CAN RUSSIA COMPETE?
ENHANCING PRODUCTIVITY AND INNOVATION IN A GLOBALIZING WORLD

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P R O C E E D I N G S

MR. MONTES-NEGRET: Okay, good afternoon and welcome to the event organized by the InfoShop to launch a very interesting book titled *Can Russia Compete? Enhancing Productivity and Innovation in a Globalizing World*.

My name is Fernando Montes-Negret. I'm the Sector Director in the Finance and Private Sector Development Department of the Europe and Central Asia Region of the Bank. And so, let me welcome you also on behalf of my colleagues in my department.

Let me start by saying that definitely with the recent global economic events, that is affecting everybody. The theories of decoupling, I think, were pretty much it. So everybody, even Russia with a very fast-growing economy, is going to be very much affected. So Russia is not an exception.

Global financial stability and recent falling oil prices will continue to put pressure on the Russian economy, and it will provide a tremendous boost for the importance of diversifying the Russia economy. So economic diversification, which has been part of the government's agenda, will become even more important.

The book that we are presenting today is precisely looking at the challenges that Russia faces in building an innovative and globally competitive economy in the 21st Century. This book is the result of collaboration between the World Bank and The Brookings Institution. We started this work as part of the investment climate assessment that is done by the Bank on some of our key client countries, and it also collects a lot of the research that is done in our department, particularly by Itzhak, one of the authors, that deals with a knowledge economy, innovation, technology absorption and quality. So it's a pleasure for me to introduce the book and the authors.

Not long ago, in fact two weeks ago, the *Financial Times* was writing about playing catch-up in the innovation economy (inaudible) for Russia. Then it clearly pointed at when it comes to developing beyond an oil-dependent economy, Russia's Soviet legacy is both its blessing and its curse. So, in some sense, Russia is struggling with the blessing of plenty of natural resources and a well-trained labor force, and now it's in the transition to look for opportunities to diversify its economic boom.

So let me introduce first the authors. The authors are Itzhak Goldberg who is an Advisor in my department. He has been working on Russia and other Europe and Central Asia countries since the

1990s, and he is the person that has been driving our agenda in the knowledge economy. Also, he has a lot of expertise in the whole Europe and Central Asia region, in particular, Serbia, and he has been involved in the liberalization programs in our region.

His co-author is Raj Desai. He's a Senior Fellow at the Brookings Institution and a Professor at Georgetown University. He has been extensively involved with investment climate work in the World Bank, particularly in our region, and was also a member of the core team for the 2005 World Developing Report on the investment climate.

So let me welcome the authors. I think I will introduce the discussants once we hear from the two authors. As a commercial advertisement, the book is available in our bookstore for those who want to buy after, if they convince that the book is a good book. Thank you.

MR. GOLDBERG: Good afternoon. It's a pleasure to be here.

It's a strange feeling to talk about the book because the book takes years to come up with. So I remember what I'm going to talk about after all this process, but still it really seems almost timely to speak about it with all that is happening at this time.

As Fernando mentioned, this book was born out of an ICA. An ICA is something like Investment Climate Assessment in World Bank jargon. But we hope that it progressed beyond the standard ICA.

What I will try to do is to justify this topic title, *Can Russia Compete*? I don't take the blame for that. It's the Brookings Institution, the editors. I'm joking.

But in any case, I think in order to answer the question, we investigated three issues. We investigated productivity, innovation and human capital and then the policy environment. Rather, I should say innovation skills and the policy environment because productivity is basically a view of the facts.

Now it's based on various data sources, not only on the conventional sort of set of ICA surveys. Nevertheless, the ICA survey is the main source. It was conducted in 2005 and 2006 in collaboration with the Moscow-based Higher School of Economics.

Let me also, before starting, acknowledge and thank the other authors, the authors of the different chapters. On the productivity, it's Mark Schaffer, a Professor in Scotland and Boris Kuznetsov in Moscow. On the innovation, it's our colleague, Enrique Blanco-Armas who is now in Jakarta and present in the room, John Gabriel Goddard and Smita Kuriakose. On the upgrading skills, the co-authors are Hong Tan,

Vladimir Gimpelson from the Higher School of Economics and Yevgeniya Savchenko.

So with this duty done, I want to start and say that the starting point of the book is the increasing dependence of Russia on oil and the resulting vulnerability that it creates. If you look on these graphs, you will see that as of government revenue, oil is about 30 percent. Oil and gas exports are 60 percent by now out of the total exports.

This is something that should worry the Russian authorities, and in fact we have to say that the government is very aware of that. There is even a strategy to deal with it. But as usual, as we know, the approach to this issue is very much a top-down approach of government programs that are supposed to encourage diversification into other areas.

For example, in 2006, the Russian government established the so-called RVA, Russian Venture Company, with 1.2 billion euros to invest in venture capital, to invest in projects, to invest in some new ideas. By now, we have been following this with the government and maybe even advising, but by now the conclusion is that the money is there, but the ideas are not. There's no idea flow.

This is an example of something which in the jargon of venture capitalists is an example of wrong sequencing because there is a shortage in Russia—for the reasons that will be discussed—of projects, of ideas because there are major structural issues in this sector and in commercialization in general. So with this as a sort of motivation, let me start with the discussion of productivity, and I will come back to this sequencing problem when I discuss innovation.

So basically the basic effect is that Russia's manufacturing productivity lags behind almost all the relevant competitors. Now what are the competitors? There are two kinds of competitors. There are the developed countries that Russia likes to compare itself to, whether we agree or not. It's Germany, South Korea, or be it the other standard of comparison which is countries like the economy of Brazil, Russia, India and China and sometimes it's for South Africa. Those are sort of the five emerging countries.

Any of these comparisons including Poland, which is the more developed Eastern Europe ex-Socialist country, Russia is not doing well.

What is more important, and I will talk it beyond that, is that the wage is high, relatively speaking to these countries or at least to the ACA, and the result is that the competiveness of Russian manufacturing is affected. It's not good. I will get to that even more.

You can see over time that the real wages increases are outpacing productivity gains, which again is making this competitiveness even more problematic over time.

What has happened in Russia is that there was the standard transition type increasing productivity in the nineties which was driven by sector reallocation and by downsizing and layoffs, but that more or less has been exhausted. At the end of the day, when that is exhausted, it has to be the basic production function that matters, that you have to increase, which you get out of your input. That's where technology absorption and innovation and skills come.

That's basically what I'm trying to show in this graph, basically saying that we are following sort of the conventional, if you wish, endogenous growth approach, showing that it's not only the (inaudible). Basically then the conventional capital and labor explain only maybe 50 percent of the change of the increasing total factor of productivity across countries, but the rest is due to innovation or the idea factors which are then dependent on the incentives and on the institutions in the economy. That's sort of the endogeneity.

