

The Rimini Lecture in Economics and Finance

Has Growth and Convergence of Developing Economies Been Derailed?

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This article is the transcript of the plenary lecture that Michael Spence delivered at the Rimini Conference in Economics and Finance 2014 (RCEF2014) of RCEA. It has been moderately edited so as to enable the transfer from the spoken word to the printed page. RCEA owes special thanks to Angelo Melino for organizing and chairing Professor Spence lecture.

Keywords: Convergence, Growth, Development, China

JEL Classifications: O10, O11, O40, O43, O47

Thanks, Angelo (Melino – ed.). Thank you very much for the kind words. I wrote a book that Angelo mentioned called *The Next Convergence* and the story roughly speaking for those of you who have not had a chance to read it, I suspect that is most of you, it is based on about a decade's worth of work in developing countries trying to understand the growth patterns, how it works, when it fails and so on. And I cannot cover all of that today but I am going to try to give you a flavour of what is going on and then kind of look forward and ask: Is this process going to continue?

Roughly speaking real growth in the world started with the British Industrial Revolution in England. It spread to continental Europe and then it spilled across what Angus Madison called the European offshoots: Canada, the United States, Australia and New Zealand. And that was about 15% of the world's population and they experienced real growth. It was kind of breathtaking at the time, one and a half percent real growth in continental Europe and two to two and a half percent in real terms in the U.S. Does not sound very fast now. And

everybody else, the other 85% of the people in the world, stayed exactly where they were except a few railways were built through their countries. And that was partly because we were organized in a colonial pattern and colonialism – I am not an expert on colonialism – but it was clear that it had embedded asymmetries in it.

And that went on for 200 years. At the end of 200 years you can call divergence, even at, say, 2% growth, if you carry it on at 2% for 200 years and the other people are not growing there is a pretty big gap that opens up. And that is the world we lived in. When I was young and went to high school, there were lots of terms for those other 85% of the people. Again there are people who are better on tracking the etymology of this but third world, underdeveloped, backward. ‘Developing’ was a step forward suggesting something might change.

Anyway, the bottom line is after World War II things did change although it was almost impossible to see it at the time. And three things happened, I think. One was the collapse of the colonial empires so those constraints were removed. The second was that a bunch of countries decided that the disastrous policies after World War I that led to national socialism, hyperinflation and all kinds of things and eventually another World War, with the Depression thrown into the middle, that was a terrible idea and they set out to do something else. So there was the Marshall Plan and the GATT. The GATT is the General Agreement on Trade and Tariffs, the set of trade agreements that came before the WTO. These countries set out deliberately to create an open global economy that everybody could participate in. The goal, clearly, if you talk to the people who were doing it at the time, was war recovery in the advanced countries. And it was an accidental sort of spillover effect that the developing countries were handed the key or one of the important keys. The third was technology, which accelerated dramatically the ability to create what we have come to call the global economy. And, initially, slowly and falteringly, developing countries started to grow.

Economists are famous for their forecasts and so the knowledgeable development economists in the early post-war period, when asked which part of the world was going to be the star performer, said: Africa. And when they asked, which part of the world would really, really be in trouble, the answer was Asia.

That is as close to dead wrong as you can get. But there were interesting reasons for it. I think the reasons are more interesting than the forecast because I would have said the same thing, so I am not being critical at all. One, the importance of natural resource wealth was way overemphasized and overestimated. Africa is easily the richest continent in terms of natural resources. And it turns out natural resource wealth gets in the way. This is why we

have this term: the natural resource curse. It adversely affects incentives and the political economy of countries. So that was one. And that was the main reason.

The other thing that I think we still have not got to the bottom of, what was very important research probably by some of you in political economy. I view it as kind of at the forefront of what we need to do in talking about the issues that I am interested in, sort of navigating in a complex environment with respect to growth. That is we did not understand that lots of these countries that were created in the post-colonial period were not countries. They were a bunch of people who were thrown together as colonial empires were dismantled. That is clearly true in Africa. A generation and a half with great leaders like Mandela and Nyerere and others was spent essentially creating something that we have in most countries that we are familiar with, that is a sense of national identity.

