

**Nobel Laureate Prof. Eric S. Maskin at the International School Ho Chi Minh City on January 13, 2017**

Good morning everybody and thank you for this wonderful opportunity.

I really want this to be a conversation, I do not want this to be a lecture or anything like that, so I very much encourage you to ask questions, make comments or say something that is on your mind. I thought I start by giving you a brief sketch of my background.

I went to a school called Tenafly High School, my secondary school, in Tenafly New Jersey, because Alpine, the town where I grew up was too small to have its own high school. So we got bussed about 3 or 4 miles away to Tenafly every day, and when I was about your age it was not possible actually to study economics in high schools in those days, and I didn't really have much of an idea on what economics really was. I guess my favorite subject was math, and so I did a lot of that, but I probably didn't really study as much as I should have, and I hope you study more than I did back then. I also had a strong interest in music, I played clarinet and piano, and that took up a lot of my time. I played some sports, tennis especially.

Then I went to college, university, I went to Harvard, and based on my high school experience I became a math major, which I loved. I don't know how many of you have had a chance to study some mathematics, but it's a very beautiful subject, and it is also a very useful subject, because it can be applied in many different fields: economics, physics, engineering and so on, but it's also very beautiful just on its own, because you see patterns and connections that are really quite artistic. I think the connection between mathematics and poetry for example is really quite strong. So I was more or less expecting to be a mathematician or an

applied mathematician, but then, more or less by accident, I decided to take a class in economics. In the American university system, in what is called liberal arts program, you can have a major, mine was math, but you are free to take courses in many different other areas too, sampled pretty widely. So I decided to take an economics class, it was a pretty advanced one, but I was a bit overconfident maybe, and so I jumped into this advanced class, being taught by one of the great economists of the 20<sup>th</sup> century. I had no idea that he was at the time when I decided to take his class, his name was Kenneth Arrow. I don't know if that name means anything to you, but if you continue in economics you will certainly learn a lot about Kenneth Arrow.

The course I took was on information theory, information economics, and I thought it was wonderful. It had the rigor and precision of a mathematics course as we studied things using mathematic models, but I could see that the applications to social or economic problems were enormous. I could see that economics could be a really useful subject for improving society and improving economies, and I thought on the basis of this course that this is what I wanted to do. It was such a great combination of social relevance and mathematical rigor, so I changed directions, and for my gradual work I actually did a PhD with Kenneth Arrow, who I am happy to say is alive and well today at the age of 95, and I still see him from time to time. So I did my PhD with him and became an economics professor, and that's how I got to where I am today.

I've worked at a number of different universities. I was trained at Harvard, then I taught at MIT, came back to Harvard and taught there for a long time, then I left and went to Princeton, to the Institute of Advanced Study, which happens to have been the place where Albert Einstein spent his years in the United States. He spent 20 years there, and I actually got to live in his house, not because of anything I did, it was just pure luck that the house happened to be available at the time we were moving to Princeton. After 10 years I moved back to Harvard, and I have been there ever since.

Since one of the themes I am going to talk about has been inequality, let me tell you a little bit about the work that I've been doing. You are of course aware that globalization has been a powerful source for growth in the last 25 or 30 years, and a number of countries including China and India have made enormous progress because of globalization. But globalization has been a mixed blessing, although it has increased average prosperity in many places, it has also increased inequality, that means it has led to a greater gap in between the rich and the poor – that is the have and the have nots, and the big question that I have been interested in is why that is and what to do about it.

Why should we care about inequality? Inequality, to begin with is a moral problem. If we believe in egalitarianism, then the idea that there should be enormous disparities of income and opportunities lies in contrast to our egalitarian impulses. But even if we don't care about egalitarianism, we might care about the eradication of poverty, and inequality gets in the way of eliminating poverty as well, particularly in developing countries. Then there is also a very practical reason for caring about inequality, which is that countries in which inequality is growing tend to be less stable politically and economically. We only need to look around the world and see a number of recent events, BREXIT, the election of Donald Trump in the United States, the rise of the Nationalist Front in France, to see how inequality can lead to quite disruptive political change, and if only to give some stability to the political and social system you should care about inequality.

Now interestingly one of the best established theories on globalization, the theory of comparative advantage, a theory which has been extremely successful over the 200 years it has been existing, predicts, contrary to what we've seen in the recent globalization, that increased trade and interaction between countries

should reduce inequality, in developing countries especially, and let me briefly explain why that is so.

