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Expanded Keynote Address delivered at the National Conference
on Economics Education in Schools, NCERT, New Delhi,
March 4-6, 2010.



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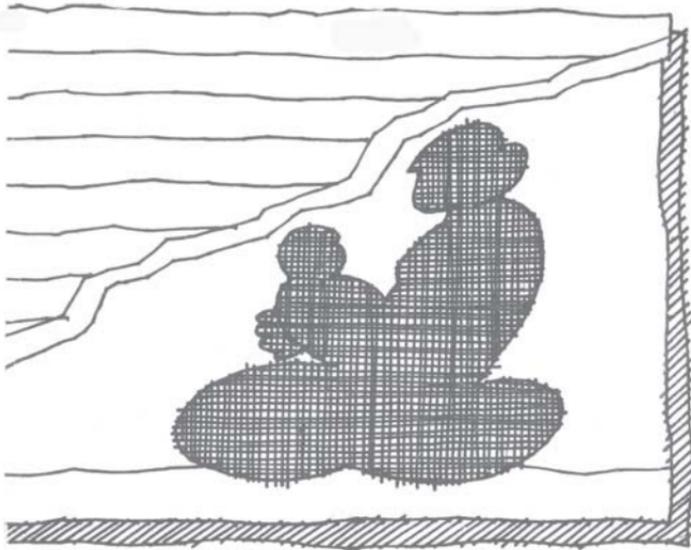
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I Introduction

What do we want economics to do? I think we want economics to *demystify* economics! If the media says somebody is a great economist and, therefore, when (s)he says that 6 per cent budget deficit is very serious for the country, one must be prepared to question it. This is typical of the kind of nonsense you must have the intellectual confidence to know is nonsense without closer reasoning or evidence. A famous economist once said, economics is a very important subject not for what it teaches, but because it prevents you from being fooled by other economists. Almost every time you open the television and hear pundits talking about share prices going up, therefore “India’s economic health is much better;” or “India is having an 8 per cent growth rate” and therefore “we are in a wonderful economic situation” or “the problem of poverty is going to be solved soon with high growth” – you must know where the (usually motivated) bluff is. Share prices change every day, often drastically, but the real economy changes far more slowly and even in the opposite direction; you see too many poor people around you, extensive malnutrition, children begging, farmers committing suicide in despair; all this despite two decades of high growth. You should have some



confidence in what you see, to take into account real life experience, to think how representative is what you see, rather than what some economist, statistician or textbook says. This is the first reason why some exposure to economics is important for all of us even as the common citizen. It makes us questioning citizens who keep democracy healthy.

I try to talk to common people, and to write books which do not basically require much economics, or any economics if one trusts their commonsense. It is our duty at various levels to demystify economics. To know that a budget is really not much more than housekeeping and the real difference between a budget and housekeeping is the flexibility of the former. The government can create money by borrowing from the Reserve Bank, so-called deficit financing, or the government can also tax; a housewife or household cannot do this unless it has some overdraft facilities. This is one of the things that really distinguish the government budget and public

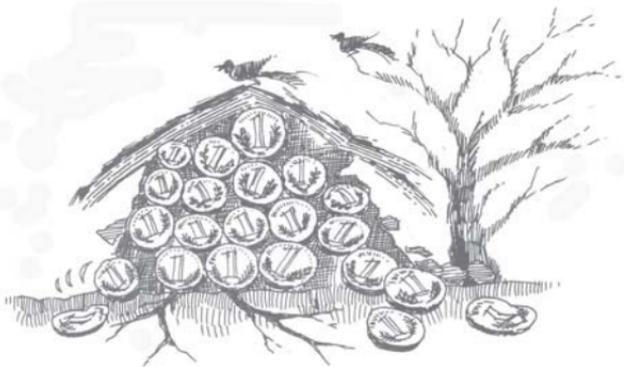
finance from housekeeping. And yet, mainstream economists nowadays have almost obliterated this distinction because they want the state to be diminished in its economic role as far as possible. So it has become conventional wisdom to say that the government must not spend too much; there is a limit. But why cannot the government spend to help its citizens and continue to service its loans by borrowing more so long as people have confidence in the government?