So, with this in mind, with this picture in mind, we basically can start delving into those topics that are on the table. I will discuss innovation and Raj, my colleague, my co-author, will discuss training skills and investment climate.

Let's jump into innovation which will eventually bring us to the issue of this wrong sequencing in venture capital which I used as a kind of interesting example.

But the fact is that Russia's R&D sector is large. It used to be very large, as we know, in the nineties. It halved over the ten years of the nineties. It's still large compared to other economies. For example, in terms of researchers per million in population, Russia is as intensive or has as many researchers as Germany. The productivity in Russia is 10 times or 20 times lower.

The other issue is that whatever Russian R&D institutes—and I will talk about it a bit—the commercialization process in Russia in general is not only weaker than in the OECD countries; it's weaker from our specific related work than in countries like Poland, Croatia and Serbia.

So the bonus to innovation, basically, one of the key elements in the theory about how do you absorb technology, there are two critical elements. One is trade and one is FDI.

Trade, it's not so much how much trade; it's whom do you trade with and what do you trade in.

Russia is exporting the vast majority of its own parts and components—that's the important, relevant issue about technology absorption—to CIS countries rather than to OECD countries. Obviously, it's importing all these parts and components from OECD.

Since there is this theory that I guess it might true, that you learn from your clients, it's learning by exporting. That's one issue.

The other issue is FDI where you really still have a series of barriers and constraints on FDI in telecommunications, in services, in technology, and that's an issue.

The result is that, as I said before, Russia and Germany are on the same vertical distance in terms of researchers per population. But, as you can see, the productivity of Russia is down at the bottom vis-à-vis Germany.

In terms of output, U.S. patents granted, we found in a related research which is not in this book that Russian researchers—we are talking about patents of Russians—in the U.S. have been isolated in the sense that they do not cite Western inventors and they are not being cited by Western inventors or definitely less than in other countries. That's an issue. So if the quality of the patents is lower, the number is so.

One issue that I wanted to mention before I come back to the sequencing item is the issue of competition. One of the strongest results of our empirical work that is in the ICA survey of 1,000 companies is companies that operate in less competitive environments spend less on R&D and innovate less. We measure innovation by new products, new technology, new processes to the firms that the managers state in an interview. So, in R&D, we have also direct results.

This is consistent with the theories. One of the main figures that sort of replace the Schumpeterian approach about the importance of monopoly for innovation while Jung and many others with him, Mark Schaffer, our co-author, basically say that due to competition, incumbent firms are forced to innovate, defend their market share while new firms innovate to gain new power for entering into a new market. Without the threat of competition, there is less innovation.

So now I want to conclude with this issue of commercialization because I think this is at heart of the Russian problems in terms of innovation. I mean there is, as I said, a large R&D sector. There are institutes which in many respects, like publications or patents, are doing well or okay. But somehow in this

link between that and productivity, there is a problem.

The problem is when you approach it from different sources—we've done it through interviews with these institutes, with inventors—basically the linkage between business and the R&D institutes is very weak or almost nonexistent. It's a cultural gap. It's an incentives gap. Institutional, whatever it is, but it's there.

As a result, you have a real problem in entrepreneurs coming out of an R&D institute and going into business. That's very rare.

The reasons are multiple. In addition to cultural ones, one is the issue of intellectual property rights. It's not clear when he goes out and wants to find a partner. The foreign partner asks him, is this really yours, and it was invented in this institute, and it's not clear whose it is. The issue is very tricky.

There are some attempts for legislation, but there is a law which is pretty much following the American example, but the regulation is under strong opposition of the military, ex-military complex who basically said those are the secrets which are the property of the Soviet state. That's it. So you cannot take them with you. This approach is very much behind the infighting within the government about implementation of this law.

Another issue is financing. The issue with financing is you have a one billion dollar venture fund, but if you have an idea and you want to do something, a prototype, commercialize it, it's very difficult to get money. Obviously, banks don't lend for this kind of stuff.

So there is in Russia today an institution. It's called the Foundation—we have a box in the book—the Foundation for Assistance to Small Innovative Enterprises, and they give grants. There are all kinds of legal problems because it's still, according to the commercial code, if the government gives you some free money, then by definition the product of your research belongs to the state, for example. So nobody wants to take that money. That's the case.

But beyond that, there is simply a matter of priorities and this kind of top-down policy that I started with. While there is money for this venture capital fund which is supposed to invest in some huge mega project, this little agency which exists and which is modeled or similar to similar agencies, innovation agencies in Finland, in Korea, in Ireland, and here or in Israel, there are many variations. I was looking at that from my point of view as an Israeli. It's distributing less money than the money distributed by Israel to

its inventors. So you can imagine that that's a joke.

That's something which is very difficult to push and explain to the Russian government. Early stage innovation is not there. So here you are. You have a venture capitalist who wants ideas. There are no ideas because you don't finance them and you don't encourage them, and there's no IPR to deal with them.

Thank you very much.

(Applause.)

MR. DESAI: Well, don't applaud yet. We want to keep moving to make sure there's enough time for the discussants and for questions and, most importantly, for you, some of you to visit the InfoShop before it closes.

So, moving on to the second issue in our edited volume, the question of worker skills, and the question this chapter asks is: Are the skills of Russian workers sufficient for firms to become globally competitive and, if not, where are the deficiencies and how can they be corrected?

One of the themes that emerge in this book is that there are several favorable conditions that the Russian economy has. One of them, of course, is the amount of input in terms of research and development.

Another one is the fact that Russia's workforce is actually quite highly educated. In fact, it has one of the highest populations in the world of people with tertiary, with college degrees. But there has been, over the period of time since the early nineties, underfunding and deterioration of secondary education as well the absence of professional training for managers, for high-level staff in corporations that are contributing to some of these problems.

Additionally, there's an issue with regard to on-the-job training. Now some Russian firms do train, and we found in our work that those firms that do train actually reap certain rewards. They are more productive. They pay higher real wages. They invest more in research and development, and they're more innovative in terms of the number of performance innovation outcomes. We do find, however, that high labor turnover, which is a problem, reduces firms' investment in training.

Now, in terms of the surveys that we conducted for this volume, on the one hand, large and medium enterprises and, on the other hand, small enterprises were asked to rank certain investment

climate constraints, business environment constraints from a scale of 1 to 5: 1 being no obstacle; 5 being most severe obstacle.

You can see that the rankings between the large and medium on the one hand and the small on the other are relatively similar and that skills, worker skills or the lack of worker skills, being an obstacle, is among the most severe obstacles that firms of all sizes face.

But the skill constraint is not new. In fact, it's been growing over time with the transition to a market economy with rapid economy growth since the late 1990s. Time series data provide insights into how over or understaffing in enterprises has changed over the last two decades.

