IV   Macroeconomics: The Whole and the Parts

If you take macroeconomics, what is valuable there? How do you say what is important and what is not important? What is important or what is worth knowing in macroeconomics is something which you cannot get simply by looking at yourself as an isolated individual, through individual based 'knowledge by introspection'. Almost everything of microeconomics, except a little bit of strategic information among parties with conflicting interests like buyers and sellers, or a non-transparent government with much to hide from citizens that may be related to game theory, concerns a single individual – you or me, the so-called Robinson Crusoe, an abstract 'methodological individual', isolated or influenced little by neighbours or society. What does the individual purchase? What is it that she does not purchase? How to make a choice, etc., given her budget constraint? (You do not ask how budget constraints arise.) That is what microeconomics talks about. It is a businessman or a housewife or a consumer or a producer operating solo in the market economy. When does that knowledge mislead us? That is the question we should ask to define what actually should be the core of macroeconomics.

From this point of view, macroeconomics is not the same as saying there is one individual, it is micro, and then you magnify to ten or ten million individuals, or ten billion, and the aggregate becomes macro. If you put ten individuals, it will just make it ten times bigger, but it doesn't become macroeconomics! And yet, half of recent macroeconomics does precisely that, and that is a problem. The representative individual, implausibly rational and maximizing, is the metaphor used in this view of macroeconomics currently fashionable in many leading Western universities. If you look at what goes as core macroeconomics there, it is a lot of mathematics, and that

mathematics comes from the maximising rational individual operating in isolation with a very long (actually infinite!) time horizon and linked to the market only through his or her budget and (given) price. You think of a representative maximising individual, and then say there are n number of similar maximising individuals. That is how this class of theories work. Multiplied by n for one prototype individual, that is all. That is how 'methodological individualism' works, and many Nobel prizes were given recently in macroeconomics because of its impressive mathematics celebrating the 'freedom of individual choice without state interference' in a well-functioning market economy as a comfortable model of modern capitalism. But this is a false start. Hopefully, the recent crisis would increasingly force us to see this is a false approach.

And yet, economics is a subject where evidently false approaches and counter-intuitive assumptions can persist, not because of their relevance, but because of their ideological implications, and their power to reproduce themselves through reward and powerful vested interests. You learn the required algebra and get your professorship in a known university, may be even Nobel prize, and acquire intellectual respectability to propagate what the powerful interests would be pleased to hear. And then you simply continue on the same track because it gradually becomes your vested interest.

To make a real start in understanding macroeconomics, the first thing which one needs to know is that it investigates the *fallacy of composition: what is true for the individual is not true for the society.* At many places we ask the question: W*hy is the whole not equal to the summation of its parts*? And this question really makes the basis of macroeconomics. The best answer to this question in the context of capitalist economies was given by Keynes (and independently by the Polish economist Kalecki a few years earlier). He is undoubtedly the most influential economist of the 20th century. You have to

recognise that macroeconomics is about how the whole is different from its parts. *Why? Because what is true for the individual is not true for the society.* Now Keynes tries to explain it in many ways, because it was a relatively simple but new idea that he was trying to put forth to change the course of economics.

Let us take some examples.

All of you know and many of you perhaps teach the *paradox of thrift*. If everybody saves all their income, to take an extreme case, obviously there will be no demand. So, is savings good? If you can easily ask this to a 10-year-old, you can certainly ask this to someone in eleventh class in school!

Take another example: *the wage cut controversy* which actually is an application of game theory. Suppose there is one firm, which cuts its wage and cuts its cost. It helps that firm to increase market share in so far as it becomes more competitive with lower costs. However, if most other rival firms also cut their cost, does it help? No, because *relative* positions don't change. Now go a little bit further, come to the present context. We want to globalise. We cut our costs, let's say, in producing tea. And what do we hope to get? We hope to get better export performance. This sort of strategy is after all the big part of trade liberalisation. We hope to increase exports and to be more internationally competitive. That is the government's intention. Suppose all our neighbours do it, as they really do at least in the case of tea or textile. Isn't this similar to wage cut? So where does unilateral cost-cutting or concession to foreign direct investment (FDI) leave you? Usually it is a 'race to the bottom' in giving concessions with relative positions unchanged.