Developing countries tend to have a large population of low skilled workers, and that is also one of the reasons why these countries are still in the development stage, they haven't go to the point where a large fraction of their population is well educated and skilled. In a country with a large fraction of unskilled workers international trade gives that country the opportunity to concentrate in producing goods which make a lot of use of unskilled labor, so agricultural goods for example where you do not need a high school education to produce rice. So the globalization process has allowed developing countries to concentrate on producing goods for which their labor force is well suited, and then they can import goods which require very high level of skills such as computers or software.

The fact that they are concentrating where only low level of skills are required means that those unskilled workers are very much in demand, and that tends to boost their wages and that helps to reduce inequality.

That's the theory of comparative advantage, and it is a theory, as mentioned, that exists for 200 years and which has been very successful as it worked very well in previous globalizations. This is by no means the only globalization the world has lived through, there have been three or four others including a big globalization at the end of the 19<sup>th</sup> century, when trade between Europe and North America increased dramatically, and in all previous globalizations the theory worked exactly right and predicted successfully that inequality would be reduced in countries with a high proportion of low skilled workers.

But there is something about this globalization which is different, and that's what my co-author and I wanted to investigate, and our proposal is that the thing that is different about this globalization is that it's involved the internationalization of the production process itself. What we mean by that, well think of computers for example, computers are goods which are typically internationally produced. They might be designed in the US, they might be programmed in Europe and they might be assembled in China for example; and what is true to computers is true for many other goods.

So, globalization this time has meant the internationalization of the production process itself, and that means that the market for our labor, for workers, is truly international. You may be a European or American company, but if you're interested you can hire workers in China or in the Philippines or in Vietnam. But the problem is, from an inequality perspective, that you are not interested in hiring workers with low or no skills at all, because they can't do anything for your company, you're interested in workers with some skills. Perhaps they know English, perhaps they had some experience in manufacturing, so those people get new opportunities in this globalization, and the people who don't have skills, who are perhaps farmers out in the country, are left behind, and they are essentially unaffected by globalization. So, skilled people see their wages and incomes rise, and in the case of a country like China literally hundreds of millions of people benefitted from this, because they had some skills to offer, but many others hundreds of millions were left behind, with either no improvement in their income at all or actually possibly deterioration in incomes.

That is our diagnosis of the problem, and we might then ask, as we have, what we can do about it? Our answer is that education and skill training is the solution, and this is no contrast with what the anti-globalization forces are saying. They are rightly pointing out that globalization has lead to inequality, and many people are getting left behind, and their solution is to stop the globalization process, to go back to a previous period without globalization. That I think would be a big

mistake, because after all, and as I said, globalization does increase prosperity on average quite dramatically, and so to go back to pre- globalization times would be a lose-lose situation. But globalization doesn't reward all people equally, and the key to deal with inequality is to insure that the people down at the bottom of the income distribution see some improvement in their lives too. The key is to give them the opportunity to participate in the global labor market too, to provide them with education and more importantly provide them with job- and skill- training which would make them employable.

With that very brief introduction I would like to stop and hear your thoughts and questions. Thank you.

Question:

What are you studying and working on now?

Prof. Maskin:

One topic, and that's what I will be giving some lecture on in this tour in Southeast Asia is inequality. We all know how important a force globalization has been over the last 25 years. Globalization has worked miracles , look at how far China has come, look at how far India has come and that is mostly because of globalization that those economies have been so successful. But there is a downside to globalization, which is that it tends – or rather that this globalization has tended to increase inequality, that is increase the gap between rich and poor, because it tends to be people who are already well off, who already have some skills who are the primarily beneficiaries of globalization. People down at the bottom are more or less left behind, they don't benefit from globalization, in fact sometimes they lose, and if you look around the world today and you see how

much political disruption there is, a lot of that can be tied, I feel, to increasing inequality, brought about at least in part by globalization. So one of my main research topics in collaboration with a development economist named Michael Kremer at Harvard has been to try to understand why this inequality has been increasing, because in fact in previous globalizations, for example the great globalization in the late 19<sup>th</sup> century when Europe and North America started trading with one another a lot more intensively, we did not see inequality increase, in fact just the opposite as globalization was a force to a greater equality. But this globalization has been different and a major research topic that I have been involved in is trying to first explain why it is different and second what we can do about it to try to correct this increase in inequality.

