Shri R. K. Talwar Memorial Lecture –9th February, 2021
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Transcript

Very good evening, Ladies and Gentlemen.

Shri Rajkiran Rai ji, MD & CEO, Union Bank of India & President of IIBF, Shri Dinesh Kumar Khara ji, Chairman, State Bank of India, Shri Biswa Ketan Das ji, Dr. Muralidaran, several CEOs & MDs of Banks & dignitaries from Reserve Bank of India and all esteemed ladies & gentlemen who have taken time out of their busy schedule to attend to this talk.

At the outset let me say that I am extremely privileged to be delivering the 11th R K Talwar Memorial Lecture. In some sense, I am quite humbled to be delivering a lecture in the memory of Shri R. K. Talwar.

In my opinion, Shri Raj Kumar Talwar ji's leadership was spiritually motivated. I think, that is why it is an enormous inspiration for all public servants and I especially rank myself to be fortunate to have read about his exemplary leadership. After being invited for this lecture, I read some books that are written on him, especially by Shri Vaghul. Incidentally, my first job was with ICICI when Shri Vaghul was the Chairman of ICICI. So, reading his book & how he has written beautifully about the spiritually motivated leadership of Shri. R K Talwar ji, has been a huge inspiration.

"Can spirituality be the foundation for effective stewardship & elevate the level of leadership from the average to extraordinary heights?"

I thought it would be best to actually take this quote from a case study authored by M S Srinivasan - Leading from the Soul: A case study on spirituality inspired leadership. I think this quote captures, as to why Talwar ji was so respected. Because his leadership & his entire behaviour actually came from a very deep sense of spiritual ethos, which is of course India's real strength. To the above quote, "Can spirituality be the foundation for effective stewardship & elevate the level of leadership from the average to extraordinary heights, the answer is, "The life of an exemplary banker, R .K. Talwar, provides an affirmative answer to this question. What makes Shri Talwar stand apart as a leader is his exemplary character, moral courage & spiritual dedication which evoked respect & admiration from everyone who came into contact with him & inspired countless young officers to lead a life of integrity & values."

I think this is captured very beautifully, in the *Bhagavad-Gita,* Chapter 3, *Shloka* 21,:

यद्यदाचरति श्रेष्ठस्तत्तदेवेतरो जनः।
स यत्प्रमाणं कुरुते लोकस्तदनुवर्तते।

"Yad yad ācarati śhreṣhthas
tad tad evetaro janaḥ
sa yat pramāṇaṁ kurute
lokas tad anuvartate."

"*Yad yad acarati shresthas*", clearly, Talwar ji was a '*Shreshtha*'. His '*acharana*', his own behaviour, leadership by example inspired his followers – '*tad tad evetaro janah*'. Those who got inspired by him, followed him. This is well reflected in this quote. He has inspired countless young officers to lead a life of integrity & value.

"Sa yat pramāṇaṁ kurute"- this is by far possibly the most important part of this shloka, it is not just the words, but *praman,* it's the proof of behaviour actually, which inspires, not plain talk. I think, in that sense, reading about him as a public servant, I have been really inspired by the spiritually motivated leadership. In some sense, if you were to capture again, using India's spiritual ethos, *his karma was driven by his dharma*. That is the best way to really conduct oneself especially when one has been given the privilege of serving the country.

So, I feel again that India's COVID response, which is what I'm going to talk about, Talwar ji's soul would be really happy with the principles that have motivated India's COVID response. Because the response is also indeed grounded in a lot of moral courage & spiritual dedication.

Around March, when the cases were increasing, in a lot of countries, there was a lot of uncertainty about how the pandemic is going to spread. I remember reading a lot of work at that time and many of us would have come to know about this R-naught (R_0) parameter, which captures how likely one person…how many people is that one person likely to infect, because a pandemic spreads based on network effects. So if that R_0 parameter is about 2.4 - 2.5, then every person who is infected, infects another two and a half people. Each of those people then infect more and that's how the pandemic spreads. And incidentally, there were a lot of variation in this. While pandemics like Ebola, for instance, had R_o in excess of 4, the common flu that comes every year in many countries has a R_0 parameter of 1.5-1.6. And when one was reading research on this, even epidemiologists were not sure at that time whether the R_0 parameter will be 2.5/2.3, which is what the Spanish flu by the way also had, or will it be actually higher, especially for India. I think this is something which I actually must touch upon before I talk about the policy response. I think it's really important to understand what policymakers faced around March with this uncertainty. Remember, we actually are a population of almost 1.4 billion people. Just the state of Uttar Pradesh has more people than the entire country of Brazil. If you take the population of Bihar and Maharashtra which are the second and third largest populous states in the country, each of those states has a greater population than UK and Germany put together. Now, in order to understand what this means in terms of the population and the population density, let me give you a simple example.