Take another example: you decide to attract industry by giving it incentives. So Mr. Modi in Gujarat gives incentives to the industries. Mr. Bhattacharya, as CPI(M) chief minister in West Bengal, did the

same, as did Mr. Navin Patnaik in Orissa. What happens in the process? Everybody is involved in a competitive game of race to the bottom, and who is gaining in the process? Industrialists. I could multiply these examples. You give concessions to private industry in terms of natural resources – land, mineral resources, forests, mountains, water and coast lines. It is a race to the bottom in which private industries gain. These are all examples similar to the wage cut controversy, similar to the idea of relating to savings and the paradox of thrift. They are all examples of what is true for the individual is not necessarily true for the society, and for understanding macro consequences of individual decisions this line of reasoning is essential.

One last example, a familiar one because it is so common nowadays, almost in the entire corporate sector: Every corporate manager, every new chief executive officer (CEO), not only in India, in Germany, in America, in England, but everywhere, says that (s)he wants the corporation to be more efficient, more 'lean and hungry'. That is, fewer people must produce more. For example, the data shows that Tatas have recently cut down their labour force to half in steel production and still produce five times more with better technology. Suppose everybody cuts down employment in a similar manner, called 'down sizing' in management jargon (which means cutting down the labour force maintaining the same or achieving a higher production level). Suppose also that everybody manages to cut down their labour force without increasing wage proportionately. Can you tell me what will happen? You will have the same effect that you would have in the paradox of thrift. Who will purchase these goods? To some extent, it may not become as obvious in a particular sector such as steel, but it will be a similar problem when we consider a range of industries together.

This is why a basic difference arises between Keynesian and non-Keynesian (or what is called neoclassical) macroeconomics. The

difference is not in a set of equations. It simply says that if you are producing for the market (what Marx would have called producing commodities, i.e., you are not producing merely for self-consumption but for the impersonal market), you must know whether the market will purchase it. And if you want the market to purchase it, you have to know whether there is demand for it. However, demand, more than anything else, depends not on taste but on the purchasing power of people. If you cut wages of everybody, you have the aggregate demand problem. Nevertheless, Keynes was different from many others (known as under-consumptionists) because he said that if you cut wages then there is another thing that you can do to maintain aggregate purchasing power: you can increase investment, public investment or other investment, to add to demand in a closed economy.

So the basic thing which the students have to realise is: *for a macroeconomy, demand can be a problem and this problem of demand you do not understand by looking at the individual.* And now the theoretical insight comes. Because individuals typically have fixed income, we know how much they can demand at a given price. If I think of myself or of any one of us, we have fixed incomes and a downward sloping demand curve makes sense. But where does aggregate demand come from when you think of economy as a whole? This actually was the theoretical contribution: *demand is generated by expenditure.*

If I say that expenditure is what gives income, how do I justify it because it goes against individual intuition? This is the notion of the 'multiplier', arguably the most powerful notion in macroeconomics. You can teach this concept with different levels of algebraic sophistication: a convergent geometric series, matrix algebra and so on. But you can also teach it in the simplest possible way compatible with commonsense.

The notion basically says that supposing the government decides to

spend, let us say, one more, or one million more rupees on the construction of national highway. So I get the money, usually not as a labourer but as a contractor. Now I spend it on others, e.g. the construction workers. The worker keeps some of the money as savings to take home as migrant worker and spends the rest on the next person, say, the grocer, and so on, and it goes around. If you assume that everybody saves a little, that is to say, the government spends 1 and the next person spends 0.8, the next spends even less, say 80% of his income which is the expenditure of the earlier person on him, i.e. $(0.8)(0.8) = (0.64)$, and the next one spends even less... it goes round this lecture room and by the time it comes to the last or the nth person, she spends a negligibly tiny fraction of this original one unit of spending. This is the idea of a convergent series. You can teach it with the formula, or, if you want, you can cut out the formula but emphasize that it converges so long as it is dwindling at each round because there is some leakage from spending due to the saving at each round. But what it says is that there will be a magnified effect. We need to add up the previous series, $1+ 0.8 + (0.8)^2+...$ to get the magnified effect. The government spends to create the initial impact. You might never have guessed it from commonsense and somebody like a practical banker without knowledge of economics would not know it from experience. A typical politician will not understand it. To understand it, you need to know it as an example of tutored commonsense in economics. So when a government cuts down its budget, it is not only cutting down, what you hear on the TV, so many million dollars. It will have a magnified impact of this sort.