Question:

I have the impression that you are a man of compassion and perhaps spirituality, do you think the creative and spiritual field can have some part in economics, and did it influence you in your work?

Prof. Maskin:

That is a very interesting question. I got into economics, in fact many people get into economics because they would like to make the world better, and that can often be for spiritual reasons. In my case I think it might have been more for philosophical reasons. Another thing I was able to do when I was an undergraduate in college was to take some philosophy courses, and in particular I got to take a course with a great political philosopher named John Rawls, I don't know if John Rawls means anything to you, but again, if you would study philosophy, you would certainly know who he was, and one of his principals was that in trying to seek justice for society you should always concentrate on the people who are worst off and try to elevate their position as much as possible.

The term he used was “maximizing the minimum”, you look for people with the lowest welfare and try to improve their position, and I am happy to say that that point of view was very important in political philosophy, and it certainly had a big influence on me.

Question:

President Obama’s term is coming to an end and I am wondering if you think that his stint has improved the Americas and the world’s economy throughout his eight years in office, and do you think that Trump’s plans for the economy will improve the current system, or will it lead to a depression?

Prof. Maskin:

Some big questions!

For President Obama, I think one of his most important legacies would have been to save the US and the world more generally from what could have been a disastrous depression. The recession we saw in 2009 and 2010 was pretty bad, in fact many countries still haven’t recovered from it, but it could have been a lot worse, and President Obama’s policy, in particular the stimulus policy which involved spending about 800 billion dollars, was an important reason why that recession was not much worse. I think he would have liked to do even more, but for political reasons, because of a divided congress, he wasn’t able after the first couple of years to get much done economically, but even so he was able to do enough so that the American recovery was set off on the right path, and the American economy is so important for the world that I think that was a major ingredient in the world getting back on track.

Now, with Donald Trump we don't know yet. The problem is that he never held office before, and until his political campaign he probably hasn't really thought much about most of the big issues of today. The infrastructure spending proposal that he has been talking about actually sounds pretty good, if he undertakes that I think it could be a very positive step for several reasons. One of them is that America really needs a makeover in the infrastructure, you only have to arrive at the Kennedy Airport in New York to see the extent to which it's crumbling to understand that many airports, roads and buildings in the US need to be renovated, and now is a great time to do it, because first, there are many people out in the labor force who could do the work, secondly interest rates are still pretty low, so the costs of undertaking this investment is also pretty low and third, we've made a pretty good recovery from the recession, but we are by no means at full strength, and a stimulus like a big infrastructure plan could be very good, again not just for the US, but for the whole world. So if in fact he goes in that direction I think it could be great, but we don't know yet what will happen, because Mr. Trump has been big on rhetoric and not so big on detailed plans.

Question:

Is there any achievement in economics that you feel most proud of that you would like to share with us?

Prof. Maskin:

When you ask researchers to talk about their research projects it's a little bit of like asking them to talk about their children, and you don't want to play favorites. Probably I should mention the work that was singled out for the Nobel, which is called mechanism design, and that's what I am probably best known for. You may not know what mechanism design is, but I'd like to think of it as the reverse engineering part of economics. So rather than looking at existing economic

institutions and existing economic procedures and trying to forecast what the outcomes of those procedures would be, that is what most economists do, in mechanism design we start with the outcomes and say these are the outcomes we would like to achieve, and then we work backwards to figure out what kinds of institutions and procedures would give rise to the outcomes we want. So one of the things that I did was to come up with a criterion by which we can judge if a particular set of outcomes that we would like to have is achievable at all. Sometimes we have goals which are something impossible to reach, and sometimes we have goals that are realistic, how can we tell the two apart? Is there a formula or criterion we can apply to make that distinction, and I came up with such a criteria and it is called monotonicity.

Imagine that your goals are achievable, what mechanism will achieve them? One of the things I was able to work out was an algorithm for building a mechanism, a procedure for building a mechanism that will achieve specified goals, provided that those goals are achievable at all. So it is primarily those two contributions, the criteria of monotonicity and the algorithm for building mechanism that I was recognized for.

Question:

In your opinion do you think you are a non-interventionist or an interventionist and why?

Prof. Maskin:

Very good question, and maybe this is a cop-out, but I am going to say, some of both.