And then growth started to accelerate and accelerate and there were some extraordinary high growth episodes. There are 13 countries that grew at 7% or more in real terms for 25 years or more. Now, if you grow at 7% and double every decade for 25 years you are doubling and then doubling again and well on your way to doubling again. That starts to make a material difference in incomes and standards of living. That is the main reason why, in aggregate, there has been much poverty reduction in the world in the past three decades.

How do countries grow at those speeds? We never saw that before, that is out of the range of experience. Well, it is partly the global economy. If you think of a small relatively poor country, even if it has a lot of people, its economy is tiny. So if it finds something that we economists call comparative advantage, there are no constraints on the demand side. You can grow and grow and grow and you do not make a dent in that market. Or, put it differently, the demand curve is not downward sloping, at least not for a long time. The only country that has ever affected the terms of trade in any significant way is China, and that is only laterally and because it is so big. It actually moves commodity prices around; it moves the relative price of manufactured goods around and other things like that. But that never happened before.

So the global economy gave you that. Think about the reverse way. Suppose that you did not have the global economy and all that demand and instead you looked at domestic demand and ask yourself: Can you grow with that? Well, what is domestic demand in a country, I do not know, most of you probably do not think about this most days, but in a country with a per capital income of \$400 domestic demand consists of housing, energy and food and more than half of it is food because you need to stay alive. That is what that economy is about. And so how do you generate 7% growth in a little tiny batch of niches with the kind of non-tradable demand that looks like that? And the answer is you do not, you just cannot.

And the other thing the global economy gives you, and there is more and more attention being paid to this now, is knowledge. So that 200-year gap that built up was not just economic performance. It was knowledge. Scientific knowledge, management knowledge, technological knowledge, know-how, institutional knowledge as well. And that can be transferred relatively quickly and certainly faster than you can invent it yourself. And so this inbound knowledge transfer increased the productive potential of these economies, the ones that were organized to take advantage of it.

The rest of the story I think is fairly simple and leads me to what I am going to talk about next briefly. There are a lot of teachers of this, there are a lot of tree roots to trip on and, if we had a semester we could spend a lot of time on it and some of you probably do. But we certainly do not have enough time tonight. The single most important other variable is investment. You have got this gigantic global economy. It is sending knowledge and technology in. It is providing a huge market if you sort of get organized and get that right. And on the other side, thanks to Sir W. Arthur Lewis, you have underutilized resources, especially labour sitting there in an economy that has been disconnected and is in a no-growth equilibrium.

Extracting that labour from its underutilized areas, traditional sectors, mainly agricultural, has a very low opportunity cost, next to zero. So you have a big global market. For those of you who are used to theory this model is pretty close to linear, because there aren't any sort of price effects in it at least for a while. So Arthur Lewis worried about this because that big supply of labour holds the rate of growth of wages down and you see that in development patterns. If there are 30 million people who would love to have your job and there are no labour market structures to get in the way of that, then you can see why wages do not go up at the same rate as the GDP does and it actually creates a kind of inequality as an endogenous part of the process.

So what is the key missing variable? The answer is investment. And it is public and private investment and they are complementary. There is no theory that tells you this is right that I am aware of, although it is consistent with what we know about capital output ratios in a wide range of developing and advanced economies. But, roughly speaking, if you want to grow at 7%, you should be investing about 30% of GDP, and the public sector investment component of that should be pretty big, in the order of 5% to 7% of GDP.

Most countries have trouble doing that. Why? Because it is very expensive in terms of current consumption to invest a third of your GDP into something that will benefit your children and grandchildren. In fact the most amazing thing to me in human terms about these high growth cases is the extraordinarily intertemporal choices that are embedded in them.

This willingness to invest at high rates even when you are relatively poor. And it was not aid and it certainly was not natural resource income. It is extraordinary.