Most of you bankers are from Bombay (Mumbai), so you will relate to what I'm talking about. In the Mumbai locals, when I was working in ICICI (1999-2000), I used to take a local (train) from Goregaon, which is where the ICICI quarters were, to Churchgate, where the office of ICICI was at that time, before it moved to BKC. . I'm sure many others here, also, in the younger years would have travelled by the Mumbai local. On an average, in a coach in our Mumbai local, there are about 500 people travelling and is densely packed. Now, suppose one person is infected in that coach, and let us say, that person is travelling from Borivali to Churchgate, typically about 55 minutes to an hour journey, in that period, or for that matter, let's say from Thane to VT, also, about an hour's journey. In that hour's journey, because they are all packed into one coach, that one person, within just one-hour

time, can infect the entire 500 people. Now that is one scenario. And of course, locals were stopped, which was actually a good move. Now, as a contrast, suppose the same 500 people are working from home, following social distancing, wearing masks etc., (By the way, wearing mask would not have necessarily been that useful in a Mumbai Local because the distance is small and the bodily juices can actually spread - the disease). & not interacting as much, the same 500 people, to get infected from one infected person might have taken days or weeks. So, this gives you the contrast.

Take this example and relate it to India versus other countries, because for one, we have a much higher population of, as I already talked about, 137 crore people. Second, we live in one of the most densely populated areas in the world, especially those at the bottom of the pyramid. Therefore, following social distancing etc. is not that easy. In the Mumbai local versus people working from home scenario, take the Mumbai local as equivalent of India, and working from home as the equivalent of other countries with much less population & population density, you can see that the pace of spread could have been much higher, -one hour versus, let's say, a few days - in India versus the rest of the world. This is the key aspect that one was facing around March. Together with that, given the health infrastructure & given our population, it was possible that our health infrastructure could have been overburdened and, as a result, might have led to a lot of fatalities as well.

I remember reading a paper that was put out by John Hopkins University and Princeton University on 24th of March, where they had actually laid out three different scenarios for India. And they had said that, in their best-case scenario, (whenever I talk about what actually has happened, please keep this in mind) the peak for India was in the month of June and the worst-case scenario they had talked about was in the month of April, somewhere around mid-April to end-April. Now, they were actually doing this projection given the population, the population density, etc. Their models were indeed actually predicting based on the population, the population density and that is what India could have actually faced - a peak hitting. And those peaks had several tens of millions of cases and millions of deaths. That is what they were actually projecting (in fact crores of cases and millions of deaths) as part of that peak. So, imagine the peak of several crores of cases hitting around even June in the best-case scenario and the kind of fatalities that could have manifested. So that is the vulnerability. That is the situation India faced around March.

Now let's think about what was the main policy that actually drove India's response. India's policy response was guided by research in epidemiology and economics. There's been a lot of research on the Spanish flu episode, for instance, which happened in 1918, which focused on not only the health outcomes but the economic outcomes as well. And what was the impact of lockdowns during that time. Similarly, on the epidemiological side, what is the impact of higher population density in the spread of a virus like, COVID-19- there was a lot of research on this. I'm going to just lay out some bits of this- the first chapter in this year's Economic Survey gives all the details for those of you who are interested, but I'll just give you the summary of the key research that actually drove India's policy and the principles.

India’s Policy Response Guided by Research in Epidemiology and Economics

Firstly, there is Lars Hansen and Tom Sargent's (work), whom I had the privilege of learning from at the University of Chicago. Tom Sargent was a professor at New York University. He still is a professor now at New York University. But he was visiting the University of Chicago when I was in my second-year learning Macroeconomics. Both the Nobel laureates had written in a paper in 2001 and that is apt to the situation that India was facing around March, that "when faced with enormous uncertainty, policies must aim to minimize large losses." So that research was really apt for what countries were facing around March -How long will the pandemic be? How fast will it spread? What is the R_0 parameter especially for a country like India with such large population, population density? etc. There was enormous uncertainty.

The recommendation there was very clear that policies must aim to minimize large losses. And one of the things that I have generally believed in is that good policymaking, whether at the corporate level or at the national level, comes from clarity of objectives. This gave a very good, very clear objective that it has to be about minimizing large losses. Now, the question is, what were those large losses? Are we talking in GDP terms, monetary terms or what is it that we are talking about when faced with a pandemic? Actually, here is where I feel that Talwar ji's soul would really be happy with how India thought about the loss. Faced with the pandemic, India identified large loss as *loss of human lives* and understood that while GDP growth will come back (and it certainly has, which is very heartening for all of us to note) a lost human life can never ever be brought back. I think that humane principle is what actually led to us realizing that large loss is basically the loss of human life. Minimizing loss of human life was to be the first priority while we faced this unprecedented pandemic for the first time in 100 years after the Spanish flu.

By the way, another important thing to remember is, in the Spanish flu episode, the maximum number of deaths were in India. Another important fact that we actually had to keep in mind with enormous humanity. India's response also actually stemmed from this humane principle advocated very eloquently in the *Mahabharata*:

आपदि प्राणरक्षा हि धर्मस्य प्रथमाङ्कुरः

"Apaadi pranaraksha hi dharmasya prathamankurah"

(Saving a life in jeopardy is the origin of dharma.)