There are many things that markets do very well and that we're probably best not interfering with, if you are talking about the market for agricultural goods, most manufactured goods; there's no particular reason why governments have to get involved in those markets as they work almost automatically. The so called invisible hand that Adam Smith talked about applies to markets like that. But not all markets work so well completely on their own, and one example of a market where government intervention is important is financial markets. By financial markets I mean markets where banks or other institutions give loans for productive projects. Entrepreneurs dream up projects, but they need financing, so they go to banks for that, and so banks serve an important and essential role in a modern economy, because they allow the entrepreneurs to realize their dreams and put these projects into practice. So banks make loans, but banks typically try not to make loans losing just their own money, because if you can invest using other people's money, you have leverage, and you can get a bigger return on your own money, and so banks will typically themselves borrow money from other banks and other investors to put into an entrepreneurs project, which is fine as leverage allows resources to be spread further around an economy, and it allows more projects to be undertaken. But there is a risk, if there is too much leverage, which is that if some of these projects that are being invested in turn out not to work, if they are failures, then not only is the bank that invested into this project going to suffer, but all the other people, banks and investors who put their money into the project, will also suffer. In fact you can have a chain reaction of failures, first the loan goes bad, and the bank that made the loan fails, then the institutions that lend to the bank fail, and it is like a domino effect where there is failure after failure. Even if the original failure was quite small, it can be multiplied, and so you can get a system wide failure.

That's actually what happened in 2008 and 2009, there were a few failures in the mortgage market, in fact just a small corner of the mortgage market called the subprime mortgage markets, but those failures spread and ended up enveloping the entire financial market, which came almost to a standstill, and when the

financial markets come to a standstill, everything comes to a standstill. So we were in deep trouble.

Now, in my view what happened then was a failure of governments to get properly involved. If they had been regulated these banks properly, they would have prevented the banks from overly leveraging themselves, from using too much borrowed money. If they had required that banks not over leverage, we would never have got into that fix in the first place.

So regulation for some markets is essential, and financial markets are one of them. The other place where governments can get involved is, and that goes back to the question about President Obama and President-elect Donald Trump, is to try and kick-start an economy that has got into a slump. If you are in a depression or recession the whole economy is operating at a lower than optimal level, so you want to move the economy up a nudge or two, then you can inject a stimulus to get things going. This is something that the economist John Maynard Keynes advocated back in the great depression of the 1930ies. His policy worked then, and it worked again when President Obama used it for the most recent recession. So that is another place where intervention is important, but there are plenty of points in the economy which don't really need intervention by governments.

Question:

You said that you see a lot of connections between mathematics and economics, so I was wondering if a person would open a new business would there be a correct formula that would make this business successful.

Prof. Maskin:

I wish there were a magic formula which could tell you whether a business will be successful, in the end I think its imagination that is still the most important ingredient in making a successful company. Coming up with an idea doesn't require a mathematical formula, it just requires some creativity.

But mathematics can be used by business people and is used for good purposes, for example it can be used to analyze complicated decisions. Suppose you consider to make an investment and you know what the possible outcomes of that investment are, but you don't know which outcome will actually emerge, that is it could have outcome A with probability 30% or it could have outcome B with probability 40% and so on; so how do we evaluate the investment? Well, that's where the mathematical tool called decision analysis comes in. Decision analysis allows you to take a fairly complex decision problem and to break it down into its component parts and then analyze the decision problem in little pieces, then put the pieces back together and get an answer. That's one place where mathematics is very useful.

Another place where it is very useful is in strategic interaction, that's called game theory, which is one of the things I am interested in. If you are a company and you are operating a loan in an industry that is great, but typically you will have competitors, and if you have competitors you want to be able to anticipate what they are going to do, and they would want to anticipate what you are going to do – so you have this strategic interaction, everybody is trying to anticipate what the other companies are going to do, so how do you analyze a situation like that? Well, you use game theory.

Game theory is also a set of mathematical tools for breaking complicated strategic interactions into more analyzable components.

Question:

Entrepreneurship used to be something that people did out of necessity, but today students studying it are being taught in universities around the world, so are we living in an age where the small business will actually take over the big businesses, or are we going to see the opposite happen in a century?

Prof. Maskin:

I think whenever new products and technologies come along they're always first created by a small business. Small businesses tend to be the leader in the innovative cycle. You look to an enormously successful company like Microsoft that didn't start out as a behemoth, but with Bill Gates working in his garage trying to figure out a way to provide software for personal computers. If you look at Facebook, it didn't start out as a billion dollar company, but with Mark Zuckerberg in his dorm room at Harvard figuring out how to put him and his classmates in touch with one another. The most innovative ideas come from small businesses, but eventually they have to be scaled up to reach the world, so typically the small business grows into a big business or it's acquired by a big business.

