for Guyana to be overinvesting in nurses? Given that you're a small island state, and your other alternative is sugar, it may not be a bad development strategy. The issue is do you have enough nurses to serve your own population. Guyana has 700,000 people so you don't need that many. So it's sort of like the Philippines story which is you are overinvesting but you're not necessarily damaging your own service delivery. Unfortunately, in some of the African cases that's not true, although I agree with you that the intervention that for example the U.K. has picked may not be the right one.

Then coming to the diaspora side of things which is how do you get this foster of transfer of knowledge, technology, and finance, I think AnnaLee already covered a lot of the interesting features of that. I think looking at this chapter by Decosta points out that if you look at the

U.S. market, somewhere in the range of 15 percent of the high-tech engineering and science jobs are held by nonnative American-born people which seems to be a benefit to us and, as the way you describe in the circularity, seems to be a benefit then to their home countries. So I think the value of that chapter is that we should look at things in a more general equilibrium comprehensive way than just sending in just sending and receiving countries because there are a lot more important things than just the flow of the individual, that there are these other things having to do with technology and skills and capital.

Which leads me to the issue of remittances which is something that the World Bank has been quite active in. Just to reiterate that remittances are 2 to 3 times the size of official development assistance, and these are the recorded ones, so they even be larger that we don't know, so that the benefits of migration when you take the individual and the labor market aspects out of it, the financial flow aspect of it is hugely positive. If you look at it in household theory or the firm kind of way, you invest in certain individuals and they are getting a high rate of return and they're paying back into the family or household because they have invested well and they have the skills. So there are many, many countries in Central America, Brazil, Mexico, Turkey, and other places where the reflows are enormous, some of them have been actually securitized in some fashion or another. We have diaspora bonds in a number of countries. Israel is one of those cases but it's a bit of a weird case. But India is a more normal situation and so we know that these flows are huge.

So to end up I wanted to not be too boring so I want to give you five somewhat controversial observations as we close on this theme, and I have to admit that I'm not an expert in migration work but I do try to be controversial even if I'm not knowledgeable. So the first is that I think that the movement of talent is not to be lamented but, rather, to be managed and managed by incentives and not controls. Second is that in poor countries, tertiary education should probably not be free so that the gains are not "lost" to the country. Third, I think overinvestment in some circumstances makes sense. I gave a few examples. I think it's true from nannies to nurses. It may be that these are second-best solutions but to a poor developing country second best is sometimes better than fifth or sixth best, so I think we shouldn't look down on overinvestment in certain categories and I think there are ways to offset whatever negative implications there are for the country. Fourth, I think there are some effective incentives that work or can work that are non-pecuniary and I think there's an overemphasis on looking at financial rewards and I think there are a few examples listed in some of the chapters such as the links to innovation networks, R&D, communities of practice if you want to call it that, professional densities, things that are not necessarily embedded in the individual but do influence individual decisions. Fifth that rich country controls are unlikely to be effective, and as a corollary, it's probably the business environment and the local governance that may matter a lot more than wages. So I would neither subsidize wages in Zimbabwe because there are too many other things that need to be fixed, nor would I agree to controlling the recruitment of skilled individuals and keeping them out of markets where they can successfully compete. I think that there are other development interventions that are superior to that. So as I finish that, I don't think they're that controversial, but I did try. Thank you.

(Applause.)

MR. RUIZ: I think we have a lot of issues on the table and thank you very much to both Danny and Michael for putting out very thought-provoking ideas and questions for both AnnaLee and Andres to deal with and just elaborate a little bit on the highlights of what they talked about. They talked a lot about the issue of tertiary education at institutions in the developing countries. I think Michael mentioned about the Philippines and that's a case I know very well. That's very interesting because of the fact that you see how institutions themselves specially in the Philippines evolve or transform to actually export. So there are more incentives in a private market actually for people to leave. And in a way that also affects because education and getting innovation into research type of universities because most of them are turning out people to leave into specific jobs abroad. So I think that's kind of an issue that's out there and I think was brought up that it had to do with public education that's also very important because brain drain of taxes. Countries are paying taxes and that's a different situation and I think in India that's a very big case where most tertiary education is publicly funded.