From the fallacy of composition, what is true for the individual is not true for the society, comes two things. First come these examples, namely the wage cut, the paradox of thrift and so on, and then from them you arrive at the multiplier – that is, why one rupee spent on

me really ultimately leads to approximately five (in the above example) through an almost infinitely dwindling series over time. And then you can see that it leads to much more than one rupee. It has a magnified effect because one person's income is another person's expenditure, something that is difficult to capture in theory based on 'methodological individualism'. How much the magnifying effect is depends on the leakage, the inverse of the marginal propensity to save.

As teachers, we have a tendency to emphasize precision by giving out such formulas. Formulas can be important to sharpen our ideas, but the ideas behind them come first and are even more important. I would say that students in school must be exposed to ideas without necessarily being forced to remember formulas. With a constant marginal propensity to save 0.2 in the above example, the infinite geometric series converges to the value of $\left(\frac{1}{0.2}\right) = 5$. But what is more important to understand is that at each round expenditure generates real income through more employment and production in the manner outlined above. This is possible so long as there is unutilised productive capacity – unemployed labour and excess capacity. Actually, there is nothing called full employment or full capacity in the strict sense. For example, workers can work over-time and the machine can be put to use in more than one shift, so that with higher demand generated through the multiplier production, profit and wage would also increase. Summing an infinite series, in this context, to find the total effect is an approximation, a sort of limiting value while the actual value would be less. This means that in real life you have to estimate it in more complicated ways, if you actually want to make a guess about the magnifying effect of investment on demand. But it is certainly true that the central idea which you want the students to get is that *one extra rupee injected as additional spending will have a magnifying effect on the demand generated.* This will not be true

for an individual whose income determines expenditure rather than the other way round. So one can end with the breakdown of the analogy between the individual and the society and this is the most important thing to bring out in teaching macroeconomics.[iii]

There is a second thing in macroeconomics. This is the notion of what money is all about. What is money? In a way it is the most difficult thing in economics. However, if you look at the crux, it is not the quantity theory (it is not MV=PT, please forget about all that). We simply need to say two things. The first is: What is the basic function of money? I want to sell this watch and suppose you say you will buy it for ₹ 200. So the price is ₹ 200. You will say: It is alright, here is ₹ 200, give me the watch.

Then I cannot say (well, I can change the price but I cannot say given the price) I won't accept the two hundred rupees in paper notes. Nor can I say I will take one of the pieces of your ornament rather than paper currency in exchange of it. I cannot say this legally. I have quoted the price and we all have to quote the price in a common, acceptable numeraire. This is the first function of money: to provide a common numeraire. However, if I want to sell it for ₹ 200 and you give me 4 dollars (approximately ₹ 200), I can refuse. Rupee is a legal tender (in India). If you are a citizen and if you are a resident of India, you have to accept rupee as a legal tender in all transactions in the country. I might not accept any other currency. I might not accept dollar. I might not accept Euro. I might not accept gold. But I am legally obliged to accept the rupee. That is the meaning of the team *legal tender*. I am legally bound to accept it, and this is something

that the government can create by borrowing from the Reserve Bank of India, by deficit financing. What does it mean? The Reserve Bank of India (RBI) prints notes; in return, the government tells through promissory notes to the RBI that it owes Rs.100,000 and the Reserve Bank gives currency notes to the government. Once the government gets the money, the government can spend and we are obliged to accept it in transactions. That is why we say government's purchasing power is unlimited.

Now link up the two propositions. Government has an unlimited ability to create money. And if the government spends the money, it can set in motion the multiplier process discussed earlier. Every time it spends hundred rupees, it goes round and it becomes – depending on the propensity to save – multiplied through the multiplier process, let us say, three hundred rupees worth of demand. So deficit financing is the traditional way of stimulating demand, which in turn creates employment because you expand the market. Thus you can actually link up money with deficit financing. Nothing more is needed at the preliminary stage of macroeconomics.

What I talked about so far is money as a medium of exchange and a legal tender. The medium of exchange is not sufficient, but the *medium of exchange is something which everybody in the country has to accept legally.*

The second thing which we need to say is that there is a second function of money[iv]. That is, *money is a store of value.* It means that, like rice or wheat, money can be stored for future consumption. But unlike rice or wheat, it can be stored for an indefinite and unspecified period.