The origin of dharma is saving a life that is in jeopardy. That is what *Mahabharata* actually has talked about. And that is what we actually learned when combined with what Economic Research recommended. At some stage in our lives, all of us have actually heard about the *Mahabharata*, especially the *Bhagavad Gita*, which is a big part of *Mahabharata*. This is the principle which basically said-the biggest loss can be that of human lives faced with this pandemic, and therefore the key objective was to minimize the loss of human life, recognizing that GDP growth will come back but human lives when lost, cannot be brought back. And those of us who have actually lost our loved ones at some point or the other, (in 2005, I lost my father whom I owe enormous debt of gratitude for whatever I am today) can relate to such tragedy, and therefore, I think, very few people will disapprove that minimizing loss of human life was the most important objective to pursue at that point in time.

For this, research pointed out that the pandemic curve needs to be flattened. Why does it need to be flattened? Because if the pandemic hit its peak in, let us say around April, May or June, then the loss of life that could have happened would have been far, far higher. I will give you some numbers here, to explain this. India's fatality rate now is about less than 1.5%. But around April and May, the fatality rate was around 4-4.5%. In fact, I do remember that this 4-4.5% actually was with much lower cases because India had the most intense lockdown before we had even hit 100 cases. So, at just a few thousand cases, the mortality rate was 4-4.5% or thereabout. Now, it is easy to sort of project from these that if we had several crores of cases by mid-April or early June, which is what the research studies had recommended, then the mortality rates would have certainly been higher than 4.5-5%. Remember that rate has come down from 4.5% to 1.5% because of the learning.

Today, the entire medical fraternity has learned how to deal with a pandemic. But early on around April-May, they were also learning how to deal with this pandemic. At that time, without adequate learning happening, if we were hitting several crores of cases just in April or May, then you can actually do the counterfactual that the mortality rates would have been much higher, may be 6-7%. You take 6-7%, multiplied by a few crores of cases, you basically get what might possibly have been. How many deaths would we (we and our loved ones) have been grieving at, if basically, the pandemic curve did not flatten?

The first key recommendation was that the pandemic needs to be flattened. What that means is, a much higher peak is flattened so that the peak happens much later. And as a result, the health infrastructure (testing infrastructure), gets time to respond to this pandemic. For instance, look at the testing laboratories that were created. Within a few months, the entire testing infrastructure was ramped up significantly and that really helped in testing. One of the things that we actually find in this is that those states that actually tested far more, were the ones that were able to manage the pandemic very well. But that would not have been possible unless we gained time by flattening the curve to be able to create the testing infrastructure and the health infrastructure. So, the first thing was the pandemic curve needs to be flattened.

The second key point was something that I have already illustrated - that the pandemic spreads faster in higher, denser populations. And that is because of the network effects. Much like the digital transactions network, for instance. All bankers must be familiar that with higher network, the pace of spread of the digital transactions is much higher. That is what the network effect is. Same thing could have happened actually in the pandemic as well. And this was a very crucial piece of research that highlighted that the intensity of the lockdown mattered the most at the beginning of the pandemic. and an early intense lockdown. The return on investment on that actually would have been much more than having a lockdown later because that is when the spread is very fast. Awareness is not that high and so the intensity of the lockdown matters most at the beginning of the pandemic.

The other key important input that came from the research from the Spanish flu pandemic, was that the early intense lockdown, not only does it save more human lives, but also enables quicker, better economic recovery. And there was a nice piece of research which looked at cities in the United States and showed that cities that had a very

intense lockdown during the Spanish flu, early intense lockdown, they were able to save deaths a lot more. Mortality rates were much lower but at the same time, the recovery was also much faster. So, in some sense, by taking that short term pain of an early intense lockdown, these cities were able to have a win - *in terms of saving lives* & win - *in terms of the economic recovery* as well. And so, these two pieces of research were actually very critical in the thinking about an early lockdown and having to pay some of the short-term costs for that, and hoping for gains in terms of life and in terms of the economic recovery. So, these were some of the key ideas from research that actually guided India's policy response.

Policy Response Enabled India to Manage the Pandemic Effectively

Now, given that, how has India done across countries & how have some of the states done? There is a difference between estimated cases and actual cases. Why do we need to look at estimated cases? Because if your population is higher, if your population density is higher, if you are not testing adequately, if you have a much older population, all these affect the number of cases that could have been. Whenever we have to evaluate the impact of a policy, we have to look at what actually transpired versus what could have been, and that the difference between what actually transpired and what could have been is basically the impact of the policy - controlling for all other confounding factors, other factors that might impact. The economic survey actually did this estimation using all the characteristics that matter. In terms of cases and deaths, we estimated the actual cases that could have been for a country, and then subtracted it from the actual cases. So, what you see is cases and deaths. For deaths, by the way, we took into account not only these factors i.e population, population density, demographics, the older population especially, but we also took the health infrastructure into account. As I mentioned, if your health infrastructure is overburdened, because it is not adequate to respond to the pandemic, it can lead to more deaths. So, 'deaths' also has the health infrastructure in the estimation methodology.