Before the 1998 financial crisis in Russia, the proportion of firms reporting that they were overstaffed relative to expected output was quite high. So the problem was overstaffing. In 1997, for example, 38 percent of firms noted that they had redundant personnel.

Now there's been a strong recovery in industrial output after 1998. That brought the proportion of overstaffed firms down under 15 percent, but the level of understaffed firms has now increased.

This is a simple graph that compares what you might call the breadth and the depth of worker training. So on the vertical axis, you have the percentage of workforce trained. That would be the depth.

On the horizontal axis, you have the incidence of training, the percentage of firms that offer training. That would be the breadth.

You can see that Russia, which does quite well or does moderately well in terms of breadth, is very shallow in terms of the percentage of workers. So, while 58 percent of firms offer some kind of training, about 7 percent of the workforce is trained.

So, the business environment: To what extent does the Russian business climate provide opportunity for competitive firms to take advantage of their endowments to expand, grow, create jobs and so on? This chapter, which is the last substantive chapter in the book, asks three related questions.

First, what do Russian firms see as the main problems in the investment climate, both within Russia but also compared to firms in China and India?

Secondly, how do these problems affect the ability of Russian firms to remain globally competitive?

Finally, what can be done to improve the investment climate?

Let me summarize some of the findings on this chapter.

We find that there's been a lot of progress in terms of administrative reforms and reducing the costs of business. The latest Doing Business Report, for example, shows a trend continuing, which is that startup costs have fallen quite a bit in Russia and that startup costs in terms of procedures, money, et cetera, time, it now takes less of all of that to start a business in Russia than it does in Brazil, China and India.

There has been some monitoring, joint with the World Bank and the Center for Economic and Financial Research (CEFIR) in Moscow, on some regulatory reforms and some progress that began in 2000, 2001. Some of the findings are:

That there was a significant reduction in activities that required licensing from over 500 to less than 80; that the reduction of time, cost, and number of authorities that one had to go to, to register was reduced significantly; that the introduction of a simplified tax system for small business was a major benefit in terms of doing business, and; that, finally, limiting the number of inspections, and the duration of inspections, was also beneficial. However, the most recent monitoring that is discussed in the book shows some backsliding, some movement backwards, that licensing costs have risen recently; that bribe payments for registrations and to inspectors have actually increased in recent years and have actually increased more so than in other parts of Eastern Europe and Central Europe; that the tax regime for larger businesses remains still quite complex, quite constraining; and, that, finally, inspections that are conducted without a legal warrant have been on the rise.

Russian firms still lose about 12 percent of sales due to investment climate problems, due to the bribe tax, due to theft in production payments that have to be paid, problems with telephone, electricity, water, et cetera and supply delays.

But costs are not the only problem. In fact, the number one problem, according to Russian enterprises in their survey responses, is policy uncertainty, the unpredictability of what the government is going to do tomorrow.

According to the World Economic Forum, the Global Competitiveness Ranking, Russia ranks 75th out of 117 countries in terms of regulatory unpredictability—more uncertain than China, India and Brazil. This is often a result of regulations that are applied inconsistently, selectively, that are interpreted inconsistently across sectors or across firms.

That kind of uncertainty, given that investment is forward-looking, obviously deters investment. Unlike market-based risks or country-based risks, these kinds of policy-based risks are more difficult to insure against.

Perceptions of risks and regulatory uncertainty are also very closely associated with perceptions that contracts will not be enforced, that property rights will not be upheld.

Finally, in addition to costs and risks, there are barriers to competition both in the form of formal and informal practices.

Now Itzhak had shown that firms that are operating under more competitive pressures innovative more based on a variety of measures.

We also find that firms that operate under a more competitive environment, that face more competitive pressures, that face more competitors are actually punished by the policy environment.

Firms that are operating under competitive pressures pay twice as much in terms of bribes as a percentage of sales relative to those that are more monopolistic. These same firms pay about three times as much in terms of a percentage of the contract value for government procurement contracts relative to more monopolistic firms.

They are three times as likely to face nonpayment by customers. You remember the 1990s, the sort of heyday of nonpayment, the battle days of cycles of nonpayment in the Russian environment. This, for the most part, has been reduced, but again firms operating under competitive pressures are more likely to face this problem than those facing less competition.

Finally, firms that are operating under competitive pressures pay about three times as much in terms of protection payments as a percentage of sales.

I emphasize that the monopolistic firms are the least innovative. These are the ones that are being sheltered from investment climate problems.

Firms that face more competitive pressures also face harsher investment climate constraints.

So here's a similar ranking of firms based on those that are facing the most competitive pressures and those that are facing the least competitive pressures. You can see that when it comes to land and infrastructure issues, the gap is not that big. But when it comes to governance matters or administrative costs, the gap between firms that face competitive pressures, thinking that it's an obstacle, versus firms

that are not facing competitive pressures who think it's an obstacle is quite wide.

Let me quickly summarize some recommendations in terms of what can be done. We're interested in how can the ability of firms to innovate and absorb new technology be expanded, we're interested in what can be done to upgrade worker skills, and we're interested in improving the quality of the policy environment for business.

So where there's an obstacle, there's obviously a way forward, and the book outlines some of these responses. Where firms fall short of their innovative potential, there is a need for incentives, for greater research and development and an improved research and development regime that allows for more commercialization along the lines that Itzhak mentioned.

Where workers lack skills to compete globally, that enable firms to compete globally, the way forward is improved in-house and vocational training and the incentives that would encourage that.

Where the policy environment constrains dynamic firms, the way forward is to improve competition in product markets and reduce policy uncertainty.

So our recommendations, well, there are several, but let me mention six:

First, the facilitation of more commercialization of research and development through a combination of matching grants, public-private collaboration, but the warning is to avoid the use of tax-based incentives or the kind of state-owned venture capital funds that Itzhak warned against earlier.

Second, to use employer-targeted incentives to invest in in-service training. Some of the possibilities are payroll levy funds. Others are matching grants.

Thirdly, privatize municipally held land. Most usable land is still in the hands of municipal governments. There is evidence that municipalities have often abused their dominant position through a kind of targeted use of administrative barriers against firms. Administrative barriers in land acquisition often deter many firms from applying for land ownership.

Fourth, improve the allocation and protection of intellectual property rights. There is an ongoing debate regarding the nature of ownership of IPRs particularly when it comes to technology that is developed privately with state funding which is quite a common phenomenon in Russia.

Fifth, strengthen the consultative processes in designing regulations. There is some evidence that firms that are part of business associations that are more inclusive, for example, are sheltered from the

kinds of constraints or the kinds of costs that firms that are not part of those associations face.

And, finally, there is some need for an updated administrative reform package that focuses on reducing inspections that are conducted without warrants, that continues to reduce duplication across governmental bodies in licensing requirements.