I have ₹ 200 today and I may decide to spend ₹ 100 or ₹ 150 and the rest I decide not to spend but save for 'future'. What does this mean? I typically either hold it in currency or I buy some paper asset which

will give me some interest. If I decide to do the latter, what am I doing? I will spend the money sometime in the unspecified future. It is a store of value for me. We all understand this. And this is why the simple *quantity theory of money* is wrong. You know that the famous British philosopher David Hume had said – and this still goes around –that if you double the quantity of money, prices will be doubled; which is what we know as the quantity theory of money.

Now, the reasons why prices will not necessarily be doubled are two. One is that people will hold some of the money which is now coming into their hands. The entire amount will not be spent. Two hundred rupees will not enter the purchasing power; only a part of it will. And second, if someone spends it, there will be a multiplier effect. Consequently, demand increases. And in situations of depressed demand, what will happen? People will begin to produce more. Earlier you were not producing because there was not enough demand. Now there is more demand, so business will produce more without the price necessarily rising, because there is an excess productive capacity which they wish to use. *Money has led to increase in production. And when this is expected to happen, deficit financing need not raise price.*(This will be true in some cases, not true in some others. To what extent would it be true in India today if the government spends more? I tend to think that in certain sectors it will help production, for example, textiles. There was a time when we were all talking about employment guarantee. Then the government could have spent, and I think this could have been used to create more output in rural areas without inflation because there were foodgrains rotting in warehouses. Today the situation is not quite like that.)

Like everything in economics, this is something which depends on the time when you are saying it or the context. If you are really honest, this is where your politics comes in. The same policies do

not hold all the time. Nationalisation or deficit spending is not always good; nationalisation or deficit spending is not always bad. It depends on which industry, at what time, i.e. the context. This is what you need to teach students over and over again. To be good citizens who can use their economics effectively, this is the thing they need to remember: *that economics, unlike natural sciences, does not produce the same result all the time.* Unlike chemical elements, economic policies do not combine in the same way all the time (even chemicals react differently under different degrees of pressure and temperature). So if something was true at one time, it is not true at another time, in another context. And 'when' it is true is much more important – the conditions. Economic empiricism and evidence are crucial for this reason.

To reiterate, these are the two things, I think, you really need to teach students. First, there is a fallacy of composition. That is why you need to know macroeconomics as a branch of knowledge distinct from microeconomics. Second, money is a very special social device by which things are brought together because everybody is legally obliged to accept it. It also links to the future, when I decide to spend more. You will have noted that this is also related to the demand problem. Why? If everybody saves and holds their money, things are not going to be good for the economy because it is the withdrawal of purchasing power. Anything which is held in money without being spent during that period amounts to a withdrawal of purchasing power. And in that period, if there is a shortage of demand, it becomes a problem. Money, in short, is a double edged weapon. It facilitates transaction because everyone is obliged to transact in it; it also hampers transaction *at each point* of time, because it may be kept aside as a store of value for spending at some future date.

V   Indian Economics and Quantitative Methods

The school textbooks and even college textbooks which I have seen usually have enormous information. Actually at times they have some information which I did not know as a professional economist. Yet, just raw information is not what you want to give students. What do you want to give them? One, we want to give them a kind of broad historical view: What the Indian economy was at the time of independence and what it is now. This is done in different dimensions: How our income has grown or our GDP has grown. How it has changed its composition by sector, by occupation, etc.? How much of agriculture, industry or services? Nothing more. And then, how it is today. This every book does and I am sure every school/college does it. But why do you want all the data about GDP, its changes and so on? Why do you need it? You need it because we also want *to know what this income does to the people*, i.e., how it is distributed among sectors, by income groups, among regions, and hence the question of poverty. You just look at what is happening to the top 10 or 20 per cent and what is happening to the lowest 20 per cent. The data is very much available and you can see what is happening. Yet school textbooks do not usually highlight it enough, especially how the GDP, the pattern of income distribution, has changed over time.