Here, you notice that in both cases and deaths, India has done really well. India, according to the survey's estimation, has saved about 37 lakh cases as a result of the policy and has saved more than one lakh lives. One lakh families could have lost somebody who's dear to them, but for the humane policy response. Again, we all know the psychological impact there is when a family loses a loved one is enormous and can have economic impacts as well. Also it is important to keep in mind, in the Indian context, families at the bottom of the pyramid typically have five members with one bread earner and that one bread earner is a lot more vulnerable to succumbing to the pandemic because he or she would have had to go and actually work. Losing that bread earner can actually mean that the other four would be facing destitution, especially those at the bottom of the pyramid. Undoubtedly, the lockdown and the economic impact of the pandemic not only in India, but all over the world, have had that impact on the poor families especially, but the situation could have been far worse with a bread earner actually being lost by families. The amount of deprivation and destitution that could have happened from these one lakh deaths, would have been far higher.

If you look at other countries, United States has had about sixty-two lakhs more cases than what should have been there given their population density, demographics, etc. One thing I must mention that in the context of death, a lot of people mentioned that India has

a young population. It is true India has a young population, but what is also true is that in sheer numbers, the people who are 60 plus is more than many countries put together. So, as a proportion of the population we may have lower elderly population than other countries, but in sheer magnitude, deaths do not go by the proportion of population, they actually go by the actual magnitudes of the elderly population. That is also something that we had to keep in mind and so saved one lakh lives effectively through the lockdown.

Many of you will wonder - is it because of the lockdown or is it because of other factors like - we are more immune, we have BCG vaccination, we live in an environment which gives more immunity etc., I will come to all of those potential aspects, later. Before that, let me discuss how states have done. The same analysis that was used across countries, was replicated across states as well.. For instance, some states have denser population than others and states like Uttar Pradesh, for instance, have much higher population and so, they may actually have had much higher cases. On the other hand, Maharashtra has been the negative outlier in terms of both cases and deaths. Among states, in terms of cases and deaths, Maharashtra has been the worst. Looking at the good performers on deaths - Kerala, Telangana and Andhra Pradesh have saved the most number of lives. They are the top three in terms of saving lives. While on cases, Uttar Pradesh, Gujarat, and Bihar have been able to control the case load and this is primarily because of better testing, much higher testing. In fact, testing, actually relates to the management of the pandemic. Some states, for instance, did not test adequately for fear of finding out cases, but that ended up being actually more hurtful in the long run.

In the survey, we have also shown that the difference between estimated and actual cases correlates with the stringency of the lockdown across countries. Many of you would know that Oxford University came up with an index that ranked the countries in terms of the stringency of their lockdown. A lot of credit goes to the team which actually worked hard to replicate this index at the state level in India, by reading all the Ministry of Home Affairs orders across different states and state level policies as well. After understanding the Oxford University index, they replicated this index for Indian states as well. So the change in the stringency is during June to August. Up until June, all states were under a common national lockdown. So, the change is from June to August, as during this time, states were basically implementing these policies and correlating that with the difference between the estimate and the actual cases. So, those states that actually had a much more stringent lockdown, were the ones that were able to save on cases. Their actual cases were lower than their estimated and they did better on deaths as well. Stringency correlated significantly and (for those of you who are with an economist bent of mind, these correlations are statistically significant as well) the correlation of the change in stringency with both the cases and deaths, in terms of the difference between estimate and actual is quite strong.

This gives rise to the question - Does correlation mean causality?
Interestingly, because this is a lecture in the memory of R K Talwar ji, I am inclined to mention a story from the *Kathopanishad* on the difference between correlation and causality.

In the *Kathopanishad*, there is this story of a crow coming and sitting on the branch of a tree. And just as the crow comes and sits on the branch of a tree, a fruit falls. Now, these are correlated events - the crow coming and sitting and the fruit falling. But the crow

thinks that it made the fruit fall. So, the crow's thinking is a causal relationship that I came and sat at the branch of the tree, and therefore, the fruit fell. The *Kathopanishad* talks beautifully about how it is possible that the particular branch on which the crow came and sat, the fruit may have been very ripe and so, the fruit fell. Confounding factor, something that is actually not related to the crow coming and sitting on the branch of the tree. Another factor may be a gush of wind flew at that time which made the fruit fall, not the crow coming. There may be other factors. And then it says, if you can show that neither the wind flew nor was the case that the fruit was especially ripe, that this fruit was similar to every other fruit on the branch of the tree and yet the crow coming and sitting actually made the fruit fall, then you can claim that this is a causal effect. In other words, if you control all other factors that could have made the fruit fall, then you can then say that it is a crow coming and sitting on the branch of the tree, that made the fruit fall. In other words, you go from correlation to causality by taking care of all other factors, all other confounding factors. That is what, incidentally, us, economists are trained for. We do two years of Ph.D. coursework to learn how to go from correlation to causality by taking care of all the confounding factors. In this context of the COVID policy, it is important to ask this question.