The short answer to your question, which is a very good one, is, I think, as in the past, we will need a combination of small and large businesses, to do the job of the economy we'll need the cutting edge entrepreneurs to create small businesses, and we'll need the large businesses to provide the cutting edge ideas a platform and make them available to everyone.

Question:

Since you are here with the International Peace Foundation I wanted to ask how much the foundation and its ideas mean to you?

Prof. Maskin:

To make the world more peaceful is to have dialogues and conversations between scholars, researchers, artists and many other backgrounds of different countries.

What the foundation is doing is to bring people like me to Asia to talk to people like you, and the idea is that through these conversations we will understand ideas better, we will understand one another better, and when people understand one another, they are not so likely to be in conflict. Wars typically, for example, break out between ideologies, religions, where there is a lack of mutual understanding. Through conversation we can eradicate those misunderstandings, and that at least is the principal, and because I think the principal is right, I am very happy to participate.

Question:

How do you think the Vietnamese economy is going? One of the things we have been talking about here in the school is the economic bubble, and I wonder if you think it will burst, and how long it is going to take until that happens?

Prof. Maskin:

I am not a great expert on the Vietnamese economy, and I hope that I will learn more about it by being here, but I know a fair amount about the Chinese economy and only a good deal about the Vietnamese. My impression is that Vietnam has come a long way, an enormous way, over the last 20 or 30 years. Clearly there is still a long way to go, it still is an emerging economy rather than a developed economy. As to a possible bubble, I've heard that there seems to be a real estate bubble in particular, and judging, and again here I am making an analogy with China, I think China very definitely has a real estate bubble that might burst one of these days.

It should be remembered that bubbles happen all the time. The US economy has been subject to dozens of bubbles over the last 50 years or so, but only a few of them have led to a major crisis, so the real estate bubble leading up to the financial crisis of 2008 was a bubble, and when it burst we did have a serious recession. This wasn't so much because of the bubble itself, the bubble itself was not the problem, it was the aftermath of that bubble, and I was describing how a failure to regulate financial markets allowed a relatively small problem to magnify and become a big problem. I don't know how serious the reported real estate bubble is here in Vietnam, but even if it is a bubble and even if it does burst that doesn't necessarily mean a disaster for the economy. It's all a matter of how the aftermath is dealt with, and if it's dealt with well the economy will do pretty well, if the same mistakes are done as in the US then there is more to worry about.

Question:

Throughout the years of teaching and travelling around the world to give presentations like this, what has impressed and surprised you the most?

Prof. Maskin:

I'm always particularly surprised at how good questions people like you turn out to ask. I have given two actual lectures so far on this trip, one in Bangkok and one in Manila, and I was speaking to people from universities, people with more training than the kids in this room, but still they are students, and they haven't spend years and years in the field, and I was getting amazing questions. They were pretty hard to answer as some were quite sophisticated, and that made it fun. If I just get up and hear the same old questions over and over again, it gets boring after a while, but when people ask me things I need to think about a little bit, it lightens things up, so there have been some good questions this morning already, and that has been nice for me. I hope it's been nice for you, too.

Question:

I would like to ask about the relationship between China and the United States and President-elect Donald Trump. Without a doubt China has manipulated their currency, and Donald Trump has pointed out this problem, and he said that he will put some sort of punishment for that in place after he has been inaugurated. If the relationship between the two countries gets worse, up to the point where they stop trading, which one will be more damaged?

Prof. Maskin:

This is one of the big questions yet to be answered, what is going to happen to the relationship between China and the US. Since those are the two biggest economies in the world the answer to that is not just going to be important for those two countries, but for everyone.

Frankly I think Mr. Trump is living a little bit behind the time. It is certainly the case that historically China has manipulated its currency, and by manipulated its currency I mean failing to allow it to rise and keeping it at an artificial low level, but that has not been the case recently. In fact, a strong case can be made that although the Renminbi is still not a freely floating currency that the exchange rate is very close to what it would be if it was free floating. So I think this complaint by Donald Trump that China is manipulating its currency is out of date. If that is brought to his attention, I hope that improves his attitude toward China.