Another issue in terms of ecosystems of migrant origin countries, I think that's what Saxenian brought up that I think is something we could elaborate more as well as the regulatory issues around trying to start up innovation in other developing countries besides Taiwan. I think that in the Philippines it's been very difficult as a practitioner myself trying to help a lot of technology start-ups start up their companies there and you can see a lot of them even if they're there and they have the motivation, a lot of the regulatory issues within starting the business are very difficult and it's just a very messy environment where you don't have a state that actually is helping even local entrepreneurs regardless of migrants abroad. So I think those are issues that we could talk about.

So let me give an opportunity before we turn to the audience for both AnnaLee and Andres to respond to the comments from the panel.

MR. SOLIMANO: I agree with first with Michael's comments that putting controls or constraints on hiring in the health sector is not going to solve the problem. Still I would go perhaps a step beyond and see what can be done in a comparative way between the demand side and the supply side. The poor countries see their doctors or their nurses leaving and rich countries hiring them, I think in the chapter by Bach in the book, he talks about the concept of ethical recruitment which is controversial and also the fact that there can be compensation. Let's say the U.K. gives a grant to a medical school in Ghana to in a way perhaps compensate for the fact that physicians of Ghana are leaving to the U.K. So I would say that some schemes of that sort are needed. And also south-south cooperation. Today very few countries send their doctors to -- countries, but for example one fashionable and not politically correct case is Cuba who send many medical doctors to work in the Third World, probably they are sending too many, but still send to South Africa, to Zimbabwe, so I think it's probably not a solution to restrict to the hiring of medical doctors but something has to be done. I don't think this optimal social equilibrium that medical doctors -- from low-income countries despite that there are maybe good private reasons to leave and it's within the right of everybody to choose to live and work where they want, but still I think that that problem here has to be tackled.

On Danny Leipziger, I agree with most of his comments. I think certainly you have to see the whole incentives, policy environment, opportunities, to see why people leave and I think -- the parallel between foreign direct investment and human capital -- attract people to return but also will depend on the general climate of the country, stability, salaries, et cetera.

So I think that you have to work in those areas and not focus too much on income differentials. Still some -- is needed in some countries to prevent an outflow of qualified human resources or some more return because let's say if the income per capita gap can be narrowed in two decades, may be too long a time span to wait for just convergence to operate and then making your own country attractive as a living place again.

I think and here is more qualitative areas, but sometimes people not only are asking for better salaries or low taxes but sometimes from developing countries they want a position or they want some decision of their own governments or their own institutions that they are wanted there. I mean, if you are a university professor from Argentina and you've suffering in the last 30, 40 years military repression, cutting the budgets of the university, closing research facilities, et cetera and then they send initiative saying oh, I want some of these people back. Sorry I cannot pay your salary, the same salary of a university professor in the U.S. but still we want you, we value your contribution to national development. We value your abilities. There's a sort of moral incentive which is combined to an economic incentive that can make it work. Or if you relied upon a sector and you have some light and leadership in your country, say I want professional to help me develop this country, turn it around. It has happened in other places in the world.

But you need some indication from the authorities that your human capital, your time is wanted, needed and will be rewarded. Probably not in the full extent of your salary differential that you make abroad but still you want that. I think that’s very important. It’s probably (inaudible) effective but it is important.

Yeah I agree that the points by Danny. I think rich country controls are not the answer. I think free education was used as a device for social mobility. I mean, but I think it’s not – many times the children of the middle class and the rich get a subsidy if they go to free education. But still coming from Chile, country that has experience in the last 30 years with going to the other extreme of charging very expensive tuition for the university and making the university not very different from a private commercial venture. I think you have to strike a sort of balance. I mean sometimes there are careers that don’t have a high rate of return but are still needed from a social point of view. You cannot, I mean you can’t discriminate with tuitions. I mean if people want to study philosophy, anthropology, cultural studies probably they are not going to make the same income if they go to MBAs but still country cannot just form MBAs. So I mean you need a balanced structure and then two commercialized system of university maybe complicated in that area. So I will say that’s a consideration.

Also finally, I think you need some – I won’t say international solidarity it sounds too far, but I think there is a mutual responsibility here.

Though it's not poaching probably the human capital from developed country but still developed countries if they have the political will can mobilize more tools to make a more balanced distribution of the benefits of the international location of human capital that the one you observed today.