Initial Stringent Lockdown Led to V-Shaped Economic Recovery

We studied the same change in stringency and the change in the electronic toll count, the value of that and the numbers also. And a free high frequency indicator that is the e-way bill. Because these are available at a monthly level, that is why we've used this data. Now, the change in the stringency had a negative correlation in the same month. In other words, if the lockdown was very stringent, that brought down the high frequency indicator in that month. But if you look at this variable with a three-month lag, the same stringency also leads to a recovery. That's your V shaped recovery which is basically what has been seen in the GDP as well, high frequency indicators correlated to the stringency of the lockdown.

Causal Effect of Lockdown on Health and Economy

Let us talk about the causality-whether are these correlations,? Or are these indeed causal? Can we attribute this to the stringency of the lockdown itself? Or is it something else? As I mentioned with the story from the *Kathopanishad*, to show causal impact, we need to show that other factors are not counting for this correlation. What could these other factors be? It could be that Indians have higher immunity than others. It could be that the BCG vaccine that all of us have got, maybe which other countries, especially advanced economies do not administer, provides us immunity against the pandemic. It could be that the environment that we live in, which is quite different from that in the advanced economies, gives us immunity and therefore reduces deaths intrinsically. Or maybe we are just basically better equipped to handle pandemics compared to other countries. Indians are by nature, more resilient to handle a pandemic. It could be anything else but the intensity of the lockdown. We are taking into account anything that is at the India level, that is, peculiar to India.

I have told about the strong correlation of cases and deaths across states with the stringency of the lockdown. Also, a similar negative contemporaneous correlation and a positive lag correlation with economic indicators, the V shaped recovery. Both of these

were correlations with the stringency of the lockdown. Now, here is where I think the state level analysis becomes really very important. People in Maharashtra have gotten BCG vaccine, people in Kerala, Karnataka, Uttar Pradesh, Gujarat… every state has got that BCG vaccine. If it is that Indians on an average have higher immunity then every state- be it Maharashtra, Uttar Pradesh, Bihar, Gujarat- every state has more immunity. So, every Indian has more immunity. If it is the case that the environment in India is actually different and, let's say, less clean and that's what gets us more immunity, i.e. less clean across all states compared to the advanced economies, then it is true for every state.

If you have something that is common across all states, that cannot lead to a correlation across states, because anything that is common will get netted out. Actually, the correlation discussed earlier cannot come from India specific or some *India peculiar factor*. This is an important point, that, *anything peculiar to India must be common to all states*. So differences across states that lead to this correlation cannot stem from factors that are specific to India. So, what we have seen across countries, India's better performance cannot come from just something that is specific to India because the same pattern we are seeing across states in India as well.

As in the story from *Kathopanishad,* if we have ruled out that India specific factors could not have explained the higher, the much better health outcomes or the V shaped economic recovery, then that means that basically, it is a policy that we implemented. And as you recall that policy was implemented based on careful research, and that is indeed what had a causal impact on saving lives and on economic recovery. It is very crucial to understand that the credit must be given to the decision makers. People like us can only recommend, and do not deserve credit. Because it is the decision maker, who have to actually take the costs that come with the decision as well. They are the ones that get criticized as well. So, for them to have had the courage to take the short-term pain for long term gain, the credit has to go to them in implementing this far-sighted policy.

More Deaths and Worse Economic Recovery without the Policy Response

It is also important to focus on the last bit of the health part, and then I will talk about the economic policies that the country implemented. It is important to understand that even if we did not have the intense lockdown, the impact on the economy would have certainly been there, as seen with other countries as well who did not have as intense a lockdown. Yet their economy has suffered, why? Because individuals would not have gone out anyway because of the fear of catching the pandemic, even without a lockdown. Contact based service sectors would have been severely impacted because of this. Those of us who were going for a massage or maybe to a beauty parlour or for a haircut, would have reduced it significantly. We started some of that in a careful manner only during the unlock phase.

Importantly, the precautionary motive to save - this is just economic jargon in some sense and let me put it in simple terms. Every household when faced with uncertainty around March or April, if they had some money, let us say Rs. 20,000/ Rs. 30,000 rupees as savings, then rather than going in and buying a discretionary item, may be a television or some other item, the family would have thought that let us keep this money because we may need it if somebody becomes sick given the pandemic. So, let us not go and spend this money. That is what is basically the precautionary motive to save. When uncertainty

is high, as it is, when there is a crisis, people, in fact all households, actually save a lot more. Every household thinks the same way, that let us not spend on unnecessary items at this point in time, just focus on essentials. Discretionary spending would then have indeed come down in the economy. And it did. Even without the lockdown, this would have happened.