To illustrate, we all know that India grew at around 8 per cent for the last 20 years. The rest of the world grew at something around 3 per cent in the last 20 years. So India grew at an impressive rate. Now, you look at the data on poverty. You look at the data on poverty, i.e., people who are below the nutrition norm. You will see something
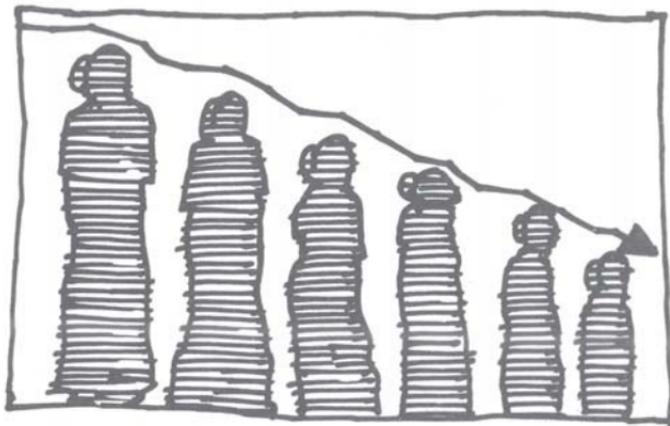
absolutely striking and this will explain what I am trying to say. India in 1980 had somewhere close to one-fourth of the world's poor or less, about 20-25 per cent of the world's poor. 20-25 per cent of the poorest people in the world were in India in 1980. Since then, India has grown at twice the world average. What has happened to poverty? India's share today is close to 40 per cent of the world's poor! This means that the rest of the world including sub-Saharan Africa reduced poverty faster than India though they grew slower. One way to link output growth with the question of inequality is to try to explain this. The rest of the world have reduced poverty faster and grown slower! Students should be told to think about it. Do you ever hear it on TV? Do you ever hear our prime minister say this? Do you ever hear our finance minister worried over this? Such questions are killed by silence, deliberate or otherwise. Good teaching of Indian economics would be to raise these questions and ponder over their answers. If you say poverty has been reduced due to high growth (trickle down), you should be able to discuss it in this context.

The students need not know the precise numbers – they actually do not exist because they depend on definitions that keep changing.

This is particularly true for macroeconomic aggregates and their measures over time.

Like in my previous discussion of micro- and macro-economics, in Indian economics too ideas should be emphasized with robust quantitative measures giving orders of magnitude. The above example, that, *higher growth in GDP with slower removal of poverty compared to the rest of the world,* is one such example of qualitative use of data. To get into detailed measures of poverty etc. often amounts to diverting attention from the main question. How poverty grows or does not grow depends significantly on how the employment and livelihood situation is changing. So the second thing to know about is the occupational structure, the change in it, and what has happened to occupational structure.

Our record has been poor during the period of high growth. India grew at 8 per cent and regular employment grew at 1 per cent. In the earlier period, India grew at 4 per cent and employment growth was 2 per cent. So employment growth has slowed down. We need not go into why and how, but we need to know this trend because that is one of the biggest contributors to the relative poverty problem. So the output data. And people who produce the output. That you produce *more and more output with less and less growth in the number of people decently employed.* That is part of the logic of the corporate growth. The third thing we need to know is why is India a very rich country, only after the United States! I do not know whether you know this. India has the largest number of multibillionaires now, only after United States. (The Chinese data is uncertain because of Taiwan and Singapore.) Now it has crossed 50. Only the United States has so many. Now, if I tell you something more – do you know the Reddy brothers in Bellary, Karnataka? Did you know that Bellary has the maximum number of private aircrafts? Now this is what the students need to know: *extreme growth of income on the one hand and extreme*

poverty which is reducing at a much lower rate. We are producing billionaires and producing poor also. I think we need to pose this as a question for students to ponder and then they might begin to see the significance of scam after scam producing the billionaires. (A good project would be to identify the 50+ dollar billionaires in India and their known source of wealth.)

And this is what much of the problem is about. Much of the problem of our politics, much of the problem of our political parties. One last statistics. Today, more than 300 people in our parliament are literally multi-crorepatis by official declaration of their assets. If you take the unofficial assets, I don't know how many will be left out! You cannot fight elections today without spending several crores. Somebody told me the average is ₹ 8 crores for a parliamentary election. So any one of us is out of politics because we are simply priced out as ordinary citizens from electoral politics! People you will be teaching in school will certainly be there to see the future of this democracy. I think they should be sensitised to these issues and that is the real importance of Indian economics. They might then begin to ponder how much content is there to this form of democracy. It can only do good to any democratic form of governance if citizens are more informed (information is a strategic variable manipulated by governments).