I will stop here.

MR. RUIZ: Anna.

PROFESSOR SAXENIAN: I'll try to – I've got different comments.

In general I agreed with both of the commentators, most of what they said and found it quite enlightening. I don't by the way think that by presenting the case of Taiwan and Israel or even the cases of China and India that those are some panacea. That somehow you can draw some automatic recipe from those. Just like I spent the first part of my career writing about Silicone Valley. Well, you know you can't recreate Silicone Valley by writing some recipe of factors so these are very complex political, economic, social, institutional things and scale does matter, you know, in all sorts of ways. I think it can happen in big countries.

So even this sort of trying to make an aggregate generalization about brain gain, I don't know, some places sometimes I'm sort of always going to look sort at more low level generalizations.

However, I will say a few words about policies.

I think in general the only kind of policies that I've seen in this sphere that work, are really soft policies that encourage connection. Invite people back to give lectures, get them familiar, get advice from them. I will say the return to Taiwan did take off both when the stock market took off for these high tech firms which people said, "Oh, he made money. I'm as good as he is. I can go back and start a company." But it also coincided with the lifting of martial law so you know; these things get tied up together in interesting ways.

And that sort of takes me to this dysfunctional state. You know, you can't expect the returnees to fix a dysfunctional state. I'm sorry. And it's like I've often puzzled – I think it's a real problem for development. I think there's only so much that can be done in that context. There's a huge Iranian community in Silicone Valley which is extremely technically sophisticated and successful. They will never go back and what a shame. What a shame for that country.

On that point and this is just to wrap up, on the developmental impact of remittances. I'm very interested – they're certainly good in terms of alleviating poverty and increasing standard of living. Do we know anything about their developmental impact? And this is my, as I said, I'm third generation Armenian. I've been back. There's an attempt to create an Armenian diaspora. I think Armenia's problem there's been too many remittances. The Armenian diaspora has been so generous, so guilty about it that they have supported this corrupt regime for years and years and they've been allowed not to reform themselves. So I actually think remittances can be a double-edged sword. So I just leave on that note.

MR. RUIZ: Thank you. I think we're going to take questions. I see a lot of hands. We'll start right over there in white. Please identify yourself as well.

AUDIENCE MEMBER: Yeah, I'm a U.S. correspondent of Helsingin Sanomat which is largest daily in Finland. My question goes to Professor Saxenian, I don't know if I pronounced that correctly but I wonder if throughout your studies in China and India you came across any further studies on the internal brain drain. How much is that being study? How much is that a concern of those? I mean China is the size of United States and therefore a huge entity.

What I understand from China, it's by the way perhaps one of the few countries who could at least in theory control the movement of its people because the special huko (?) system. So what I found is that they actually seem to attract the professional folks to move to Shanghai and Beijing. So did you find any similarities, differences, and what's the overall attitude of Indian and Chinese governments towards the brain gain? Sorry I get confused at this term.

Are they positive on this in the international picture and in the internal picture? Thanks.

PROFESSOR SAXENIAN: Should we answer now?

MR. RUIZ: Well take a round of questions.

PROFESSOR SAXENIAN: Okay.

MR. RUIZ: And we have a question here?

AUDIENCE MEMBER: Thank you. My name is Petrolovski and I used to be an executive director for some of the Central American countries at the World Bank so that's keen interest in this issue.

One of the problems we have is that we try to keep focusing on geographical realities in a global world. The little country in El Salvador net remittances has slow growing economy and reach about $15 billion of GDP. What the El Salvadorians earn, gross within the U.S., those who have traveled abroad to work here is $25 billion. If you add those $25 billion with the $15 you go up to $40 and then suddenly you realize that El Salvador has been growing faster than China. One of the problems is that we don't look at El Salvador as a nation, as a concept of a nation. We just look at it within the geographical reality. And one of the problems of that is we start focusing on brain drains when the fundamental problem in it all is whether there is some type of heart drain or not whether the people forget their nation, whether they leave the nation as such. Because while they're still considering themselves El Salvadorians, actually what they are doing is doing better and growing more. So one of the most important things here is to get out of this geographical mindset and at the World Bank as I said over and over, the next chair at the Executive Directors Board should be allocated to someone from the migrant working community. They are actually nowadays something between India and China in annual GDP. So that is the real – so I would like to have a comment on the heart drain vis-à-vis the brain drain.