The risk aversion and the uncertainty of demand would have impacted corporate investment as well. Because investment is irreversible, it is basically with long gestation typically, and it is bulky, Corporates do not invest unless there is certainty of demand and there is not enough demand. There is a risk aversion. Given the risk aversion and the uncertainty of demand, corporate investment would have any way gone down as well. Both consumption and investment would have declined as a result of just the pandemic. So even without the lockdown, the pandemic would have created significant economic impact, which it has.

By the way, the IMF reports, for instance, the June 2020 report, the World Economic Outlook had mentioned that, if you look at the proportion of countries where the GDP is going to decline this year, it is the highest in a one and a half centuries, highest in 150 years. So, that was just a pure effect of the pandemic with or without the large lockdown they had, because many other countries did not have this kind of lockdown. And yet the impact of the pandemic has been there.

What a lockdown has done, it ensured a coordinated response and thereby saved lives and enabled a V shaped recovery. Because all of us in India, oftentimes, have this *chalta hai* kind of attitude, many a times we may not have appreciated the severity of the pandemic and this coordinated response that the lockdown brought in and the understanding of the enormity of that pandemic, I think that coordination really helped in saving lives and in enabling the V-shaped economic recovery.

Calibrated Demand Side Policies

Having talked about the health policy, now, let me talk about the other part, which is actually something that I mentioned. If you recall, I had mentioned that research from the Spanish flu pandemic had shown that an early intense lockdown not only helps in saving life, but also enables a robust economic recovery, which is what India is seeing now, during the unlock phase. So, let me also talk about the economic policies that basically has helped with and led to this recovery.

Firstly, let me talk about the balances in the Pradhan Mantri Jan Dhan Yojana. You would have seen this yourself, what has happened. In terms of the aggregate numbers, you may have all seen it in your individual banks, but, we see it at the aggregate macroeconomic level. These 40 crore odd accounts that are at the bottom of the pyramid, consume almost everything that they earn, typically. Economists say that the marginal propensity to consume for such households at the bottom of the pyramid is close to one. In other words, if they get 100 rupees, they're likely to consume the entire 100 rupees, they're not likely to save as much. And that is why I'm using the numbers from this section of society.

Notice that during the lock down phase, in these accounts, the average balance increased by 400 rupees. This is because, of course, essentials were provided for. It is by far the

largest free food program covering 80 crore people. I think that might be the largest free food program ever in the world, for 800 million people. So, the essentials were taken care of. Direct benefit transfers were also provided to the vulnerable sections of society and that is why, there is an increase in these balances. If they were spending, then this balance increase would not have happened. 400 rupees in 40 crore accounts, i.e., about 16,000 crores of increase happened in these accounts and, of course, has since come down during the unlock phase. But even then, the average balance is higher than the pre COVID phase? As of 1st December, it's still higher, which I'm sure you've seen in your own deposit books as well, the increase in the PMJDY balances.

The reason I'm pointing this out is that this shows that during the period of uncertainty, the discretionary spending would not have increased. Central government expenditure increased during this period especially during the Unlock phase. Up until September, the expenditures did not increase as much but from October, you will see that the government has stepped up its capital expenditure- increased by about 130% in October, 250% in November and 82% in December. Now, the idea behind this was that India's policies at the start of the pandemic, would focus purely on ensuring necessities, as I said, the free food program. This was optimal given the uncertainty and the resultant precautionary motives to save. A simple analogy is that, if you think about a car, when the brakes are clamped on the car, pushing on the accelerator at that time only wastes fuel. And that fuel in this context was the fiscal space that we had which was not large. We did not want to waste it at that time.

That is why India actually saved and focused only on the essentials during the first six months because economic activities were restricted. So anyway people, if you give them cash as well, would not have been able to go and spend it on discretionary items. Hence, it did not make sense to go and give transfers at that time. But during the unlock phase, calibrated demand side measures have been announced and now with a budget, the demand has been pushed significantly using the focus on the national infrastructure pipeline as well. That is what is also being seen in the Central Government expenditures.

Supply Side Policies

India also recognized very well that the impact of the pandemic is not only on the demand side but on supply side as well. That the disruptions in labour markets and financial distress of firms could lead to loss of productive capacity. Therefore, a slew of structural reforms was announced to enhance supply in the medium to long term, and thereby avoid loss of productive capacity. These reforms primarily focused on strengthening the primary and secondary sectors of the economy., (primary is basically agriculture & secondary is manufacturing) These create a lot of jobs in the economy and can thereby enable aggregate demand. A slew of reforms including streamlining of labour laws, broad based reforms in agriculture, MSME, services, power, mineral sector, space, defence, have been announced. And what I think is extremely crucial, the strategic PSU policy that was announced as part of *Atmanirbhar Bharat I* and also implementation of which has been announced in this budget as well, will enable productivity improvements significantly in the economy. So, all of these will have significant supply side impacts, going forward.

Principles Driving Economic Response

Let me now highlight some key principles on what drove our economic response.