The issue is not how much a government should spend but whether its spending is useful for ordinary citizens. We should resist wasteful spending like the Commonwealth Games, scams like Coal or Spectrum allocation that diminish the budget of the government to help large private business. But we have less reason to cut spending on health insurance and education for the poor citizens because if done successfully it would increase the credibility of the government and its ability to sustain higher debt. Instead the game has become one of reducing public finance to housekeeping in the name of 'fiscal discipline' which increasingly means disciplining the poor to help the rich in India. It should be our attempt as economists to discuss and debate where the government should spend and why, without starting with a predetermined idea of how much it should spend. And yet, you open the television and see learned talk about things in jargon we don't understand; most of the time what they are talking about is a smokescreen avoiding real issues. It is seldom that you hear why employment generation is so poor despite high growth, whether better results might be possible through decentralisation of employment guarantee schemes at 'gramsabha' level, why political parties drag their feet about their own fiscal discipline through an independent Central Bureau of Investigation in face of daily scams of hundreds of crores of rupees, and I could go on. So the first thing is: We need to be intellectually self-confident citizens with open minds. It is not about whether your political leaning is Left or Right, but an open

mind that has the confidence to demystify and look at economic problems for what they are in terms of experience. But experience filters in through ideology.

It is important to have an idea *where economics merges with ideology*. The purpose of all social sciences is to create self-awareness of the basis of one's ideology. You cannot have something that is completely neutral or technocratic, so you must be intellectually honest to know where and how you are introducing your ideology. And the first check on this is an understanding of numbers. I do not mean sophisticated statistics, I don't mean econometrics. Actually, most of the time Indian data is not of much use, except of course to publish and get a professorship! Like much of mathematics used in economics, it really shows your skill, rather than contribute new insights or better understanding. I want to be intellectually honest and emphasize that mathematics can be useful to put things in a much sharper way. It is not something that gives you anything new, but it can help to blow away the fogs of imprecise thinking. Mathematics does not tell you something which you could not tell in words; what it does is to say the same thing far more precisely. And precision makes it easier to pinpoint differences in assumptions and conclusions that logically follow. However, logical reasoning as opposed to rhetoric is the same for everybody. So it helps to debate about assumptions and their relevance.¹ But mathematics also teaches you in some cases how to bluff! I will come to that later.

It is through a complex interaction between experience, ideology and numbers that we have to conduct economic reasoning. That really becomes distilled commonsense. When it does not fit in with our pre-conceived commonsense (or '*knowledge by introspection*') we must ask why. That is the more complex function of training in economics. Perhaps that is also the beginning of being a real economic theorist of relevance.



II The Core of Economics

Rather than propounding general things on the methods of economics, let me illustrate by saying what I consider to be the core of economics. I have been at this game in different universities around the world in different teaching and research capacities and have become aware of how differently different places view the 'core'. I was trying to think before coming to this lecture: *What actually is the core of economics? What is it that ideally someone as an economist should know? What is that core that gives an intelligent and interested citizen the confidence to pose and raise relevant economic questions depending on the particular context?* And then we would have some criteria to judge what the basic textbooks contain.

There are about three basic areas in economics going by the conventional classification. The first area is microeconomics. The second area is macroeconomics. The third area is applications to our context, the Indian economy, using India as an illustration of our economic understanding based on available information and theory. Micro-, macro- and Indian economics with some idea of how to analyse quantitative and qualitative information constitute the conventional core of the subject, the academic discipline of economics. So let us start with this.

III Microeconomics as the Problem of Choice

If you look at microeconomics, it has two basic elements. They can be useful; they can also be misused. There are two things one should know, let's say, in high school economics or the first year of college. The first element is some idea of how choice, individual choice, is discussed in economics. All one really needs to know is something very simple, the basic idea in the theory of choice. *Choice is made not on the basis of exact knowledge but 'inexact' knowledge.*

So how do we represent this? One way of representing this is, say, 2,3,5: where 2 is different from 3 by 1 but 3 is different from 5 by 2. You know the exact magnitude of difference because they are 'cardinal numbers'. So there is a bigger difference or distance between 3 and 5 on the number scale (measure) than between 2 and 3. Now, when you not only know that something is bigger than something else but you also know how big the difference is – quantitative idea of how big the difference is – you call it *cardinal* measurement. And you might say, I prefer 5 to 3, and I also know by how much I prefer it.

However, in most cases we do not know that exactly. For example, I might prefer apples to bananas, but I would not know by how much. So this becomes what you call *ordinal* preference, i.e. you know 'only' the order as to what is greater than what. You could at times imagine them as 'fuzzy' numbers on a line without the distances being defined between two 'points' with precision. In simpler terms, from ordinal measures which order high and low as relative positions without exactitude. i.e. 'by how much' comes the beloved indifference curve of the textbooks. However, students do not need to know the tangency conditions, marginal rates of substitution and so on in detail.