Finally, we do encourage that Russian authorities take a look at the international experience of regulatory review. It doesn't have to be full-scale regulatory impact analysis but some forms of regulatory review that other countries such as Mexico, Hungary and several others have adopted to some positive benefit.

Let me conclude by stating the obvious which is that Russia faces a choice now, more than ever. Recent global economic events have sort of put this in sharp relief. It can continue the sort of pursuit of natural resource-led growth and subsequent greater state intervention in the management of the economy while firms continue to suffer in terms of their competitiveness vis-à-vis the rest of the world. Or, it can address the innovation gap, and it can address deficiencies in worker skills and defects in the policy environment in order to build a competitive manufacturing base from which it can ultimately join global markets.

Thank you.

(Applause.)

MR. MONTES-NEGRET: Thank you very much, Raj.

Let me now introduce the two discussants. Professor Anders Åslund, he's a Senior Fellow at the Peterson Institute for International Economics, and he's an Adjunct Professor at Georgetown University. He is really a Russia expert with a long career, also the Carnegie Endowment for International Peace and many other accomplishments.

Let me welcome Professor Åslund.

MR. ÅSLUND: Thank you very much for the invitation and it's a pleasure to be here again.

I want to congratulate the authors upon the publication of the book. I think it's very nice. It's an easy read, and it has substantial information, and also it has this very nice habit of putting the technicalities that you don't really want to see into the appendixes. At the same time, there are very few dovetail facts, but you can check it out. So I think that's very much the form of publication that one wants to see.

I would like to focus my brief comments here on three things. The first is about framing Russia; the second, investment climate; and the third, skills, R&D and Soviet inheritance.

On the first point, I want to emphasize what an outlier Russia is today. It comes through quite clearly in the comments that you have already heard, but I would like to emphasize it a bit more with a few framing facts, three of them.

The first is Russia is today quite a developed country, economically. It's the 46th richest country in the world in terms of GDP per capita, current exchange rate.

But here comes the two negative pieces of fact: Among countries wealthier than Russia, it's only Equatorial Guinea that is more corrupt. That's not really the company that a great nation would like to be in. And, out of 180 countries for transparency of international rates, Russia comes in 143rd place in terms of degree of corruption. So Russia is really frightfully corrupt.

The other point is authoritarianism. Russia is not quite at the extreme in that regard but almost. Among the countries richer than Russia, there are only Singapore and seven small oil states that are also authoritarian.

So where should we begin? Raj actually writes it in his last chapter here. The governance has to change. He has almost a definition of democracy: Competitive legislators are needed, transparency, free and independent media, checks and balances and updated administrative reform as you just heard. This is normally called democracy, but the word, democracy, does not appear anywhere in the book.

So my question to the author is: Is this washed out of the book? Is it not allowed to publish a book in cooperation with the World Bank and use the democracy?

Or, why didn't you write the word, Raj, because this is exactly what you mean? Rightly so.

Altogether here, I would say that it makes more sense to me to compare Russia with Brazil, as is done in the book, and Poland rather than India and China. After all, GDP in China per capita is one-quarter of Russia. That's only a point.

The second theme I wanted to do is simply to praise Raj's last chapter on investment climate. I think this is very much state of the art. This is what we want to see. This is the kind of recommendation that is right, and I would like to draw three pieces out of it:

First, privatize municipal land, which is enormously important to diminish corruption and get local

markets to function.

Secondly, a theme that goes through the whole book, that is to improve the allocation of intellectual property rights. I think that intellectual property rights now at this stage in development are really important for Russia's development. Normally it's not done in these books. So I think this is one of the major achievements of the book.

And then the third is, of course, deregulation as always which is properly emphasized here.

These should be at the top of the Russian reform agenda. Formally, they are. In reality, I think that the financial crisis that we are seeing right now will do a lot to get the Russian reform agenda coming, and therefore I think that this book might also be very timely.

The third issue is skills and their R&D, and this is another strong chapter in the book. Of course, this is another huge discrepancy in Russia. It's mentioned that Russia is the seventh country in the world in terms of number of people with higher education, which I think is correct. At the same time, so little is being done in terms of research and development and innovation.

Why is this? Here, the book is a bit ambiguous. Different authors in the book have different views of the Soviet R&D legacy. The current authors here are more on the right side, some will be absent or for some who are the wrong side.

But what I would like to emphasize is how bad the Soviet R&D legacy was. The human capital was excellent, but the organization was bad. So what you would like to do in this case is to take them apart. You don't want the old Soviet system of research.

When I think of Soviet research as an economist, I think, of course, of their economic institutes and what did they look like: A huge building with 500 people working there. Producing, at the most, 12 books a year. Unknown what they really did, if they did anything at all. And, a number of those books being published in the name of a director of the institute, the Almighty, and written by junior researchers.

What is this? Is this research to be proud?

Obviously, it was better in science, but you have several features that were disastrous for research: complete secrecy, isolation from the outside world, minimal knowledge of foreign languages, strict state hierarchy and a mastodon state institution, gerontocracy and minimal scholarly production.

As you mention here, people are aged in the institutions. Often, you come to an institution, and

you're happy if you find anybody below the age of 60, and the average age may well be 70. I mean these were old people in the research institutions. Then we shouldn't be surprised that there is no productivity.

So the point I would drive is to go a bit further than the authors to simply say Russian research won't start again until you abolish the Academy of Sciences because that is really the bane of Russian science. You might scale it down so it becomes what it is in any Western countries. But as it is now, still, it puts a dead hand on research.

Of course, as you rightly point out, integrate research and teaching. As it is now, teaching is something you do piecemeal. You're being paid for how many hours you teach in very many institutions. So, therefore, you have no incentive or even time to do research.

I should also say that Sergei Guriev and Alec Dosvinsky (ph), they made a study on happiness and compared it with various countries. You know that Russians are unhappy the older they are while normally, in the West, people become unhappy until they are 40. You know with the mid-life crisis. Then they become happier and happier when they have survived that.

They explain it, I think very sensibly, with depreciation of Soviet human capital, and this is the tragedy of the old people. Nobody needs the political economy of socialism any longer, but we have a lot of knowledge. That, of course, occurs in tragedy and so forth in a lot of other areas.

So the point is that you want to take these people out of the research process. They are ballasts that are negative for the future development rather than something that one should support.

Then, finally, just I would like to say with regard to this corruption in Russia, I am very worried by any kind of public-private partnerships because it normally ends up in corruption. You wisely turn against state-managed venture capital funds for pretty much that reason, but matching grants sounds almost as bad to me.

But it's a nice book and congratulations to you. I think you have illuminated very well and, with the skills issues and the investment climate, I think you have done wonderful. Congratulations to you.

(Applause.)