In quantitative methods, there are two things that we need in terms of statistics and mathematics. Let me start with algebra. In microeconomics most of the things become much easier to explain with a little bit of coordinate geometry and, at a slightly higher level, with a little bit of calculus to explain the marginal condition. Once you have drawn an indifference curve to say that this represents ordinal choice, then, you can also use calculus/geometry to state the tangency condition rather than giving it as history. This is more than what students should require at the school-leaving level in terms

of mathematics – a little bit of coordinate geometry and a little bit of one/two variable calculus. The second thing that we need is statistics. I don't know whether you teach regression. I think this is one thing which is absolutely basic and needs to be taught. That is, central tendencies, mean, median and mode, and how the three are different. You can calculate mean, median, mode standard deviation for any set of numbers and can show how they are different. And then you show simply a picture of a normal distribution, where the three are together. I think that is enough. This is more than enough given what a student of +2 level can absorb. You can use income/consumption distribution data to illustrate.

The basic problem of our teaching is that so much pressure is put on students and on teachers at school level. Teachers are given so many books and are told you teach this in micro, that in macro, in statistics, in algebra. I think this does not help anybody, students or teachers. For people who stay in academics, what really makes the difference in terms of originality and sustained interest is a *grip on the basic ideas and examining their relevance*.

Take Indian economics. It has all kinds of information that overwhelms. You might choose not to have this or something else, but some basic information which you think is important, and why it is important needs to be explained. I think this is important today. There is so much talk of market, liberalisation and high growth. We should know the other side of that. You can have your political bias and if you are intellectually honest, you can say this is the bias you have. That is one's personal choice. You can certainly say, "This is what I think". But economics should let you reason why you think so. Otherwise, like so many others, you might just end up believing that the day-to-day stock market movement indicates the health of the economy or that high growth is good for everybody. To be able to question and examine critically such widely held views is the purpose of economics.

This is how you stop being fooled by other economists or the media (as I said in the beginning) and begin to develop your own independent understanding. It can become an exciting branch of social enquiry when a student begins to see this as a joint learning process with the teacher, related to the world around.

Endnotes

[i] The extreme philosophical position of 'logical positivism' would have us believe that realism of assumptions is irrelevant and that it is the conclusions that can be tested to settle matters. However, tests are not unambiguous in a subject like economics without controlled experiments, nor is it true that a unique set of conclusions necessarily follow from a given set of assumptions.

[ii] The ordering of information as hard or soft is not context free, e.g., the probability of a higher percentage of people dying of violent car accident, or in a situation of war, may be higher.

[iii] These are some of the ideas more important to discuss than only the formal derivation of the 'multiplier'.

[iv] Actually, Keynes was the one who put it most clearly, and a whole controversy arose over it later – between the monetarists and the Keynesians.

Amit Bhaduri is one of the leading economic theoreticians of the country. He was educated in Presidency College, Calcutta and then studied at Massachusetts Institute of Technology and Cambridge University, where he received a Ph.D. in 1967. He has taught at many universities around the world and published more than 70 research articles in reputed international journals.

Besides his contribution to the frontiers of economic research, Prof. Bhaduri has written several important books for the general reader, interested in economic issues. These include: *An Intelligent Person's Guide to Liberalization* (co-authored with Deepak Nayyar), Penguin, India, 1996; *Development with Dignity*, National Book Trust, Delhi, 2006; *The Face You Were Afraid to See*, Penguin, India, 2009. Through these and other writings, Prof. Bhaduri has repeatedly drawn attention to the centrality of employment in our economics and politics. `Development with dignity' is the desirable alternative to the present model of economic development that has resulted in GDP growth without concomitant growth in employment.

Eklavya is a non-government registered society working in the fields of education and peoples' science since its inception in 1982. Its main aim is to develop practices and material that are related to a child's environment, and are based on play, activities and creative learning.

Eklavya has extended its area of work to publishing titles on education, popular science, teaching modules, activity books and literature for children, and books on wider issues of development. We also publish three periodicals: *Chakmak*, *Sandarbh* and *Srote*.

Please send your comments and suggestions about the content and design of this book. This will help us make our future publications more attractive, interesting and useful.

Write to: books@eklavya.in

E-10, BDA Colony Shanka Nagar, Shivaji Nagar, Bhopal 462016 (M.P.)