INTERVIEW OF - MR. KULDEEP KUMAR, PROFESSOR OF ECONOMICS BOND UNIVERSITY, AUSTRALIA

Sir, how different is behavioral economics and neuroeconomics and what is the scope of these fields?

I think what is happening in neuroeconomics, its more on the medical side, what they do is- suppose someone is having Alzheimer's disease, now this person can't take certain decisions like financial decisions, similar is case with someone who is having

spinal or brain injury, now what Neuroeconomics people do is, they put him in FMRI machine and then will give him two scenario like, he will be given a chance two invest on two stocks and told choose one, and at every two second they will take your FMRI responses and that continues to prepare a set of reactions of yours and that continues to prepare what your next step may be and which part of the brain is taking the decision i.e. for financial problems which part of brain gets active and for other problems which part of brain gets active. Suppose somebody got the brain injury or something then by the inference of report we can say this person is not able to take which kind of decisions, but good part is suppose

someone is getting Alzheimer, then through bond signal what is the probability that this person is likely to get back from the disease because he is unable to take certain decisions. The only problem is- from where to get the data of FMRI, because I will not like to go to FMRI machine for 40 min. but I ask my PG students and I know they will do that. But China, they said they will do it, they will give me data from the machine. So basically from data obtained from machine we can tell what kind of decisions a particular person can take or not.

In your lecture You spoke about, if a person is more educated then his probability of attempting fraud is more, but If a person is more educated, his contribution to economy is also increased, so how a government or any authority should establish balance between the two.

I think that is a very good question, I will give you an example. I have friend, his name is V. Sundaram, he had a GPA of 9.9 out of 10 from IIT Mumbai, and we both went for Ph.D. from University of Kent, this fellow was absolutely brilliant, but always looked at how to hack the password, how to beat the system, like at that time we use phone card to charge our phone, you swipe the card and money will goes out from card and when emptied you need to recharge the card. So he said I can recharge your card by magnetizing. Because he was very intelligent, he was using his energy to the wrong channel as well as to the right channel. Whatever the research he was doing on networking etc. was excellent but was also misusing his potential in other areas he was not supposed to

do. The same problem is there, if somebody is very intelligent, he knows how to beat the system. Of course this kind of person is very useful for organization as well, and can also know if somebody else is doing wrong. So it is on both phases, only thing is you are not supposed to misuse the system, you should use your potential in right direction so that company and country could gain out of that.

But don't you think that the improvisations brought in a system due to a person's misuse would make the system more efficient and effective.

I will give an example for it, I told in lecture about benford's law is – if I ask you take any no. somebody will start from 1 someone from 4, 3, 8 and so on. If you are taking a big sample then 11.1% will start from 1, 11.1% will start with 2 and so on, but if data is genuine, its not cooked then this will not be the case, chances of starting with one will be around 35%, for two it will be 18%, for eight or nine it will be 4.5%, Now in accounting they use benford law to detect the fraud, means if transactions are uniformly distributed among all digits then there is something wrong, data is cooked up. Somebody can ask a question, suppose I know the benford law, then I will cook the data according to the benford law, then how will you detect. But then we thought, we can beat the system, can beat this person. What happens, when you calculate the second order movement, third order or fourth order movement of the data generated from the benford law and if you cook-up the figures according to the benford law then those moments will not match, so still you can find out. So, one can always beat but you can always improve on the technology so that the person can't beat the system.

Sir, to what extent we can rely on these statistical methods for detection of fraud or bankruptcy, because usually the sample is very huge and even 1% among the sample would constitute a large number. We have also seen how over-reliance on statistical models like VAR is considered to be one of the reasons behind the 2008 economic recession.

Whenever you use these statistical models, say for bankruptcy and all sometimes our model may not be able to detect whether fraud is happening or not or it may be other way round , our model will say that there is some fraud in and we should remove it, even when the data is genuine. What we trying to do is, using the latest technique – decision tree and forensic, we are trying to reduce these errors. We try to minimize the type-2 error given the type-1 error is very small. Suppose there are five thousand companies and your boss told to detect whether there is any fraud or not, you run our model and found some fifteen companies are suffering, then you should go for other factors like external audit and check it. Suppose in case of Breast Cancer doctor is looking at mammogram, now it may possible that he is tired or not able to make correct judgment and say cancer is benign while it is malignant then it could be a problem, but our model will give only one answer, there is no judging. Model will tell that probability of malignant cancer is 0.9. Then you can go for biopsy to cross check the result, and proper treatment of chemotherapy. We are not saying that statistical model are 100% correct but you can take help from them and then use your judgment to make a final decision.

Sir, in the lecture you spoke about the pressures that can lead to fraud are Financial, Emotional and Life-style. I was confused that how life-style can force anyone to do fraud.

Suppose someone is a drug-addict or involved in gambling or plays in stock market, these things require money. If salary of person is only 2lakh and loss 3 lakh in gambling, he needs money in order to survive, so he will try ways to get money, do fraud to earn money more and easily. So that is life style which if goes in wrong direction, lead to frauds.

Sir, talking about corruption, we have seen how the whole system has changed post 1991. In that respect, do you think having a free market can stop corruption in the system?

Technology can play a vital role here, like if you talk about rail-ticket reservations, pre 1991 the scene was you have to go to the clerk fill the form and then he will write down your entries and allot you the seat, but sometimes he may say –no there is no seat available unless you give him some money. Now it is all computerized, you just have to login to the website, if there is a birth system will show it to you and by paying ticket charges you can get the seat. Similarly Modi ji has said, I will computerize all the process of Pass-port or Driving License etc. the stages will be decided that within seven days it should be at this stage and if it is not there then it is responsibility of the officer. So you don't have to worry, you just fill your form and check its progress, within fifteen days or so as per the decided time period it will be at your home, you don't have to go to any middle-man.