The Chinese investment rate when the reforms came in 1978, China was growing at very low rates, had a pretty well educated population, had the sort of mother of all asset redistributions: The government took it all in 1949; but just horrendous economic management that went well beyond the great leap forward and so on. When they started growing in 1978, the growth rate jumped to about 9% and the investment rate jumped to 35% and then rose steadily and now it is running at 45% to 50% of GDP. 45% to 50%! Now I will tell you in a minute that is both the good news and the danger in the Chinese economy. But that is kind of what it takes.

And I think, to be honest with you, when we think about whether we will ever get around to solving the problem of climate change or other aspects of sustainability, the thing we are going to have to rely on is one of the things most of us share: is some concern that our children and grandchildren are not going to live in a world with diminished opportunities. And I suspect that that will eventually help us overcome all the problems and complexity and resistance.

Why is that such a serious problem? Because if the story I have been telling you continues, this convergence process where the other 85% catch up with us over a century long period, just think of the next 25 or 30 years. If China grows, if some of the others catch up, if India, another future economic giant, with 1.3 and 1.2 billion people each, that is almost 40% of the world's population. They are going to be the future economic giants unless this whole thing gets truncated. We are going to triple the size of the global economy. So if some of you are a little worried about whether this planet can survive at a global GDP of \$70 trillion, then you probably want to worry a little harder, because it is on its way to \$200-\$210 trillion or more and over a not very long time horizon. I mean, there is some uncertainty about these growth rates but the convergence process is pretty clear. And you do not have to do a lot of math. If you take a bunch of people who are living well and they are 15% of the world's population and you take a very large fraction of the remaining 85% and put them up here, you have a much bigger global economy.

So where are we now? There are several things to say about this so, again, I will not try to cover it all. The developing world is now more than 50% of the global economy. That just happened recently. It is also true that for the first time in history more than 50% of the world's people live in cities, so we are urbanizing pretty fast. Most of the developing world that we got used to, old people like me got used to thinking as poor, measured in GDP, not

people, are middle income. That means they are in a range where the per capita GDP is between, say, \$3,000 and \$4,000 and \$10,000 and \$12,000, something like that.

Now I will talk to you a little bit about growth. This is a very hard transition to make. So as I mentioned to you before, we studied economies that grew at very high rates, especially in the early stages. There were thirteen economies that grew at 7% or above. Of those thirteen, only five grew through the middle income, what is called to be the trap. I hate the word trap but I lost. I call it transition and everybody else calls it trap, so you can call it trap, it is okay. Everybody else slowed down. Well, which countries had the high-speed transitions? Japan, Korea, the Taiwanese economy and the city-states Hong Kong and Singapore. Malaysia and Indonesia and Brazil and a whole lot of others just slowed down. And there were other countries growing less quickly and they slowed down as well. If you are not really into understanding the moving parts in growth, you are a statistician, you just look at it and see, well, I am not going to understand that, let me just look at the results. The results tell you this is really hard. Because most countries slowed down.

The most interesting case is Brazil. After World War II Brazil grew for 25 years or so at 7% or more. And then in the mid to late 1970s everything went wrong. They turned inward and tried the import substitution policy. They had political economy trouble, ended up with a dictatorship; they lost macroeconomic management control and ended up with lots of bouts of hyperinflation. It was a catastrophe. And that lasted for 20 years until the administration of Henrique Cardoso followed by Lula da Silva and now the current government. They have their ups and downs in terms of growth but this is back to a kind of sustainable, sort of sensible looking growth pattern. Not all the problems have gone away. How can a country grow at 7% and then all of a sudden stop, take a quarter of a century break? Anyway, there is something hard about it.

By far the most important transition that is underway is the one in China. So China is the next test to see whether another country can grow through the middle income at high speed. There is a huge amount at stake. The Chinese economy is about \$7 trillion, about half the size of either the North American economy or the European economy. If you compare it to its predecessors, it is just way bigger. And because it is bigger, some options are not open to it. So what are the conditions that surround this transition in China?