MR. MONTES-NEGRET: Our last discussant is Mark Dutz, a colleague at the Bank working in the South Asia Region, specializing in competition issues, technology, entrepreneurship and competitiveness. He just published recently a very nice report on India, "Unleashing India's Innovation Toward Sustainable

and Inclusive Growth".

Mark, please.

MR. DUTZ: Thank you, Fernando, and thank you to the team actually for inviting me to take another look at the book. I was fortunate, actually, to have been asked to be involved during the production of this. So I gave a first set of comments, a second set of comments and a third set of comments.

By this stage, I can only applaud the book. I don't have any more comments.

But it's really a pleasure for me because one of the first assignments that I had early in the nineties when I came to the Bank was to be involved in the first Country Economic Memorandum for Russia in 1991. And so, to think again about Russia is a privilege here.

Let me start by saying there are actually many things to applaud in this report. Really, it is about boosting economic diversification, and I agree that the timing is very opportune. I'd like to focus first on three things that I particularly like and why I liked them and then mention three other things where I think more work could be needed, looking forward.

The first thing I like a lot is the data on enterprise productivity. I like that this is grounded in data. I actually think this is sort of a model use, the way we should be using enterprise-level data.

It uses, as Itzhak pointed out, the ICA survey, 2005 and 2006, which both had the large and medium enterprises and the small and the small enterprise surveys specifically for this book, but it also has what's known as the BEEPS which EBRD and the Bank worked together on, this Business Environment and Enterprise Performance data. It then uses the enterprise surveys which we do across all our countries and the Doing Business Database as well as other things like the U.N. Comtrade data. It's very nice.

Why is this good? Well, it allows us to start from areas where Russia is truly a standout, an outlier in some way, and then explore the underlying determinants based on enterprise-level data.

I'd like to highlight, though, that some data one needs to look at with a particularly appropriate lens. It's true that Russia has the lowest share of manufacturing exports to GDP, less than 7 percent, and then that's compared to 28 percent for China and over 34 percent for South Korea. But I think it's important in our own minds to insert appropriate qualifiers that Russia really is endowed with minerals, with oil,

whereas China and South Korea are abundant in people.

So these things need to be kept in mind when one compares the broad numbers, but then of course when one looks at the underlying data, that's where the richness of the report really comes out.

The second thing I really like about the report is the way it integrates the theme of fostering knowledge absorption and upgrading skills with the complementary theme of reforming the investment climate.

Why do I like that? Well, because sometimes at the Bank over the past years there's been a suggestion that we really should be focusing on easing the doing business agenda, that that's the focus, or that we need a more activist role for the state as facilitator. This book, I think, does a great job of pulling both those perspectives together.

And the third area that I like is really this need for smart policies that avoid bureaucratic inefficiency and reduce risks of political capture. So, throughout, there's an emphasis on bottom-up approaches, entrepreneurship-driven or enterprise-driven and avoiding what Bomo and Litton and colleagues refer to as state-guided capitalism, excessive state-guided capitalism, and instead really have bottom-up initiatives.

I won't go over those. But Raj, for instance, went over these top six recommendations, and all of them bear the hallmark of bottom-up initiatives that avoid risks of political capture.

Now three important areas for further work that I thought I'd just mention:

The first is I think it would be interesting to learn more about the potential impact of leveraging the mobility of talent in support of increased competitiveness. The book does a great job of looking at the flows of goods and the flows of capital, but also the flows of labor that could be addressed a little bit in more detail—the Diaspora. There, if actually personal contacts and the flow of people are important for technology transfer, then making better use of Russia's Diaspora could be especially important.

Also, Russia has few angel investors with lots of money, experience and contacts. So it could benefit from specific policies to attract foreign angels, either Russians or wealthy entrepreneurial friends of Russia residing abroad, and certainly a focus on that would require Russia to focus on precisely the reduction of the policy uncertainty and the outstanding problems in terms of protection of property rights and contract enforcement that keeps them away. So it would be a nice marriage of creating the right

environment to attract them and actually focusing on them.

Linked to that is this issue of making better use of existing knowledge within Russia, which is slightly different than the traditional focus on innovation which is on the creation of new-to-the-world knowledge and its commercialization—the idea of just better diffusing existing knowledge and absorbing it.

In our report on India, we found that if India could only catch up with itself in the sense of you have a huge disbursement of productivity within given industries, so that if the low performers could do as well as the better performers, the Indian output can increase five times.

I'm sure in Russia as well, if there was better diffusion of knowledge and focused programs to help, again, bottom-up entrepreneurship-driven programs to help SMEs, small and medium enterprises. There, given the weakness of institutions in Russia, I think there's real need for more knowledge sharing within Russia of those few local institutions that are experimenting in successful enterprise support programs. There may be a few in Tomsk, in Novosibirsk and in St. Petersburg, but if those could be shared and allow for deeper processing, more value added from natural resources and strengthening existing clusters, that's a complementary thrust to what's in the book.

The second area is making finance available to productivity-enhancing investments. I think, there, in the context of the present financial sector crisis:

To ensure that there's really a comprehensive, rather than an ad hoc, strategy to deal with failing banks in order not inadvertently to strengthen the grip of state banks at the expense of viable and vibrant private sector players;

To think hard about to the extent that over the next years there may be less international capital to tap for innovation and diffusion of knowledge;

To think of ways, in a realistic way, to avoid state capture, to combine these grants for early stage technology development in the private venture capital.

And the third and final area I just want to say a couple of words on is the area of the active promotion of competition. I think that the book itself highlights that one of the most robust results drawn from the estimation of what they have, which is called an innovation or an absorption production function, is the importance of competitive pressure. Firms that do have competitive pressure are 20 percent more

likely to introduce new and improved products.

Then, of course, the question is: Could we have even stronger recommendations on how to do this, how to strengthen competition? I think that the book's thrust, which actually is to strengthen the demand for competition from the bottom-up and to empower and support local constituencies for competition is right on the mark.

However, I think more can and should be done in this area, and I think with a draft concept for a program to develop competition, which has just been posted last week on the Ministry of Economic Development's web site, the timing couldn't be better for doing some more in this area.

I understand that the urgency of the matter may be due to Prime Minister Putin's recent interest in a well-publicized case of alleged overpricing of coking coal on the internal market by a specific coal and steel group, but certainly there's an opportunity there, and I would focus on two areas.

One would be just opening strategic bottlenecks to competition. What are strategic bottlenecks to competition? Well, wherever there's a bottleneck.

So an enterprise wants to have access to an essential business service, be that local real estate, local access to finance, local transport including shipping or distribution warehouses, professional business services related to information and market. Whenever there's a bottleneck there, law enforcement should focus on those areas, on detecting exclusionary practices aimed at foreclosing access to such essential business services.

The second area is the advocacy area. There, I think even more emphasis should be put on bottom-up competition advocacy. The kind of things that we heard from Raj that are needed: championing the upholding of property rights, the enforcement of contracts, trying to have a more level playing field across the board.