MR. RUIZ: Other hands? Yes.

AUDIENCE MEMBER: My name is Kala Asweh. I am from the Embassy of Mauritius. Mauritius is a very tiny country in the world. I think the biggest challenge we have to face is to try to dissipate this perception that at the end of the day the process is a zero sum game. I don’t consider it to be a zero sum game and I must hasten to add that I’m a great proponent of the free movement of people, especially competent people. There’s one point I’d like to raise which has been touched upon very briefly. And that is the challenge of integrating the developing countries through this global brain value chain. And one way to do this is to foster closer linkages between institutions, universities like in the U.S. and some if I take the case of Africa, the African universities. In other words, to deepen the talent pool in those countries so that even if many of them decide to go and take opportunities elsewhere there would still be some who would be in the country to meet the needs of that particular country. So I think this point was touched upon and I'm glad to say that there is an initiative right now in the States which the African countries are partner to and that is to get the association of public universities from the U.S. to really come up with a clearly defined program of fostering linkages with African universities to build up the African talent pool. Thank you.

MR. RUIZ: Yeah. And the last two.

AUDIENCE MEMBER: Dovelyn Agunias from Migration Policy Institute. My question is for Professor Saxenian and actually she already partly answered this, but in hearing about this story in China, India, Israel, Taiwan, the question is how applicable are the experiences of these countries to other developing countries with lower proportion of highly skilled diasporas countries with truly unstable governments. Countries that are suffering from epidemics such as AIDS, those countries that are not, you know, truly developing countries.

If you might expand a little bit of what you would think would be the minimal set of conditions before we all get excited about this idea. And also, one comment with regards to nurse migration to the Philippines, someone who studies this issue and someone who is from the Philippines as well, I don't want anyone to leave this room thinking that there's no nursing problem in the Philippines because there is. And if we look at the data we could say there is a large number of registered nurses in the Philippines but studies have also pointed out that these registered nurses are not actually, most of them are not actually working as nurses. And so the reality is really much more complicated as Michael has talked about. Thank you.

MR. RUIZ: One more question, the lady.

AUDIENCE MEMBER: Hi. I'm Andrea Yourtz. I'm actually a trade lawyer but I'm interested in this issue from the perspective of trade and services, which obviously at some level involves the movement of people. But first I'm also a Jamaican National from the Caribbean. I'd like to thank Mr. Clemens for providing, you know, a lot of empirical information that resonates with myself. What I had captured at an intuitive level as someone coming from the Caribbean where we export a lot of healthcare professionals and teachers.

You know, people leave for a lot of reasons but the choices are voluntary. So whether you over invest or under invest in the training of these people, people are going to leave I think. And you know, I look at teachers with whom I worked say 30 years ago, some have left and there are others who are still living in Jamaica and who swear they are never, ever going to leave and they have continued to live and work as teachers for 30 years.

So very quickly then too, I think the case study provided by the professor here suggests two possible solutions. One is that it would be very difficult to arrive at solutions that are sort of global. I think they are going to be country specific and sector specific. And I think the second lesson that case study suggests is a role for the private sector. I think for instance, no one, no government, no policy could have predicted or anticipated what happened in the case with this recreation of these Silicone Valley clones throughout Asia. And I think there could be a role, for example, with the private sector whether it's from the diaspora or anywhere else going back to the Caribbean, the Philippines, Africa and setting up training institutions that are geared towards producing the supply of healthcare workers, education workers that can both meet the local demand as well as the overseas demand. Thank you.

MR. RUIZ: I'll take a couple, if they're very quick questions. I think I missed a hand here. Last two questions and we'll close.

AUDIENCE MEMBER: I'm Ellie Vekil. I work with the Lewis Berger Group. We are a large consulting firm. We work on a large number of infrastructure development programs around the world. We also hire a large number of skilled engineers mainly from the Philippines, from India and other places.

In the case of Philippines since you've made that an example, we've noticed that the government of the Philippines actually because of the abuses has taken steps in pulling back contracts and/or actually stopping the Filipinos from leaving the country because they either want to make sure – we don't know whether it's politically motivated or because they want to make sure that the contracts that the Filipinos have accepted and are leaving on are valid contracts. In any case, they have created a block for this professional group of Filipinos to leave the country which has created a big problem for them.