It's pretty obvious that some kind of trade war between China and the US would not be good for either of them. A trade war basically reduces the size of the total pie. There can always be a discussion about how that pie is divided up, and I think it's perfectly reasonable for Trump to reopen the discussion about exactly what the terms of a trade agreement are, but the threat of cutting off trade is worrisome, because cutting off or reducing trade would mean a blow to both economies, perhaps more to the Chinese economy than the US economy, because the US depends less on trade for its GDP, but certainly to the US economy, too, and then by extension the rest of the world, because there is no part of the world now that doesn't depend on the wellbeing of the American and Chinese economies for their own wellbeing. To use some language from game theory, we are not in what's called a zero-sum situation where if you do well I do badly or if you do badly I do well, we're in a positive-sum situation where if you do well that makes it more likely for me to do well and vice versa. So, let's hope the trade relations between China and the US remain good.

Question:

What field has good potential to open a business in Vietnam, for example technology, media or information?

Prof. Maskin:

One of the great properties of entrepreneurship is that entrepreneurs themselves are the ones who figure out what direction to go in. They don't have other people telling them what areas to open businesses in or not, but they come to these conclusions themselves, so I'm the last person who should advise potential entrepreneurs on what direction to go in, but they should figure that out themselves. I'm not going to answer your question, not because I couldn't make some guesses, but because my guesses are not likely as good as yours.

Question:

Based on the current economy are you more optimistic or pessimistic about it, and do you think we should start investing, or should we take back our stocks?

Prof. Maskin:

In my inclination and my general temperament I tend to be an optimist, but I think there are some good reasons for being optimistic at this point as compared with 4 or 5 years ago. We are farther away now from the very disruptive and damaging recession that the world went through in 2008 and 2009, and we have been seeing positive growth worldwide for the last couple of years. I think there's every reason to believe that we can continue on that track provided that the politicians don't get in the way. Politicians could mess things up, as we were just talking about the US and China, if there were for example a trade war, which is a political event and not an economic one, it could spill into the economy very quickly. The other thing that will be important going forward, and this goes back to my discussion about inequality earlier on, politicians are going to have to do

something to help correct growing inequality just to keep their countries together, and that will be an important political as well as economic event in the coming years, if there is to be continued growth. So the short answer to your question is, yes, I am optimistic about our future provided that politicians do what is needed, first to stay out of interfering in trade and second getting involved in doing something about inequality.

Question:

There are some other inequalities, for example one of my teachers told me that he compared his wage to one of his friend's wage, and they found out that they earn very differently even though they went to the same university. They receive a different wage because my teacher is from Australia while his friend is from India, so their nationality affects their wage, and I wonder how problems like this can be fixed?

Prof. Maskin:

That's an important question. There are two kinds of inequality that we need to worry about. There is inequality across countries, and I think your question particularly focuses on that, where people in one country are doing on average a lot better than people in another country. Then there is inequality within countries, so in the same country someone is able to get a job with a good salary and makes comfortable living, and other people don't have the same opportunities. I think on the first kind of inequality, inequality across countries, there is been a lot of progress made. Countries are not as different as they were a generation ago, or to put it in another way, countries like China, Vietnam, India and so on, have been catching up to the rich countries of the West, the European countries and the US, and that's a good thing.

Where inequality has been getting worse is within countries. If you look at China for example, the gap between rich and poor has grown over the last 30 years even though average income has been rising, and that's the problem that I think is harder to solve, but extremely important to solve. We saw just from the election of Donald Trump in the US that people who are being left behind by globalization and by economic progress are resentful of being left behind and you can't blame them for that. The response is not to say we're going to continue to ignore you, but the proper response is to do something about inequality, and that's one reason why my own research has been focused on inequality and globalization.

Question:

Kind of segueing of from what you just said and using BREXIT and the election of Trump as a barometer, looking at France who have their election coming up and the polling data where they are saying that Marine Le Pen could win – what does that do to the European Union and the global financial markets? I know it is difficult to say as we don't know what she would do, but what is your general feeling on that?

Prof. Maskin:

Marine Le Pen is a worry in the same way that BREXIT is a worry and that Trump is a worry. If politicians in opposition to Le Pen aren't able to mount an explanation for why the European Union is a good idea, for why global markets are a good idea, then she could win. But I think the arguments on the other side are so strong, they haven't always been well expressed, but if mainstream French politicians for example get their act together and explicitly make their case for

why Europe and trade agreements have been a success, but at the same time say what they might do to have not benefitted from all that, forces like the National Front in France can be pushed back. Certainly we've seen populist movements before, who looked as though they were going to take over the world, being pushed back, and I have continued guarded optimism that this will happen this time, too.

