The 5th
C D Deshmukh Memorial Lecture
2017

Reflections on the Art and Science of Policymaking

Vijay Kelkar
President, Indian Statistical Institute
Chairman, National Institute of Public Finance & Policy &
India Development Foundation

January 27, 2017
Nehru Memorial Library, Teen Murti Bhavan
New Delhi

National Council of Applied Economic Research

Reflections on the Art and Science of Policymaking[*]

I thank NCAER for giving me this opportunity to pay homage to the memory of Dr Chintaman Dwarakanath Deshmukh. Dr Deshmukh was a titan among Indian policymakers. When Shekhar spoke to me about this in the month of October, I readily accepted his gracious invitation because of a very personal reason.

I first encountered Dr Deshmukh at the very start of my professional career in India. He was the Chairman of the Faculty Selection Committee at the Administrative Staff College, Hyderabad, and the Chairman of the Court of Governors of the College. That was the first time we met. During the interview he was very considerate, but his questions were sharp. I must have done reasonably okay in answering his questions, for I did get the job. This was my first job in India.

In recent years, I have participated in the establishment of the Pune International Centre (PIC), a new think tank in Pune. The creation of the PIC was inspired by India International Centre (IIC), New Delhi, of which Dr Deshmukh was the Founding Chairman. My experiences with PIC have given me a fresh appreciation of his judgment and achievements in building IIC.

In these late years of my professional career, our lines have crossed once again. I am currently the President of the Indian Statistical Institute, Kolkata, a position that Dr Deshmukh himself adorned with great distinction.

It is indeed a great privilege for me to stand before you today, to deliver this C D Deshmukh Lecture. The title of my lecture today is *Reflections on the Art and Science of Policymaking*. I chose this topic because of my professional interest in improving policymaking processes in India. I should also mention that we picked the topic of my lecture much before the November 8 policy earthquake! My lecture today will deal only with the making of Economic Policy and will not cover important policy areas such as National Security, Foreign Affairs or Social Policies.

This lecture is part of ongoing work with my NIPFP colleague, Professor Ajay Shah. He and I are planning to write a monograph on these issues.

My objective in this lecture is to emphasise policy and not programmes. The term 'policy' is used here in the sense of the interventions by government that reshape the incentives of private agents towards achieving desired social goals or objectives. It is relatively easy for the government to, say, build houses: this is a programme and not a policy. Policy is about influencing how private persons build houses. This is far more subtle, because people are rational and work for their own self-interest. This involves complexities such as short-term versus long-term,

[*] I thank Professor Ajay Shah for his invaluable help in preparing this lecture.

valuation of social benefits and costs, distribution of gains amongst social groups and the consequent political economy. Economics has a lot to say about this endeavour, as economics is about the study of sentient beings who vigorously pursue their own self-interest.

There is a complex interplay between policy and law, but policy is not law. Economic policy thinking leads to the design of interventions. This then leads to the drafting of laws, which is motivated by two kinds of objectives. Laws are required when the State wishes to coerce private persons, as this can only be done with Parliamentary approval. In addition, the law must embed a variety of accountability mechanisms in order to address the problem of public choice, i.e. the behaviour of persons in the State apparatus to serve the public interest.

Why do we need policy thinking about interventions by the State? We need policies because markets sometimes fail to deliver the efficient outcome. This is readily visible in the microeconomic arena, e.g. growing levels of air pollution in our cities. Market failure is also the fundamental justification for macroeconomic policies. Business cycle fluctuations are, in some sense, a reflection of the failure of the uncoordinated decisions of private persons. In that sense, all policy thinking must ultimately be grounded in market failures.

1. The science of policymaking

Let me start with the science of policy thinking. This relates to a class of issues where we have a high degree of clarity and consensus, where we can be pretty certain that we have figured this out. I want to highlight ten important analytical insights we have from the discipline of Economics.

1.1 Focus on market failures

The State is the most powerful actor in any modern society. The State can potentially pursue many objectives. What objectives are appropriate? In liberal democracies, the main purposes of economic policies are (i) to address market failures, to increase growth and efficiency, and (ii) to improve equity or distributional outcomes.

The free market is a tremendous source of prosperity, creativity, innovation and individual freedom. Every time we interfere in the working of the free market, we should be mindful of the adverse consequences that this would have upon these desirable things. However, there is a class of problems where the free market yields suboptimal outcomes which are called ‘market failures’.

Market failures come mainly in four kinds:

1. Externalities (e.g. pollution from vehicle emissions);

2. Asymmetric information (e.g. the buyer of a medicine can't know if the medicine is of substandard quality);

3. Market power (e.g. a few private firms create a cartel); and

4. Public goods (e.g. the criminal justice system). In technical jargon, public goods are things that are 'non-excludable' and 'non-rival'.

The free market will not, on its own, solve these four kinds of problems. The interventions by the State in the working of the economy should be located around these four problems.