Another question that I have is you talk about the brain drain, but how about the economic gain of the country from let's say the Filipinos or the Indians who almost entirely send their income back and these are highly elevated numbers, send them back to the Philippines. Now the same engineer in the Philippines would probably get not even one-tenth of what he's getting, let's say in Afghanistan. So that his income, well almost all of it will revert back into the economy of the Philippines because he is actually supporting his entire family there and the same with India and Pakistan and other places where we recruit from.

MR. RUIZ: Okay. The final, last comment has to be very quick so we can get to our reception.

AUDIENCE MEMBER: Thank you. My name is Guillet Kasam. I am with IGCE, we are small organizations. We focus on the advancement of civil societies particularly in the Horn of Africa right now.

I wanted to ask, I'll be very, very brief. I know it's been awhile. With reference to brain drain and sort of fostering economic development and so on, is it a question of, you know, the chicken and the egg? Which came first? A welcoming policy or the realization that, hey we can make some real development here? You know, what incentives do you have or can you show have moved essentially these developing countries from saying okay, let's start changing our policies to reflect the possible gain. I have other questions, but I will leave it at that.

MR. RUIZ: Thank you. So we will start with AnnaLee.

PROFESSOR SAXENIAN: Okay, so I'm going to go back to the journalist from Helsinki. Internal brain drain, it's a very important issue so there's a tremendous amount of internal migration. One of the first things that happened in Silicone Valley was it sucked all of the talent from the East Coast of the U.S. So if you look at data on demographics in the '60s and '70s, there's a brain drain from the Northeast and the Midwest to California in IT skill. So essentially growing regions tend to suck in people, so tremendous rural, urban migration in places like China and India, I don't believe that even China could stop it. They try, but you know, it's important. The lure of the big city and the wealth is just too much.

You asked also about how the governments see this. It's interesting because both the Indian and the Chinese governments initially were very, especially the Indian, very down on the returnees. When I started doing, this is very interesting, research India in the mid-90s I would go and talk to people and they say, "We don't want them. Those NRIs." They called them NRIs, it means Non-Resident Indians. And they would say things like Not Required Indians, they were very dismissive and there's a resentment and I think it happens in all countries. Those guys escaped, you know. We resent them. But I think over time that's changed as there is a recognition that they are contributing back in important ways.

There are all sorts of issues that we haven't touched about the interaction between the returnees and local, you know, when they work in the same firm the salary gap. You know, different expectations. I mean there's a tremendous amount of sort of issues that haven't been addressed that do occur within this process.

It's definitely not a zero sum game and I hope that what I was trying to say in part, as you create these new – I don't like to call them clones of Silicone Valley but they're certainly partners and they're extensions in a way of Silicone Valley. They don't compete directly with Silicone Valley, they're rather complimentary centers. That they're actually creating new wealth and new skill and opening up new markets and there is a net addition in that process. And several people made comments about universities and collaboration and I couldn't agree more that there needs to be more conversations between people in universities and even in private sectors, between these countries. I think those are huge, I'm a little bit worried that American universities are just sending branches over to other countries to make money and I think that maybe we should be importing students and trading students more than simply setting up branches in Abu Dhabi, or whatever.

Then the policy, people are pushing me on the policy which is good. Here is what I think. I think the economic growth always starts somewhere. It doesn't start from the national institutions down, it tends to start – not matter where it is, so you know, essentially what you want to do is build on where you have strength. So you know, some returnees go back – and it is, somebody said it's sector specific. Private sector is very important to it. You want, essentially if there are returnees even if it's just a handful, you want to keep building that ecosystem around them. So one of the things, Neil you said about some returnees that you have to the Philippines, they're scattered around. That's a very hard situation. You want to get people to build on their own strengths, to work together to create a community that can put pressure even if it's on local policymakers. I think the story in all of these cases is incremental changes that over a long period of time add up to something bigger.

So it's weird because in a lot of the policy discussions we're saying, okay, you got to get private property rights. You got to get the rule of law, you got to get all of these national institutions on place before development can happen. And in these cases actually what's happening is that they're sort of chipping away. They're reforming venture capital, they're reforming telecommunications. They're doing little things that over time actually do accumulate, but if you're too ambitious you'll never have any hope I think in those situations.