Well, when Korea did it, the advanced countries were 70% of the global economy, very big, and growing, and growing. Now the advanced economies are 50% and growing hardly at all. Japan is not growing, Europe is not growing and the United States is below potential, growing at 2% in real terms. Second, China has a huge market share in the tradable side of the economy. I will come back to tradable and non-tradable in a minute.

You know from corporate strategy that that if a company has a 70% market share, it cannot grow rapidly by expanding market share. That is not possible. So China is not going to grow by gaining market share on the tradable side. If you go look at the data, exports are contributing next to nothing to growth in the Chinese economy.

So how are they going to do this? Well, they are going to do a lot of things including things that you are familiar with. Move up the value added chain, increase productivity and so on. But the single most important thing that you may not have thought about is the demand side of the economy. And this is what I want to leave you with in talking both about China and some of the other parts of the world.

If you look at China's growth up till now, it has been driven by very high investment rates – I will come back to that – and by exports, by this external demand. Very high investment rates give you two things. One, they generate aggregate demand that employs people, generates income and increase the productivity of the economy as long as you are making investments with high return.

That growth pattern worked for quite a long time. But they maxed out the export sector, pushed investment as high as they can push it. And if you go understand the other part of the economy, what you find is that household income was drifting down and drifting down, partly because of the Lewis effect, to under 60% of GDP. And the household savings rate, because social security systems are not that well-built and because it is sort of cultural, is 30%. Most people's estimates of consumption in China is that it is somewhere between 35-40% of GDP.

Does anybody know what it is in, say, the United States or Europe? 65 to 70%. But China is not even within shooting distance of any other economy, advanced or developing. Now, if you read the newspapers you will hear that domestic consumption is going to drive growth on the demand side. Not really drive growth but enable growth. That may be true, but that is the transition China has to have.

So the message I want to leave you with, and I want to make it sound a little nerdy, is that if you know anything about growth theory, you will know that most of it focuses on productivity increases, Schumpeterian dynamics and so on. Those things are really important in the long run. But when you spend a lot of time trying to help policymakers and people in countries with these transitions, you discover a bunch of other things. One is that demand is important because demand, the composition as well as the level of demand, drives the supply side. And if you get that composition wrong, the supply side will follow it. And then you will have to go through a whole lot of restructuring later on.

What is China in danger of doing, what are the risks? They are not sure how fast household income is going to rise and how fast that consumption is going to kick in. But they

have enough weaponry to build up aggregate demand again. They can use leverage without blowing the economy up. It is very controversial now. And the state balance sheet, unlike most of us in the west, is enormous. They have \$3.5 trillion of reserves. They own the state-owned enterprises that account for half the net fixed assets in the economy (this is not going to sound very familiar to most of you because there is no any other country like this), and they own a ton of land.

There is no question that the balance sheet is capable of it. So what is the autopilot response to a demand shortfall, given that the export sector and the tradable side is kind of weak for reasons that have nothing to do with them? And the answer is: invest more. Well, if you invest more then, from marginal analysis, you will push investment into the low return territory. In the private sector, that would not happen. In the state owned sector it can happen, because they do not care about the return. For the government the return is the social return, meaning the present value of the impact on the economy, GDP, and they can push it into low return territory and they have been and they know it.

So the thing that scares people now is something like this. The policy makers are smart, and they have a much better sense than most other countries do, and a much more comprehensive sort of game plan for getting through this transition, but they have to keep their hands off the wrong levers. And the two big wrong levers that will distort the demand and the supply side of the economy are excess investment and excess leverage (which will build up domestic demand without income to support it).

So they are not going to do that. They are basically going to hope that the other growth engines kick in. And if they do not kick in immediately, you will see a growth lull in China and I do not mean to seven or seven and a half percent but maybe even a little lower. And markets will panic because they will not be able to tell whether it is a trend or a transition. So, I do not know if any of you are investors but you can expect a little volatility coming up here.

What is at stake is pretty much the growth in the rest of the developing world. If you look at the network structure of the global economy you will discover that China is now a very big hub. China is the largest exporter in the world. Its major trading partners are, by the way, Europe first, America second. A lot of Africa's growth, I don't mean all of Africa but a significant number of important countries are growing quite nicely and part of the reason is that they have access to the Chinese market.