There, we could think of the competition agencies actually helping mobilize natural allies of competition, those who benefit from competition like exporters, successful small entrepreneurs that have recently entered and are growing as a result of productivity rather than invested interests. Those are the people that should be mobilized to help support such an initiative. Really, these competition sureties should become a focal point for improvement in doing business reforms and champions for commercial freedom.

One final comment in that area is the importance of distinguishing between competition and competitiveness. Clearly, the competition authorities should focus on competition. It's a market failure, the abuse of market power, and they should spur rivalry among enterprises. They should focus on the conduct of enterprises and this level playing field. They should not become involved in activist industrial policy measures addressed at other actual or perceived market failures.

With that, let me again congratulate the team and look forward to seeing impact from this work in Russia over the next months.

Thank you.

(Applause.)

MR. MONTES-NEGRET: Thank you, Mark.

Let me allow the authors to maybe make a few comments, very quick, so that we can open up the discussion to the participants.

MR. GOLDBERG: Okay. I think I really want to thank the reviewers for their comments. Let me take one of them head-on. I really welcome the critique of Professor Åslund on two issues. One is the R&D institutes and, secondly, on the matching grants.

Now, on the R&D institutes, it so happens that we are now doing and I am in the middle of actually, hopefully, completing the study of these institutes all over the region. This, I really see as the unfinished reform agenda. I mean we have done so much on restructuring of enterprises, and the market now took over and consolidated itself.

This is a perspective for your comment. This is undone in all ECA countries except Hungary, the Czech Republic, Estonia, and maybe Slovakia should be included.

Poland, which you followed closely, and I even made this comment to Mr. Bostoevich one time that he was here, and he kind of diplomatically smiled. I mean the reason that it's not here more strongly is very simply what you said. I mean this is a World Bank document, and it's not, I would say, wise to basically start the discussion with Russia about suggesting to abolish the Russian Academy of Science. It could be at the end, but not at the beginning.

Now moreover, and here is the most difficulty, how do you reform this institute or how do you close it? The problem is that there were privatization attempts all over, and they ended up in a very unfortunate

way by simply -- the fact is, just to people who don't know, these institutes are sitting on the most valuable land and buildings in the center of Prague and Moscow and so forth.

So, whatever privatization and whatever you call it, competization attempts, there were many, many of them there. I would say the absolute majority ended up with simply an entrepreneur taking over the buildings and opening hotels and doing something with the researchers, sending them home one way or another, or in a complete closure or in some variation.

This doesn't mean that I defend having these institutes on this land, but it makes privatization, proper privatization difficult. I ask colleagues that are in the room, what is the way? Should we do management contracts? What is the way so that it doesn't stall the transaction in such a strong way?

Whatever, and I really don't know yet about a recommendation. I would be happy to seek your advice, and we are talking about a technicality. But, in essence, that's a major issue. I fully agree with you.

Simply, to be honest, I didn't know. Now we have completed a survey of these institutes. At the time, we didn't know how bad it is.

It's also tricky because you have to have some way to classify. There are some of them which are probably top science in the nuclear. So what is it?

You have to have a method of classification. In Poland, we started some sort of classification, and then of course it became a political game.

On matching grants, I had the same discussion with Katia Duraskov (ph), whom you mentioned. Of course, she said: Never. Don't do that. Don't recommend such a thing for Russia.

First, let's start with effect. One way, one variation or another of this kind of direct support for this basic early stage commercialized R&D exists in all countries led by the U.S., the U.K. and, of course, the Scandinavians, South Korea and Singapore and so forth.

MR. ÅSLUND: (Inaudible.)

MR. GOLDBERG: Look, your point is very clear. (Inaudible.) There is an agency called FASE, which we have done a little study of, which is very small, and that's probably why it can maintain. It has a chair, a guy who is on the board, who is famous for his dedication. I have yet to hear somebody to say that he's corrupt.

Now is the conclusion from the corruption situation that you should not try any of these schemes? I would disagree. I would disagree. I think that you have to try them on small scales, in selected environments, with special protection mechanisms, international peer review, international selection.

But it's not that somebody is standing is place and waiting for you because they are doing the wrong things. So now either they establish these funds, and they now come to us, what about idea flow? You should have done matching grants, but don't do it because you are corrupt.

I mean we are in the middle of an ongoing reality which is progressing, and we can either adopt the third best or second best solution of trying to minimize the damage or we could stand aside. So, in that situation, people recommend standing aside. I don't.

That's my main comment.

MR. DESAI: Just let me say two things to follow up on that. I think that the challenge is somehow finding a way to navigate in the context of the main actors, including the government and the Russian economy, between the imperative of having to rely on public bodies or quasi-public bodies to do certain things that are required to improve the competitiveness of the Russian economy -- including using, for example, competition agencies as an agent of change or mobilizing that kind of agency that perhaps Anders disagrees are potentially, relatively free of the kind of Soviet legacies that you were talking about.

Between that and the facts on the ground, which is that there are certain problems in the governance of public institutions in Russia, that is severe. I mean a choice has to be made. It's a difficult thing to navigate between. I don't have a solution, but I think that's the challenge.

On the issue of democracy, you'll notice I didn't mention elections. I talked about there's this phrase liberal democracy and illiberal democracy. I wanted to focus on the liberal part, not so much on the elections.

That's why, and the purpose of that is actually to put certain constraints on the executive branch, to reduce the discretion, to make it more rule-based and so on. The evidence is checks and balances and separation of powers and independent media and watchdogs and veto players and that kind of thing. That was the emphasis.

I promise you it wasn't because the World Bank said you can't mention democracy.

MR. MONTES-NEGRET: Okay. Thank you very much, Raj.

Let's open up for a few questions to the authors or the discussants.

QUESTIONER: My name is Camalia (ph). I'm from George Mason University. My question is in the context of Mr. Åslund's comments about democracy.

So can Russia compete? Russia has always competed even if the Western world didn't want to accept this or wasn't aware of this. So my question would be isn't it more fair to ask which Russia will compete?

And, the recommendations you mentioned are very much framed, and they're very clear, but aren't they a way to heal the symptoms and not a way to cure the disease?

That's my question. Thank you very much.

QUESTIONER: My question is about Russian demography, how it plays into Russian competitiveness. I haven't heard that.

QUESTIONER: One comment and two questions: The comment is about land privatization by municipalities. Indeed, there is no question that in bigger cities land privatization is probably a needed and important thing. But with the new decentralization law, 85 percent of Russian municipalities are actually very small, rural municipalities. The size of those is around 1,000 inhabitants.

We did a study of that, and actually it's a very nuanced situation whereby small municipal property is pretty much their only source of fees and independent income that actually makes local development remotely meaningful. Actually, when privatization happens, that's what reinforces local monopolies because these are local feudal lords.