(1) Principle # 1: Only Demand ↗ vs. Demand + Supply ↗

If you only increase demand, then you may get growth in the short term, but you will also get significant inflation. When supply is unchanged and demand has increased, there is an increase in quantity wherein the GDP increases, but there's significant inflation as well. On the other hand, when both demand and supply increase, then GDP increases but you do not get as much inflation… some inflation does happen, but not as much. This is a key principle that has actually driven India's economic response - that we needed to work on both demand and supply, not just demand. Because if we only increase demand that would have actually led to, going forward when the economy actually recovers, a runaway inflation.

When only aggregate demand is raised in the economy without any change in aggregate supply through increases in revenue expenditure, the growth that results comes with high inflation. But when aggregate demand and aggregate supply both are increased in the economy through structural reforms and public expenditure on capital, the growth that results do not come with high inflation as much.

(2) Principle # 2: ↗ only Revenue Expenditure is myopic while ↗ Capex is far-sighted

The second principle that impacted or that underlined India's economic response was that if you do only revenue expenditure, that is myopic. While increasing capital expenditure is far sighted and gives you much more bang for the buck. There is an NIPFP study which shows that when the government increases revenue expenditure by Rs. 100, only Rs. 98 or Rs. 99 gets added to the economy. About one or two rupees actually gets lost. There is no multiplier effect of the increase in the revenue expenditure. Therefore, this creates an impact that year but there is no impact at all going forward. In contrast, when the government increases capital expenditure by Rs. 100, Rs. 245 gets added to the economy in the same year. It comes of course due to jobs and demand creation, discussed later. In other words, about 2.5 is the multiplier in the same year from capex and about Rs. 480 gets added in aggregate over the next several years over the lifetime of that capital expenditure. So, the impact is first *large* and second, it *extends over time* and therefore, when compared to increasing revenue expenditure, increasing capital expenditure is a far-sighted policy response. Just increasing revenue expenditure is myopic while increasing capital expenditure is far-sighted given this evidence.

(3) Principle # 3: Capex ↗ demand & supply while revenue expenditure only ↗ demand

The third principle is that the capital expenditure increases both demand & supply while revenue expenditure increases only demand. Now relate it to the first principle that I spoke about. The reason for this is, revenue expenditure only puts money in the hands of the people in the short term. Transfers, given the crisis, do not provide assurance to people that there is a permanent increase in income, because households will know that these transfers that are given, may be withdrawn. Because of that uncertainty, when transfers are given, people save a lot more & they do not spend it. So, the increase in demand is not as sharp. This is seen not only in India but also in other countries. A lot of macroeconomic research has highlighted that revenue expenditure does not increase the

demand as much. The increase in demand is not a sustained one & there is no increase in supply as no assets are built in this process (when you do only revenue expenditure).

In contrast, when capital expenditure is increased, construction activity goes up, jobs are created in informal & formal sectors. And nothing like a job to actually increase consumption because it raises permanent income of people. Construction activity also has linkages to several sectors such as steel, cement & many others where demand increases because of construction. As demand increases, these sectors invest in capital expenditure. Private capex goes up & they also hire more people. Even on aggregate demand, capex actually creates sustained aggregate demand while revenue expenditures create it only ephemerally. And importantly, capital expenditure creates assets & increases aggregate supply in the economy. Apart from reforms, capital expenditure also helps in increasing supply in the economy. This is the third key principle that we basically brought into effect.

(4) Principle # 4: Capex 'crowds in' while revenue expenditure 'crowds out' private investment

The final principle is that the capital expenditure 'crowds in' private investment while revenue expenditure 'crowds out' private investment. What is this? This is basically a jargon that when you have capex, more investment comes in from the private sector. This is the '*crowding in'*. While if you do only revenue expenditure because the government borrows into the pool of same loanable funds, the pool does not increase & you have '*crowding out'*. And that is the fourth & final principle that has basically driven the economic policy response.

Global Financial Crisis (GFC) vs Asian Financial Crisis (AFC)

Now I think the crescendo for the entire economic policy response has been the budget. As the honourable Prime Minister has already mentioned, *Atmanirbhar Bharat I, II, III* were mini budgets but the crescendo really came in this year's budget delivered by the honourable Finance Minister which implements all these principles in toto. Before I come to that, let me give you some evidence of these principles in action. I am going to contrast the policy response to the Global Financial Crisis by India vs the response to the Asian Financial Crisis. Again, I am only focusing on Indian response, not on other countries.

After the Global Financial Crisis, capital expenditure actually went down. Revenue expenditure went up and there were no structural reforms that were done at that time. For instance, MSMEs basically were loaded with a lot of regulations, etc. None of that was eased at that time and therefore export response could not happen. So, no structural reforms were done & capital expenditure declined. Based on the principles that I outlined, when you do only revenue expenditure & no capital expenditure and no reforms, there is no impact on supply. Supply remains static. But demand goes up because of the increase in revenue expenditure & so you get runaway inflation. This is exactly what happened after the Global Financial Crisis. The peak inflation was about 14%+ & we had double digit inflation for a lot of years because of this. This is something that an Economics student learns in Econ 101 that is, if you just increase demand & keep supply the same, runaway inflation is what you get. Growth increased temporarily, because of the fiscal expansion

that happened through revenue expenditure but no assets were created. The fiscal strain that it created, also led to a huge current account deficit.