To give you the idea of the scale, McKinsey Global Institute estimates that sometime recently that the middle class in China was 230 million people. Their best guess is that, 10 years from now, it will be 650 million people. So that is 420 million new people with middle

class incomes and associated demand. That has to be one of the great opportunities of all time for people, both domestic and foreign, for people who can access it.

What about the fragile five for those of you who follow these things? There is a very complex set of things that go with growth that will affect the speed of this convergence process, or maybe even derail it. They have to do with how you manage the capital account. Actually, there are two areas. One is the current account, which means how exposed are you to trade, how fast do you take away the barriers. The second is how you manage the capital account. How do you manage inflows and outflows of capital in such a way as to promote growth and structural change in the economies without destabilizing them?

So one of the things that happened was that when the crises in our world struck, monetary policy became extremely accommodative, and the purpose was exactly to push people up out on the risk spectrum to drive asset prices up to see if you could make people consume a bit more. There are different opinions about whether it worked or not. But part of that, hunting for a higher return, was hunting for a higher return in the developing world. And the developing world had much better fundamentals: lower debt to GDP ratios. Does anybody know what the average debt, public debt to GDP ratio is in the developing world? How about the advanced countries? Well, it is trending up to 100% in the advanced countries. In the developing world, including the poorest countries, it is trending down to 40%.

Now, if I asked you 15 years ago, for those of you who are old enough to be able to answer the question, what is the probability that the credit risk will be in the advanced countries and the debt to GDP ratios will be lower by a factor of two or more in the developing countries, you would have said: you are crazy. Well, that is the world we live in. The accommodative monetary policies caused a flood of capital to come into these countries. It elevated their exchange rates, drove down the costs of borrowing and a number of these countries including Indonesia, Turkey, Brazil, India, and the other member of the fragile five, South Africa, all started to get into an unbalanced pattern. They ran current account deficits, which means they were borrowing money to invest, etc. And when Ben Bernanke said we are going to stop buying all these long-dated treasuries and agencies last spring, these capital inflows reversed, violently. They started rushing out of these countries and exchange rates went all volatile. And the blogosphere commentary was, well, we are going to derail growth of these countries.

The growth of these countries was an artifact of having very, very low cost capital and that was all – no, I will not say that, it is impolite – it was nonsense. But the volatility was not nonsense so most of these countries, which are very well managed for the most part, are in a process of sorts of reconfiguring themselves. And the message I wanted to leave you with is

this; it was not surprising this happened because nobody has ever had the practice of how to protect your capital account from extremely unusual monetary policies somewhere else. I mean, this was learning on the spot, learning by doing. And the most important message I want to leave you with is: that is the world that most policy makers, certainly in the developing world but I would argue even in advanced countries, live in most of the time. The notion that we are occasionally out of balance with a crisis, and the rest of the time just fine, is the most dangerous idea I think we have.

Let me describe America; you all know Europe pretty well. We went back and studied it structurally. The message I want to leave you with, and I am going to stop here, is that the composition of demand matters, structure matters. There are lots of ways to have a defective growth path and it is very important to be able to detect them and stop it before they break catastrophically. The financial sector has something to do with enabling them. That is an important part of the ongoing research. So look at the American economy. There are two very powerful forces operating in the world on advanced economies and, eventually, on all economies. One is technology. It is the information technology and its offshoots, it is proceeding under the power of Moore's law, you all know what that is. And one of the things it is doing is stripping routine jobs out of advanced economies. There is very good, documented research on this.

The other big powerful force is globalization. For the same technology, it is easier and easier to move stuff around in the world and so global supply chains are being broken up into smaller and smaller parts and put exactly where they should be, frequently where there are human resources and a reasonably decent stable environment. And the combination of those forces in the American economy produced a funny looking growth pattern. This is true for, generally, for advanced countries but I will do it for one – if you divide the American economy industry by industry as best you can into a tradable and non-tradable part, the non-tradable part is mostly services that are not traded internationally. It is government, education, construction, retail, hotels, foods, restaurants, very labour intensive things. It is a huge part of the economy, it is two thirds. The tradable part, which is getting bigger as a share to be sure, is about one third. It is manufacturing and then a bunch of services like designing computers, consulting, managing multi-national enterprises and a bunch of other things.