So, in this sense, of course, you just were thinking of different types of municipalities. But considering that those smaller ones are 55 to 90 percent of Russian formal municipalities, that would be an important distinction to make in the context again of formal and actual independence of those municipalities.

My question is, one, indeed about the Russian Academy of Sciences. Probably now, one should just let the Russian Academy of Sciences die out. There's not much one can do.

But at the same time, there's this new effort to create these new national universities that would combine the research components with teaching components, and many private Russian oligarchs are invited to invest into those. So do you see any promise in that or do you see this to be too centralized, too

kind of KGBesque Russian government project that indeed does not have a making of a new type of research meets education type of institution?

And my second question is about what is going on now with the crisis. You know the Russian government is doing ostensibly what other governments are doing, which is partly privatizing some of the assets. However, in another context, there is a reasonable hope that it would be privatized again when the situation changes. What do you expect will happen in Russia?

Will it be nationalized?

Will it change the environment and make it therefore less competitive?

Will it be privatized by friends and relatives? So what will happen?

Thank you.

MR. MONTES-NEGRET: Let the panel respond. Maybe Professor Åslund can start.

MR. ÅSLUND: Yes, let me respond first to Itzhak's question here. I think that you should simply break out the Academy of Sciences, put the institutes into independent judicial bodies. Give them away to researchers to secure their pensions, but they have to set up a proper board of trustees with universities. Make sure that they become independent public bodies.

I think, here, the critical thing is that you decentralize power so that everybody can handle it and give them real property rights, whatever judicial form. I don't mind some kind of collective body in these cases. That could be better because it's decentralization of the state that is the serious problem.

When you can't buy pens in a university because the decision has to go out to the treasury before you're allowed to buy that kind of a pen or if these pens are too expensive, these are the things that must be avoided both in research and academic institutions. Then I think that we'll see the same in enterprises.

The critical thing in the privatization was when the associations of enterprises were broken up.

I think that was all for me. Thank you.

MR. DESAI: Let me say something about land privatization. I think we recognize all of the constraints in terms of unequal outcomes and the creation of private monopolies and that kind of thing. Obviously, FIAS has done a lot of work on this, and there are a series of guidelines for doing this.

And, it has been done successfully in some places in Russia. In fact, there's an example in the book that I actually now forget the region where some pilot was completed on this.

The point is access to land, which is a constraint that enterprises face when they don't own the land on top of which they sit.

QUESTIONER: (Inaudible.)

MR. DESAI: Pardon me?

QUESTIONER: Are you talking about urban areas?

MR. DESAI: We're talking about urban areas, but not all only urban areas because there obviously are factories in rural areas. There are factories in semi-rural, semi-urban, whatever you call it, areas.

I mean absolutely in the case of these tiny villages, there are separate sets of constraints. Particularly, they don't have major corporations or companies there. But even in those cases, the issue of access to land and constraints in terms of construction and so on affect even the small enterprises, we found. So I recognize the potential adverse outcome, but I don't have a solution to that.

On demography, obviously, there are demographic factors in terms of the usual fiscal pressures in terms of the aging population which are sort of beyond the scope of the book, but it is a factor in terms of the skill shortages -- a combined aging population with the potential brain drain issues, the kinds of things that Anders talked about in terms of the gerontocracy in the research and development institutes.

MR. MONTES-NEGRET: Maybe we have a last question?

MR. DESAI: I think we should have the expert talk about the financial crisis.

MR. MONTES-NEGRET: That will take us out, and it's not really a topic of the book. I think we can follow bilaterally.

Let me pick up a few questions from the audience because we will have to close in a few minutes. So one, two, three, four and that's it. So, please.

QUESTIONER: I often find fascinating that we talk from the standpoint of our weaknesses, not strengths. When we speak from the side of weaknesses, it leads us to what can we destroy in Russia: scientific base, Academy of Sciences, any other structural institutions.

Instead, I'd like to look at Russia's strengths and see how we can work from Russia's strengths to build its competitiveness. I think that Russia's scientific base is its strength, not weakness, despite the not adequate in today's world scientific structures.

Some of the examples why it is Russia's strength is Russia's past. In 30 years it was able to

achieve 100 percent literacy from about 30. It was able to build scientific base basically from zero to launching Sputnik, developing nuclear power and electrifying the country and developing a very strong base of scientists who not only spoke two or three languages but many more. During the Soviet time, high school students speak at least three languages, not speaking of scientists.

But where I'm leading with my comment is that where I believe the true crisis is occurring today is not at the Academy of Sciences but at the educational institutions because the level of competency of IT specialists, of engineers, scientists that Russia is producing today is not matching the ones that we produced in the past, and the scientific base that Russia had is aging right now.

I think one of the key things that we can address, now that we have about 10 years left, is bridging that gap between the existing and rapidly aging and disappearing scientific base and the new skills. Right now, that's something that is sort of left unattended.

From my own experience working with information technology, I can say that when you go to Russia and you look at chip design specialists and CAM engineers, you'll see only 60-year-olds and the gray-headed people who work there. You would not see a new cadre entering the workforce.

So I believe that we should be addressing certain education institutions. I would be very interested to hear the view of the authors. Thank you.

QUESTIONER: Peter Knight, (inaudible) Rio de Janeiro.

When I was looking at the early days, in the early nineties, at the institutes, whether they were economics or others in Russia, one of the things that struck me was that as the internet was developing you could find out who was really doing the work. Networks developed quite independently of the vertical structures that were in place.

I was wondering to what extent the horizontal nature of the internet and elsewhere doesn't make it possible to tap into this. I mean also Russia and Russian firms have been fairly active in various kind of outsourcing in scientific knowledge and people working with corporations. There is a Diaspora, and the internet is a very powerful vehicle for bringing knowledge together across frontiers. So I'm just curious along the same lines of how to draw on it.

I always saw the Russian problem as very simple. Have natural resources grants. They're flowing abroad. You need to get control of them and use them to rebuild industry. You need to bring in

management skills through joint ventures and other means and foreign direct investment to learn how to manage the best resources that are intellectual and natural resources and rebuild industry. Yet, this doesn't seem to happen.

It's a very simple analysis, and nobody seems to have done much about it.

QUESTIONER: The problems you described in Russia that market demand is too lagging for R&D services is pretty common for other economies. So I was wondering.

My first question, do you have any examples of other countries that have made successful a transition?

MR. DESAI: (Inaudible.)

QUESTIONER: Do you have examples of other countries that have made a successful transition?

MR. DESAI: (Inaudible.)

QUESTIONER: No, in terms of its R&D infrastructure, a good example that Russia can use.

Also, in terms of market demand, by funding its centralized institutions, it's trying to compensate for this lack of market demand and maybe still help the underfunded segments survive and wait until their prime time, until demand restores.