That only makes things boring. But this idea that inexact knowledge can also result in a certain kind of logic of choice is useful. Because, *many real life choices are made on the basis of inexact knowledge*. Think about our daily life. An insurance company takes a 40-year-old and a 60-year-old. They will ask for a higher insurance for a 60-year-old. Why? They will say that the 60-year-old is likely to be more prone to illness and death, so we will take a higher premium. This is not exact knowledge. This is one kind of inexact knowledge: it is *probabilistic* inexact knowledge. Unlike the apple versus the banana example where the former may simply be higher on your preference order, it is a probabilistic example when actuarial arithmetic makes cardinal measures related to a large number of observations possible.

A teacher can devote time to these ideas of different types of inexact knowledge rather than spending a lot of time on how choice is made and how tangency conditions are met for maximizing ordinal utility represented by indifference curves. Once students leave school they will never need indifference curves again. All you really need is the idea of the types of inexact knowledge versus exact knowledge (similar to non-linear, which is not countable, versus linear equations, for the mathematically inclined). And that may be introduced in two ways: one is where you are making a choice of the kind as in apples and bananas or monarchy versus dictatorship, and one when it is probabilistic knowledge. In the former you have some basis only in your personal tastes; in the latter you have a basis in numerous observations (of 40- and 60-year-olds).

In the theory of the firm, rather than teaching all the doubtful propositions that nobody needs – U-shaped cost curves, equality between marginal cost and marginal revenue and so on – I think all we need to know is that when firms make a choice, they are also making the choice in a somewhat similar way. They cannot maximize profit exactly because they have to deal with different types of

information. There is exact and inexact knowledge – in computer language we may call it 'hard' and 'soft' information. Think of a firm. If you are a businessman you have some knowledge about your firm such as what would be your cost. Your internal accountant will tell you the cost of production under given conditions. This is relatively hard information. You also have some far less exact knowledge. You want to sell your product but you do not know how much you are going to be able to sell, particularly if it is a new commodity. This is soft information. The distinction between hard and soft information is relative, again pointing to the importance of making a distinction between *types (ordering)* of information involved in making individual choice.

Now, if you are a businessman, you would use the hard knowledge about cost as much as you can because it is more reliable. You would also use soft knowledge but you would try to rely less on it. In our real life, we use soft knowledge, probabilistic soft knowledge, e.g., a higher percentage of people die of rash driving in their 30s than at 80 or 70, in order to make designs for a new model of car for the relevant demographic target group of buyers of car.ⁱⁱ Marketing plans are usually made on the basis of such knowledge. However, a firm makes pricing plans mostly on the basis of cost; if its cost goes up, it will raise its price, because cost is hard information. When the petrol prices go up it will raise prices, because it is hard information for all sellers transporting goods. A businessman often has soft information about a new product, say a new model of car or whatever. So either (s)he would do more market research trying to make information about demand for the new product harder, or take uninformed risk.

For the firm, information about cost, particularly average cost, is usually more reliable (harder). So firms introduce *cost-based pricing with a mark-up on average cost*. While introducing the notion of

average cost a distinction between average full cost and average variable cost would be useful. Firms usually base price on average variable cost; here depreciation plus profit considerations enter in setting the *mark upon* average variable cost in fixing price. These are empirically established reasonably robust results for manufacturing business. In contrast, you would be hard put to find a businessman who knows what his marginal cost and revenue are.

This is what actually all microeconomics at one level needs to teach in the theory of choice which is supposed to be really the core of microeconomics. If you know the director of any firm, ranging from soap manufacturing to an automobile manufacturing firm, you may ask how they put a price. They look at the cost. They will say this is my unit cost, the cost of producing one bar of soap, and I put a 20 per cent margin and set the price. This is what is called cost-based pricing. What am I using here? I am using the cost which is the hard information completely, saying that I want to use this to set my price, and then the 20 per cent is soft knowledge. If with that I can sell, I will then make it 30 per cent. Tata will sell their Nano at Rs.1 lakh. If they can sell sufficient number, in two years prices may be raised. They will see how much they can sell at some tentative margin, i.e. they are probing the soft information about demand. You probe the market to discover not the 'correct' price or the optimal profit maximizing price, which you might never know, but a more 'satisfying' price (a jargon for this kind of price setting behaviour) for your profit motive. If you see that the 20 per cent is too high, you will reduce. This is actually the logic of cost-based 'satisfying' pricing behaviour. You break up your price into hard information and soft information. These are actual real life examples. (It would be an excellent idea to ask students to do projects on how true this is for the local shops.) They don't set price by demand and supply curve conditions. And market equilibrium, marginal revenue and marginal cost, all that stuff that we teach at great length, and profit maximisation

are false precision. They use mathematics not to describe the real world. Who knows what the demand curve is? What is the marginal revenue? What is the marginal revenue of an extra bar of soap? Can you tell? If a student asks: Madam, what are you teaching, can you give some examples, what will you say except for doing another diagram or a bit more of calculus?