So in the American economy coming into the crisis we were generating pretty decent growth on the tradable and non-tradable side but we generated next to no employment on the tradable side. We created 27 million jobs in an 18-year period before the crisis and virtually all of them were in the non-tradable sector.

Now maybe that is what should have been happening. It indicates how powerful those technological innovations are. This is happening in other countries, although they have not noticed yet. It is part of the employment problem.

The other thing that happened is that, starting in about 2000, we started to lever up and we generated more domestic aggregate demand than we did output. Domestic aggregate demand consists of household consumption, private investment, government expenditure on delivering presumably valuable services, and government public sector investment in things like infrastructure and education and so on. That is domestic aggregate demand. If it is bigger than the GDP then you run a current account deficit, and we did. We ran it up to 6%. It did not look like it was a sustainable pattern and it was not. Because domestic aggregate demand was too big, what we did is we crowded out the tradable sector at the margin by having too much domestic demand causing competition for our resources.

Then domestic demand collapsed in the crisis and so you asked yourself what the growth patterns are going to look like. Well, the non-tradable side does not have anywhere else to go. Non-tradable means you serve domestic demand. If domestic demand falls, the non-tradable side falls, period. You do not have to think about it very hard. It will not come back until the domestic non-tradable demand comes back. On the other hand the tradable side had some external demand and some of that was growing pretty fast out there in the developing countries. So it is not constrained in the same way.

If you actually look at the data in the American recovery, the third of the economy that is tradable has generated more than half the growth. And that is probably an understatement, for technical reasons. It probably generated more of the growth but the income flows back across into the non-tradable sector. If I make money making washing machines or cars I do not spend all my money on washing machines and cars; I spend them on restaurants and houses and a whole bunch of other stuff.

It is exactly the same as the developing country model. The catalyst, the big powerful engine, is the tradable sector. But then it spills over and it starts to produce a balanced growth path on the non-tradable side as well.

That is the American case. And there is more to the story. We have the animal spirits story that is not wrong, it is just incomplete. We have the deleveraging story that is not wrong either. Deleveraging is important and it takes time, and we are fairly far along but not done with it. Until we are done we will not have demand come back and it is never going to come back to where it was before. And if it does, you should be afraid because the only way to get back to where it was before was with leverage and we do not want to do that.

So the notion that we are in a recovery and eventually going to get back to where we were before is wrong. We are going to go to different growth and a better balanced growth path in which the tradable sector is bigger, domestic demand comes back a little bit because of deleveraging and the key input to that is that there are lots of things wrong on the other side of the Atlantic. Not in the northern part which is pretty well managed, very well managed. Canadians have a wonderful habit of saying, they get up and pound the table and say, you know, the thing that is wrong with this country is, and there is a sort of sentence they blurt out. I guess all countries are sort of self-critical like that, but Canada is pretty well managed.

The big saving grace in the American economy is that it is structurally flexible and dynamic. So we may be too harsh and maybe we do not protect people very well but, when we have to change structurally, either because of these big powerful forces or because we are in some kind of structural component of a recovery, we get there. We can get there even if the government does not do anything, which is roughly what it is doing, nothing.

The difference between Europe and America in terms of economic performance, other than the peculiarities of the Euro zone structure which, I admit, causes problems is not that the Italian government is gridlocked and the American government is a model of aggressive well targeted action. They are both gridlocked. The difference is that one economy is structurally more flexible than the other. It is a hugely valuable attribute in a world, in the kind of world we live in. It is also an essential attribute in a developing country. And, from an academic point of view, if we really want to capture and understand this we are going to have to add to our growth models these elements: the composition of demand, how it is created, whether it is sustainable, how it affects structure, whether the structure changes.