Question:

In front of you today are some very intelligent young people from Vietnam who have chosen to get an American curriculum and will graduate with an American diploma. Many of which will be going to a western university, many in the States, where they will be educated through American universities and many of which will be then taking their degrees and their learning and coming back to Vietnam and help better the country. What advice might you give to these young people given that profile?

Prof. Maskin:

Keep right on what you're doing. I think your country is lucky to have you as leaders of the future, and it's great that you are taking this path because you've got bright futures individually and because of what you are planning to do for your country does have a bright future, too, so keep up the good work.

Question:

In your theory you talk about how important foreign aid is in developing and in boosting education, and I would like to ask what economic incentives are given to

foreign countries to invest? In other words, why should a rich country try to boost skills in a developing country?

Prof. Maskin:

Of course there are altruistic reasons, but these days in politics altruism may not be the most important force at work. There is a very practical reason which is, as I was suggesting, the labor force today is truly global and so are companies, so if I am an American politician I can help American companies by ensuring that they have a bigger supply of skilled workers available. That's good for them, good for the workers and that's also good as a way of boosting demand for American goods, because with higher income workers in the developing world there will be more demand for American goods. So there are a lot of purely self-interested motivations for foreign aid.

Question:

I would like to ask about the relationship between incentives and inequality, to find out whether inequality may act as an incentive for the upper class to maintain their wealth and perhaps the working class to work harder to reach a higher level of wealth. Basically whether you see inequality as something that can have a positive and driving influence on people?

Prof. Maskin:

That is a very interesting question, if we can see something good in inequality as well as something bad, and I think the answer is clearly yes. Inequality can be a spur, and I think not so much for people at the top who already made it, but

rather for people at the bottom who are hoping to make it. If you see someone else's success, you may say to yourself why can't I do that too, and this is the root for what's sometimes called the American Dream. The idea that no matter where you start and how lowly your family, by working hard and by using your imagination and creativity you can achieve the same success as any other man.

That certainly remains true today, the problem with inequality is not the fact that different people end up with different outcomes, but that in so many cases they don't even get to the opportunity in the first place. I'm certainly not arguing for a world where we have equality of outcomes, but I am now arguing for a world where we have equality, or something resembling equality, of opportunity. It is opportunity that is the key.

To go back to what we were saying before and to the globalized labor market that has rewarded people with skills, but not the ones without skills, the people without skills would love to join the labor market, but they miss the opportunity, they have nothing to offer. You might say to them, why don't you get some skills and education, but that's out of the question for them, they can't afford it. Education is expensive, and so they need someone to pay for that, someone has to provide them the opportunity.

Question:

Is it not unrealistic to expect that there will only be high skilled and high income jobs?

Prof. Maskin:

I didn't mean to suggest that there should be, and decrease in inequality is not the same as eliminating inequality. You are quite correct that in a market system to eliminate inequality is not only unrealistic, but it's not even a desirable goal, because we want to reward people according to their talents, resourcefulness and efforts, and that's inevitably going to lead to some disparities in income. But as I was saying, you want to give people at least the opportunity to have a chance in life, even if they don't make it, they should at least have the chance to get there.

There is another reason for paying particular attention to education and skill training in our modern world, and that is the increase in replacement of low skill jobs by machines. You are well aware of that fact, more and more old jobs will be eliminated which makes it more and more important that people have some basic education allowing them to be trained for the new jobs that will come along. I have confidence that robots are not going to replace us, but they are going to create a demand for new skills, but that is very hard to anticipate, we can't say now what these skills are going to be and that makes basic education more important because it enables them to add on that and makes them more flexible. Literacy for example is the sort of basic education that makes retraining possible. So, you are right, that eliminating inequality is an unrealistic and perhaps even undesirable goal.

Question:

You mentioned that robots are going to replace low skilled jobs in the future, what impact could that have on employment and the economy as a whole, and will there be need of employment quotas to deal with that?

Prof. Maskin:

I talked about robots replacing low skilled jobs, I am not suggesting that the people who have lost their jobs will remain unemployed forever. There will be some transition period where they retrain and then reemerge in some other kind of work, and so I don't think we need to have policies such as employment quotas, at least if we do have them we won't need them permanently. We might be able to use this as a temporary measure to ease the transition from one kind of work to another, in the same way we might use protective tariffs for some industries as a temporary measure, as a long term measure I don't think it makes sense. To insist for example that companies hire human workers – if that's what you mean by employment quota.