What would be your suggestion? Is it better to abandon those parts for the sake of market mechanisms or is there value in preserving some of that excellent human capital via centralized institutions?

Of course, there's a lot of corruption, but maybe those institutions do provide some support for that dying excellent human capital. Thank you.

MR. MONTES-NEGRET: We have time for one last question. Oh, okay. Two last questions then. Otherwise, you will have to follow up bilaterally with the authors.

QUESTIONER: Mine is very short. I'm Mark Katz (ph), George Mason University.

I thought the authors' presentation was excellent of Russia's economic problems. I thought the recommendations for Russia to fix things were excellent also.

My question, though, is there any reason to expect that Russia will adopt any of these recommendations and, if so, which ones?

Thank you.

MR. MONTES-NEGRET: Okay, good question.

QUESTIONER: Thanks for the excellent presentation. Indeed, it's unfortunate to see that competition is so limited in these post-Soviet Union, post-Socialist countries when the lack of competition is exactly what brought those economies down, in my view.

But I have two questions. Did the data actually allow you to see whether the companies that are operating in a more competitive environment were actually spending more on R&D or had larger R&D expenditures as a percent, a portion of their profits?

Second, I think I heard that you are not in favor of a tax stimulus for R&D. Do I understand it that you wouldn't want to see accelerated deductions under, let's say, a profit tax for R&D expenditures or something?

Thanks.

MR. MONTES-NEGRET: So who wants to start first?

MR. GOLDBERG: Let me start maybe with the more difficult question here in front because it is very relevant. People say, do you really take into account the legacy, the history, and do you recognize what's there? Or, are you coming with some generic recommendations that you have used in another country and put them there and then, oh, it doesn't fit here because they already have it?

I hope we are not doing that. Usually, my kind of insurance against it is I spend a lot of time in the country talking to people, and it really depends who do you talk to. There many people that feel like you do, at least have this view, while there are all kinds of entrepreneurs in the technology area in Moscow and St. Petersburg who feel very strongly that whatever is out there, they cannot benefit from and there is this vacuum or this gap in between the business sector.

Nobody is questioning the level of the basic science. There may be some obsolescence, but the issue is not that. The issue is the transfer or the link from science to business, clearly to business. Well, in that, the legacy was not there. So that is difficult, and we should look for ways to encourage that.

But if you read the book, you will see that, and I hope it shows that we have been there, so to be speak, and tried to get the feel for where Russia is. Not to mention, I know the place, the region, maybe more. So I know what you mean.

To Peter, and it's a pleasure to see you after so many years, yes, it's out there. One example,

we've found that when you look on this fascinating set of patents and, even more important, citations of patents. For uniformity, we look only on the patents either in Europe or here, not on local patents.

So Russian residents registering a patent in the U.S. or in Europe, when you submit a patent in the U.S., as many of you know, you have to cite prior patents or prior knowledge to show. Those citations can be used as an indication of knowledge flows.

What you see, as I said before, in the Russian patenting in the eighties, of course, but in the nineties, you see this isolation. But then in the late nineties and the early two thousands, you see an increasing, dramatic turn of events of so-called co-inventions.

Inventions, when you look on the patent, you can see the innovators, the inventors. You see a Russian in Russia. Then you would see the U.S. people. Then you look to the so-called assignee, and that's an international company, a U.S. company and the same for Germany. Those are the two major countries, Germany and the U.S.

When you inquire, and we are now in the process of interviewing on that basis. We draw the names and we interview the inventors by telephone if we find them, if we Google them. We started doing that. It's really exciting.

Mainly, you can see that process of people that were actually found by Western companies, Googled by Western companies, contacted, funded, invented things, brought over or another way of contact, and these things are really taking off and are out there.

There was a question about the examples of this transition. So there are two kinds. I mentioned already that countries, like if the question is about specifically the R&D institutes, that's a subcase, although maybe one interesting case to start with is China. We've gone recently with Fernando on a trip and study of those R&D complexes there.

Well, it's a major transition. It has its problems. The R&D institutes in China, they incorporatize them. Still, I want to understand, were they really changed in any way? Well, it turns out that some of them have a board which is sort of really outside, and then we found some that 40 percent of them is traded on the exchange.

I'll be honest. What does mean? I don't know. So that's an example of changes.

There are changes in a specific way in Hungary. In Estonia, I mentioned. In Estonia, the whole

innovation system was transformed by the Fins. The Fins have a tremendous treasure of experience in innovation, and they have done it with them. There are examples of different variations.

E.U. countries, obviously, benefit from tremendous help with their taxes. What I'm trying to say is there is a literature on supporting startups.

I am not against the appreciation stimulus for R&D in general. But if you want to encourage early stage—this is what I'm talking—startup style innovators, inventors, there is no tax incentive that is going to be effective. They have no money. They have no profits, no accumulated profits and no current profits. They need cash in hand, and the matching grants is one example of let's call it direct. That one is called indirect support.

It's not only the money. It's the mechanism around it. In some countries, you can get the grant only if you sit in an incubator. The incubator is doing your accounting, so you are not getting any money. Actually, somebody is buying for you and the money goes into the incubator who bought the equipment for you.

I'm sure that maybe everything can be avoided or evaded, but there are ways to do it.

MR. DUTZ: I just wanted to add to Itzhak's examples of other types of research and development institutes that have been restructuring, and India is actually a very interesting one. So when you go after this and pick up a copy of your *Can Russia Compete?* book at the InfoShop, you may also want to pick up a copy of the Team South Asia book on *Unleashing India's Innovation*.

Seriously though, the Council of Scientific and Industrial Research in India was actually quite drastically restructured. There's a little bit of it actually in the box in this report. There's more of it in that other report, and there is more of it in the heads of people who actually visit like Dr. Meshalker who was here at the Bank a few weeks ago.

But they did some very specific things like allowing the research institutes to make profits on the side and a number of very interesting initiatives that could be also relevant for ECA countries. So I just wanted to highlight that.

Thank you.

MR. MONTES-NEGRET: Okay, let's ask the last word to Professor Åslund.

MR. ÅSLUND: Thank you.

I couldn't abstain from taking up this question. I might simply remind you that the Soviet Union imploded which suggests that the system was slightly less than perfect. The innovation in the system, of course, didn't work at all. So, that, we know.

With regard to high school students knowing two or three languages, in Sweden, that's standard. In Russia, I haven't encountered it. It might happen with some special schools, but this is very rare indeed.

What we do see is that the old Soviet institutions do persist, and they don't work. Then we have to do something about it. Thank you.

MR. MONTES-NEGRET: Well, thank you very much to all the participants and to the discussants and the authors for a very interesting discussion.

Thank you very much. I hope you buy the book now.

(Applause)

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