This country [Italy], where we are standing in right now, where many of you live, including me, has a ton of resources. There is nothing low potential about this economy at all. But there are two problems that need to be solved, three actually. One, the Euro is overvalued. At 1.36 to 1.40 it is pretty hard to imagine anything other than a very long-term draconian change in the relationship between unit labour costs and productivity that could justify this exchange rate. And, to be honest with you, this exchange rate is a function of monetary policies outside. You would not guess that Europe is the sort of safe haven for capital in the global economy, but it is. Because the interest rates are a little bit higher. Maybe that is going to change with tapering and the American economic performance. But I remember, last summer the United States had a big outflow of capital after the tapering announcement. This is when Ben Bernanke said we are not going to keep buying \$85 billion of long-dated treasuries. So I was sort of scratching my head and talking to investment

people and asking: where is this money going? Well, the answer is it was going into Europe, driving up the Euro. So that is point one.

Point two, since the introduction of the Euro, all southern European countries had their unit labour costs, with Germany as the reference point, just sail through the roof, up 25% or 30%. And that is not consistent with having the tradable sector as a growth engine. So you have a domestic demand shock, domestic demand is down, same story as in America, now you want the tradable sector to pick up the slack and it cannot. And the third thing – and then I am going to stop – and the third thing is this economy is not structurally flexible enough. So even if we get the unit labour cost down it will take much too long, much longer than it should, for the structure to change in spite of the dynamic elements in the economy.

I hope I have convinced you that there is a lot of interesting things to think about when you think about growth that are slightly deeper than the kind of frivolous stuff you often read in the newspapers. Anyway, that is what I wanted to talk to you about. I am, bottom line is, I am kind of optimistic. I think the convergence process will be bumpy but we are going to get it done and, in the end, we will probably be beneficiaries. Whether we solve the sustainability problem that I mentioned at the start is an open question at this point. Thank you.

Question Period

Question: I would like to go back to the part of your lecture when you mentioned the transition growth in China and what might possibly derail it. I think it is important not only for China but also for the possibility of China acting as a locomotive for the rest of the world. If it is true that during the transition or catching up most of the growth comes from imitation, then perhaps when that imitation is tapering up and the economy becomes bigger and stronger and more resilient and accommodating its labour force and its educational and human capital, growth will enable it to innovate, pass from imitation to innovation. Which will push wages up, sustain domestic demand and also create import demand and sustain the other economies on an even keel. Is that possible, going from imitation to innovation for China?

Michael Spence: Yes, that is a very shrewd observation. It is already happening. It is not happening as fast as they would like and it is important part of their, if you like, growth plan. It is embodied in the five year plan and forward looking thinking and so it is a critical element. They have to increase total factor productivity and that means they essentially have to become more innovative. Part of it is going to come from some more structural change.

On the tradable side they will shed the extremely labour intensive parts because, at \$6,000 per capita income, you cannot be the low cost place. It has happened before. I was in Korea

in the mid-1980s when this happened and they were terrified. Journalists came up and said wages are going up. I did not know as much as I know now so I said yes, that sounds interesting. And they said, well, that is terrible. And I said, well, what do you mean, I thought the whole point of this exercise was to have rising incomes. And they said, well, yes, but then we cannot compete anymore.

This ability to take a static view of the world, which is what you just did not do, is very powerful in people's minds. Koreans thought that the only way they would thrive is to keep the low cost, high quality labour intensive stuff which of course they have shed all of, as has Taiwan, as has Japan, and China is doing it right now as we speak. It is a little more complicated in China, it goes up and down the coast and inland and they build some infrastructure and Vietnam and Bangladesh and so on. But eventually it will get done. And then the whole tradable side will move into a different part of the value added chain and that will be part of it. And along with that will be innovation.

So they are trying to kind of figure this out, what are these innovative ecosystems. And they have a lot of different components and maybe there will be some uniquely Chinese versions of it. The internet space is extremely innovative in China. Online, the Alibabas and Tencents, the social media, the search engine Baidu, these are very, very innovative. They are a little bit derivative but not much. And they may out-innovate lots of the rest of us.