So I would just say exploit whatever local opportunities there are in particular sectors and build on those and you know, that's the way to go.

MR. RUIZ: Andres.

MR. SOLIMANO: Very briefly. I think the point on the traditional organizations of the nation state may not be a very suitable framework for studying migration issues is very important. Now you have the issues of dual citizenship or multiple citizenship representation of the migrant community in their countries of residence. An economical potential, in Latin America the average per capita income or earnings in the migrant community in the U.S., this is total not just -- is around $25,000. And the average per capita income of Latin America for people residing in the region is in the order of $6,000. So you have a difference of one to four. There's a big economic potential that can be mobilized. And the same thing I'm sure for the earnings of the African migration in Europe, or (inaudible) countries, or the Philippines. So you have a community that is increasingly more prosperous with higher incomes, but need outlets to develop farther. And this can be a win-win situation as somebody was saying. It can benefit the host country and the home country.

Now the other area I think is important to study more probably is south-south migration. I mean this is an important chunk of the whole story of the migration between southern countries and also north migrations. Most of the international mobility of highly qualified people is between Europe and North America, North America and Europe, et cetera. Part of it is south-south.

So I think it's migration of this international mobility of people is breaking some traditional mode of thinking and we have to be creative in this area. I think both tend to benefit with this movement. Still I would say it's different from the migration from middle income, higher-middle income countries from very poor countries that are hiring (inaudible) and they have the professionals from critical areas with such an impact. I think that's a complicated area, it's different from the (inaudible) of entrepreneurs and technical people. I mean we need to work to a more disaggregating but I think migration can be very important, is engine for economic growth. I mean I think we have to be open to that reality and try to make the best of it.

MR. RUIZ: Danny. Do you want to address any questions or comments?

MR. LEIPZIGER: Okay. Yeah. Well thank you. I'll be brief.

I think the country specific treatment that the lady from Jamaica mentioned is right. On the question of the impact of return flows, I think they are large because they go straight into household income. I think one issue there is to keep the transactions costs as low as possible in the return of the flows. And one of our World Bank experts, Delabrata is sitting in the audience who has been working a lot on that theme.

I think the positive sum game comment from Mauritius is right. I think countries probably should look to ways so the nation can benefit from the individual drive that causes people to migrate and I thin putting the effort into stopping the migration is not only a losing proposition but actually, it doesn't capture the benefit. The benefit is, you know, there is something that separates even the Filipino nurse that emigrates from the one that stays at home. And the question is how do you capture back some of those benefits? In the initial case it may be remittances, but there may be other ways to capture. So I would be more inclined to look a bit more on the return side.

And then, I would probably think but other can correct me that south-south migration like south-south trade is probably growing faster than north-south so I think that the policy range you look ay differs then. We're not talking India to Silicone Valley, we're talking either if you want to take the China case, you know, inside a big country or you're talking about the neighboring country or neighboring regional country in which case the nature of the policy response may be quite different.

MR. RUIZ: Thank you. And Michael?

MR. CLEMENS: Thanks. I just want to talk quickly about the Philippine nurses because it was suggested that I have somehow got the facts wrong. I want to be very clear about the facts. What I showed in the slide was the DeLeo's estimate of how many nurses there are in the Philippines which is 50,000. The last census says 66,280. They are assuming a large faction of them aren't working. The lowest estimate you'll find anywhere in the most alarmist literature is 27,000. That still puts Philippines per capita terms above Thailand and Malaysia which are much richer and send much, much, much fewer nurses to the rest of the world.

That kind of stark evidence, the only interpretation that is compatible with that kind of stark, slap you in the face evidence is that people en masse, en masse, legions have become nurses in order to leave and not all of them have left. The opportunity to leave has created nurses in the Philippines and that's absolutely unequivocal.

MR. RUIZ: Well thank you. I just wanted to take this opportunity to thank our panelists, our speakers. It was very though provoking and a very big issue that they are attempting to research and also in terms of shaping this policy agenda for how to deal with the global mobility of talent. And I'd like to invite everyone to a reception. We have a reception in the room next door. Feel free to ask more questions for discussion. Thank you very much.

(Applause)

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