If you look at much of what is taught as core economics at a more advanced level, where does the heavy mathematics come from? It comes from saying that you maximise: you maximise this way at a point of time, you maximise that way over a period of time, and this is the condition of maximisation at a point of time or over the time path from which you try to infer, if at all, propositions about the real world. But this is much more to prove that you are going to be a professional economist, with the required skill. This can be misleading in real life because you are assuming implicitly more hard information than is actually available. Instead of explaining the procedures of such maximization, it is more important for the student to know that information is not simply precise or imprecise, hard or soft, but it is a strategic variable. The supplier, say, of a second hand car or computer, may have more information about what (s)he is selling than the buyer (asymmetric information). But this is less important as an example than, say, information suppressed by a democratic government when it purchases defence equipment, leases out coal or iron mines etc. *Strategic information brings into open the notion of power in economics*, seldom discussed. (The right to information and some 'scams' would be good projects for students to see how information becomes a strategic variable.)

There is a second thing in microeconomics that is useful: the difference between what we call the income effect and the substitution effect. Take, for example, India's inflation today. What do you think is the effect of inflation? Why there is inflation is a different question,

but what is the effect of inflation? One way to begin to analyse it is to say that whenever the price rises, particularly of an essential commodity (let us say, food prices rise), what does it do? It does two things: it reduces your real income if it is fixed (e.g. salaries, pensions, etc.) and it obviously raises the prices of some items of food more compared to others and with limited income you try to buy the cheaper substitute. Economists think of these in a way which actually changes your basket. For example, you will buy less those vegetables whose prices have increased relatively more; at the same time, vegetables whose prices have increased less, you will substitute in their favour (*substitution effect*). There is direct substitution in favour of the cheaper items. The second effect is, your real income is less so in effect you will consume less of everything (*income effect*). This actually allows you to look at the effect of inflation on an individual buyer or consumer in a more ordered way. Those who are at the bottom, the poorest among consumers, have nothing to substitute because they are anyway consuming the cheapest variety. Hence, what do they do? As their real income goes down, they will simply cut down consumption. However, food is more essential than, say, buying a pair of shoes. This leads to what is called Engel's Law. They will buy food, because they have to buy everyday food; and they will cut down on health and they will cut down on education of their children and so on. The proportion of the budget spent on food would increase. This is a good introduction to analysing how food price rise affects different income groups, the poorest, the poor, the middle class and the rich. (Projects on budget studies in the nearby locality by proportion spent on different items by different income groups would be an excellent idea.)



Now, let me come to the other part: macroeconomics.

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: *Why 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, $1 + 0.8 + (0.8)^2 + \dots$ 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 term *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

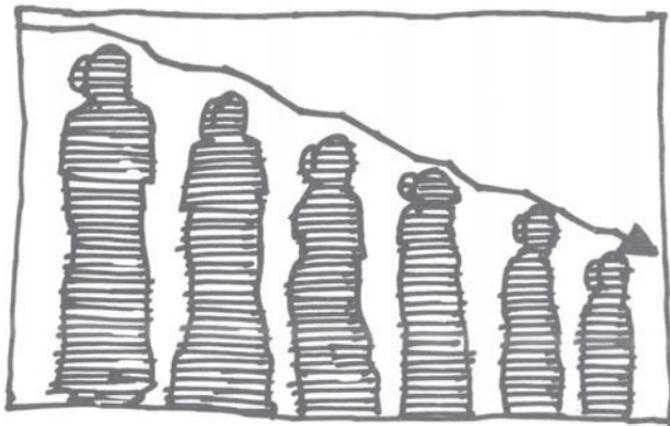
not hold all the time. Nationalisation or deficit spending is not always good; nationalisation or deficit spending is not always bad. It depends on which industry, at what time, i.e. the context. This is what you need to teach students over and over again. To be good citizens who can use their economics 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.

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