So there are pockets of it and there are a lot of excited, bright-eyed young people busily engaged in that. But the big stumbling block is the state owned enterprises. So they have—this is not strictly economics—this and their friends in the party, is the core of the high level corruption. And they know they have to root it out because the credibility of the party, the Communist Party, is at stake and there is no backstop to the Communist Party, there is no constitution that matters, there is no process of the type that we all rely on. So they have to win this battle. And the biggest vested interest that is resisting it is the state owned enterprises. And they do not want, guess what, competition. They do not want competition.

Now just go back to Schumpeter, and Philippe Aghion who will be here tomorrow, I think; endogenous growth theory and ask yourself how much innovation are you going to get in those sectors, the reserve sectors, without competition. And the answer is: not very much. It does not matter what the human capital is, I mean, incumbents do not innovate unless there is an unnamed Google sitting in the corner about to eat their lunch.

And so they have to get over that hurdle but the bottom line is you hit the nail on the head. I wanted to focus on the demand side because it is coming close to being a demand constrained sort of situation in the short run. The long run determinants of growth remain innovation and total factor productivity growth.

Question: I think this is wonderful opportunity for me to ask you a question about how we can apply the signaling theory in bringing the right type of growth in both the developing and advanced countries.

Michael Spence: Well, I guess I have to be honest and say that I am not sure that theory applies. Signaling, of course, was based on the notion that there is private information in many markets that affects their efficiency and so on. That is the adverse selection effect. And with signaling, sometimes you can cross that boundary a little bit, not with perfect efficiency. There is lots of room in this world for what I might call effective communication. But I guess I would not characterize it as having that kind of peculiar structure that went with the private information. So the essence of signaling theory is that its signals do not work unless there is a negative correlation between the unseen thing that people care about that has value and whatever it is, the signal is. So you cannot have a costless signal, because everybody will use it and it will not carry information and it has got to have this negative cost correlation. There are lots of examples of that and lots of markets but I had not thought about it in this context.

Question: Mr. Spence, before coming here I have read very attentively your book, *The Next Convergence*. You devoted a lot of space for China, to India, you wrote something about Brazil but Russia is not mentioned at all.

Michael Spence: I know. Yeah, that is true. Well, I do not know what to make of Russia. David Rubenstein, who is one of the co-founders of the Carlisle Group, a big private equity firm, was asked by a McKinsey partner (this is on the internet if you want to see it in a kind of video interview), this partner asked: well you have talked about China and India and Brazil – same question – what about Russia? And David got this funny look on his face and he said, well, we have opened an office in Russia twice and we have closed it twice.

So I do not have any idea how the current, situation will evolve. We are clearly kind of coming apart in multiple dimensions. This vision that Europeans had that we would all be Europeans is not apparently shared by the current leadership in Russia. And there is conflict in Asia over islands and some other things. So there is more than a little bit of a worrying cloud hanging over this. It has got nothing to do with economics. But economically and in business terms Russia is just still too complicated an environment to navigate in. And so it is a combination of way too low economic diversification, and that is partly the result of some

version of the Dutch disease. The natural resources are a powerful influence and you have to powerfully counteract them if you are going to generate a lot of employment. And that does not seem to be the highest item on the agenda for, a business environment that is kind of open and friendly from the point of view of investment. There are people operating there but you hear stories all the time about people pulling out and there are some people who just will not go in under these conditions.

So I think Russia, taking the optimistic view, has a fairly long, a noticeable distance to go to become a place that is fully integrated in terms of knowledge flows, investment flows and other things into the world economy. But, in principle, there is nothing in the way. I mean, there is a ton of human resources. Many of them emigrate. At the end of the Cold War Russia was widely viewed as the sort of centre of excellence in software engineering. And the story that went with that is that the hardware was so bad the software had to be a lot better than everybody else's. I mean, that was kind of flippant. So Russia has a lot of potential and much of it is unrealized.

Thank you very much.