I don't think though that human labor will come to an end, and to back up that assertion let me use a historical example. You may have learned in your history classes about the great industrial revolution of the late 18<sup>th</sup> century in Europe. That was a revolution that brought in a lot of new technology and machines, just as it is happening now, and many people thought and said that this would be the end of human labor, that human beings are going to be machines. That didn't happen, in fact just the opposite happened, in the 19<sup>th</sup> century wages rose and by the fastest rate than they ever had in the human history, because the new technology actually increased for human beings to work alongside these machines. Of course, it's too early to say what the latest technological revolution will lead to but if history is any guide, and history is usually quite a good guide, we don't have to worry that these machines and robots are going to eliminate human employment. So I am pretty optimistic that we will have some jobs to look forward to years from now, but they may be different from the jobs we have now.

Question:

We learned that you are one of the founders of the mechanism design theory, and I was wondering how this theory got developed in the first place?

Prof. Maskin:

It wasn't my idea, but I was very happy to become a part of it. Actually in some forms mechanism design is actually very ancient, so if you read the old testament of the bible, you can see the ingredients of mechanism design. There is a passage in the bible about Lot and Abraham who have some land that they want to divide between the two of them, and their goal is to divide the land in such a way that neither of them is envious about the others portion of it, and the question is how to achieve this goal, and that is a mechanism design question. How do you achieve whatever your goal is when a part is concerned with and have to agree on the outcome. Well it turns out that there is a very clever solution to this problem on how to divide this land fairly which is also mentioned in the bible. It is for one of them, say Lot, to draw a line to divide one half of the land from the other, and for the other person, Abraham, to chose which of these two pieces of land he takes for himself.

If you think about it that will solve the problem because when Lot is dividing the land he has an incentive to make sure that the two pieces of land are exactly equal, because if one piece is bigger than the other then Abraham would take that and Lot himself would end up with the smaller portion of land. That is probably the earliest example of mechanism design on record. In recent years of course it has been used for all sorts of other allocation problems, for allocating radio spectrum licenses, for assigning children to public schools, it has been used to try to reduce air pollution in congested cities or to reduce traffic in places with heavy traffic jams; there are literally thousands of potential applications of

mechanism design. I joined the mechanism design business because I was excited about these applications.

Question:

Over the past few decades ASEAN countries (and its economies) have been very successful, and I wonder what policies have been proven to be most effective in term of governance and which policies will be effective in the future?

Prof. Maskin:

You are right by saying that ASEAN has been a big success and one reason is that it has used the engine of free trade as a means for governance. This is a simple economic principle, that if you allow people to trade with one another they are all better off, but it wasn't until the late 20<sup>th</sup> century that free trade became a reality in many parts of the world, and I think the ASEAN nations understood that and helped free up trade and benefitted from it. As for the future I think it is important to not let the downside of free trade, inequality especially, set free trade back. The solution to inequality is not, as I've already said, to try to stop globalization and free trade, free trade will continue I believe to enrich all the ASEAN nations, but at the same time something has to be done about inequality. If you look at what's happening in China today, there are considerable social unrests because of inequality, and if nothing is done about that problem that's when they derail the globalization project.

So, I would say the two things to keep in mind: keep moving towards a globalized world, but try to do something about the negative side effects, in particular inequality.

Question:

You said that inequality can motivate people to improve themselves, so I am wondering if reducing inequality will always be good for an economy, and how is inequality related to economic growth?

Prof. Maskin:

I talked about the moral reasons for reducing inequality and the practical reasons for reducing inequality, which is to keep the society stable, but there is another important reason which you just touched on, which is beyond a certain point inequality actually interferes with economic growth. If a society is too unequal, you end up with two separate societies, one at the top and one at the bottom. The society at the top might prosper as the societies at the top in China and South Korea are prospering, but the society at the bottom is separated from this prosperous society and can stagnate and fail to grow at all, in which case not only is the country splintered, but a large part of that country isn't even growing.

This brings me back to what I was saying about the US in the 19<sup>th</sup> century, one reason universal education turned out to be such a good thing was that it made the unskilled people skilled enough so that they could contribute to the growth of the American economy, and it isn't a coincidence that the late 19<sup>th</sup> century was a period of unparalleled economic growth in the US.