When demand increased, and because domestic supply did not respond, a lot of people started doing imports. Imports increased significantly, exports…nothing happened because there were no reforms (that were done) & so the current account deficit deteriorated very sharply. India had high inflation, high fiscal deficit & high current account deficit. So, all the three came together & that is why India had the 'macro crisis' in 2013, the 'taper tantrum'. This basically came from the principles & policies that were followed at that time.

In contrast, if you look at the Asian Financial Crisis, at that time capital expenditure was stepped up. The 'golden quadrilateral' was built after that & structural reforms were done. The new telecom policy was implemented & led to the telecom revolution. Also, the small-scale reservations were removed at that time which actually created an increase in supply. The capex that happened also brought in private investment & private investment increased significantly over subsequent years. As a result of that, we had 8%+ growth & there was no high inflation at that time. The data attests what I outlined in terms of the principles & that 8% growth happened for several years without any macro crisis even though the debt to GDP ratio at that time went to 83%, a historical high. The debt to GDP ratio went to 83% because of the public capex that was done. Despite that, there was no macro crisis after the Asian Financial Crisis, again illustrating the principles that I just outlined.

In the COVID crisis, India's response basically follows the same successful template of the Asian Financial Crisis but at a much higher scale. The reforms have been far more impactful, lot more labour reforms, MSME definitional changes, private enterprise policy, opening up of several sectors, financial sector reforms now announced in the budget, the enabling of public sector DFI, etc. The reforms have been at a much higher scale & public capex also is going to be at a much higher scale both on the soft side, which is health, and on the infrastructure. In the budget estimate for the coming year, at about 2.5% of GDP, capex is at a historical high in terms of both Rupees & percentage GDP.

As I said, the budget has basically been the crescendo for the economic policy response. So, let me just spend a couple of minutes on that. Many of you have seen it, but I will give you a macro perspective on the budget as to why I think this budget actually lays out a path for growth not only in the coming year (of recovery) but also as the first budget of the decade. It lays out the foundation for sustained growth over the entire decade.

Healthcare is at 135% increase, both on prevention & on cure. By the way drinking water, sanitation, are all part of preventive healthcare & therefore very important. When you put that together, 135% increase in healthcare impacts labour supply & labour productivity. Healthcare has been shown to improve labour supply & labour productivity. Infrastructure funding has been focused on three primary areas: railways, roads & power. I will again give you the macro perspective on how this impacts. Infrastructure focus on railways & roads impacts logistics cost. So, as this infrastructure gets rolled out & the impact of that comes to the economy, logistics cost should go down. Infrastructure focus on power will help in reducing the cost of production as power is a very important input

for production especially in manufacturing. So, both these aspects of infrastructure (roads & railways and power) would actually affect the factors of production.

Public infrastructure, as I already said, *crowds in* private investment, triggers the virtuous cycle of investment, growth & consumption. This virtuous cycle is something that we had highlighted in the Economic Survey of 2018-19 where we had basically looked at countries that grew at 5%+ growth rate for at least a decade. And what we found was that each country implemented this virtuous cycle of investment which led to economic growth, which led to higher consumption & thereby anticipating more private investment. That is how the virtuous cycle led to growth in all these countries. So public infrastructure can trigger that virtuous cycle & that is why it is an important part of the budget. Financial sector reforms affect the other factor of production which is capital, and the enterprise policy focused on private sector to improve productivity. So labour, capital, productivity, and the other factors of production like logistics cost & power cost, all these have been covered. So, from a macroeconomic perspective, all boxes have been ticked on what actually accounts for the GDP in the country.

Let me just summarise at this point time. In my well-studied opinion, if I can actually take the liberty to say so, based on the analysis that has been done in the Economic Survey, India's policy response to the COVID pandemic has been a mature, far-sighted one. As I have highlighted, India focused on saving lives & livelihood, took short-term pain for long-term gain and thereby converted this trade-off between lives & livelihoods into saving both lives & enabling economic recovery. The demand side policies were calibrated. We pushed the accelerator only when the brakes were removed & thereby, saved fuel or in other words very crucial fiscal space. India was the only country to announce structural reforms to take care of the supply side & enhance supply and also public capex to trigger the virtuous cycle of investment growth & consumption, also adding to the supply side in that process. With a V-shaped economic recovery that is happening without a second wave, while cases are coming down & mobility is increasing, India is a *sui generis* case in mature policy making in my opinion.

When history looks at India's policy response, given that this was a pandemic that came after a hundred years, history will indeed look at how India responded to this pandemic & history will be very appreciative in India's policy response. Finally, the mega vaccination drive that is on should also enable recovery in services because the fear of the contact-based services would reduce with vaccination. Overall, I must again emphasise that it is the decision-makers that deserve all the credit for having had the maturity to take some short-term pain for long-term gain & India has actually benefitted from their maturity.

Thank you very much.