There is a vast unfinished agenda, in India, of market failures, wherein not enough policy work has been done. The criminal justice system should be the first priority of the State. This requires far-reaching work in rethinking laws, police, prisons, public prosecutors and courts. We have new dimensions of health crises emanating from air quality, road safety, antibiotic resistance and substandard medicines. These areas require major State interventions. A competition perspective is required all across the public policy landscape including privatisation, to address the problem of market power.

These four categories of market failures shed new light upon many things that we do in public policy. As an example, health care is commonly seen as being the work of the government. But health care is a private good. The services of a doctor or a hospital are rival and excludable. We need to be more careful in understanding the market failures in the field of health, and designing optimal policy pathways for what the government should be doing in the field of health.

An extreme kind of market failure is a 'missing market'. There are certain situations, such as credit or insurance markets, where a high degree of asymmetric information can create conditions under which voluntary transactions become infeasible. These missing markets can be reviewed as an extreme form of market failure. As I mentioned, the other concern of economic policy is to improve equity or distributional outcome. In this evening's lecture, my focus will be largely on efficiency and growth.

There are three key steps in public policy thinking:

1. *Are we facing a market failure*? If not, there is no role for the State.

2. *Does the proposed intervention address this market failure*? Sometimes, we see proposed solutions which do not address the claimed problem.

3. *Do we have the State capacity to effectively implement the proposed intervention*? Many times, an idea might be sound but, under present capacity constraints, infeasible.

I feel that if we have the discipline to carefully walk through these three steps in all our work, this will result in improved policy thinking. Many policy pathways in India, at present, do not pass these three tests, and formally using them is a skill that can be learnt.

1.2 The Bhagwati–Ramaswami Theorem: Go to the root cause, use the smallest possible force

We in India are familiar with the seminal work of Bhagwati and Ramaswami, which argued that when there are domestic distortions, the right response is an appropriate subsidy at the source, rather than a tariff. It is better to address domestic distortions through domestic policy, rather than interfere with international trade.

This idea generalises across market failures. Every market failure induces certain inefficient outcomes. It is possible to use the power of the State to ameliorate the outcomes. But it is always better to obtain a structural understanding of the market failure, and solve the problem at the root cause. This generally yields a reduced use of the coercive power of the State.

Consider the problem of antibiotic resistance. There is a market failure in this case. When person X misuses antibiotics, and helps create antimicrobial resistance, she imposes an *externality* upon others. This increases healthcare costs for person Y, who is no longer able to get a swift and rapid solution for simple illnesses. Actions by person X have an adverse impact upon an innocent bystander Y, which is an externality, a market failure.

How could the State change things? One way is to go to the *consequence*. We could possibly pay a subsidy to person Y, to compensate for the increased cost of healthcare suffered by her. Alternatively, we could go to the root cause, to the abuse of antibiotics. Going to the root cause is always the superior path. In rare cases, if going to the root cause is very costly, then focusing on "consequence" can be a second-best option.

In the field of science, there is a concept called "Occam's razor". When two alternative explanations are equally effective at explaining the facts, we should favour the simpler explanation. In similar fashion, we should employ the following "Occam's razor of public policy":

> *When two alternative tools yield the same outcome, we should prefer the one which uses the least coercion.*

There is wisdom in this, as the use of force is always problematic and, most importantly, much costlier.

Government interventions always have unintended consequences. Government intervention interferes with personal freedom. If we can get something done using less coercion, that is always better. The way to find the lowest use of coercive force is to understand the source of the market failure.

One recurring example where this comes up is in the use of subsidies. Public expenditure is grounded in taxation, and taxation is a considerable use of coercion. For this reason, we should be very careful when spending public money. In India, we are a bit too quick in reaching for a subsidy as the tool of choice. With a little more thought, we can often go up to the root cause, and address the market failure.

At the edge of traditional market failure thinking is the notion of multiple equilibria. Sometimes, the free market system can be stuck in the wrong equilibrium, and there can be remarkable gains from sound thinking by the most powerful actor in society, the State. In a financial crisis, for example, the extreme actions that are taken are partly inspired by the need to shift from "a bad equilibrium" to "a good equilibrium".

These are issues where economics has much to contribute. Practical men see a problem in society, and often come up with a simplistic attack which directly hits the problem. Too often in the Indian policy discourse, policymakers first reach for subsidies as the instrument of choice. Too often, our instinctive response to the crisis of antibiotic resistance is to give people free medicines which are the most powerful antibiotics. Economic reasoning helps us understand the root cause of the market failure, and use less force by focusing the intervention at the source of the market failure.

1.3 Lessons from public choice theory

We in India have a lot of experience with the working of the State, and are often cynical about the motives of politicians and officials. This intuition was formalised in the field of 'Public Choice Theory', which used economic analysis to think about the objectives of politicians and officials. No matter how famous or well-reputed a person is, when he is hired as an official in a government agency, we are aware of the gap between his personal interests and the public interest. Public choice theory encourages us to engage in 'politics without romance,' to see a well-functioning State as one where various kinds of self-interest are in conflict in the public arena through well specified rules of the game. The objective of reform is to achieve a State which yields good outcomes when each actor is self-interested.

Public choice theory has an important implication about how we think about institutions. There was a time when we would try to hire a competent and benevolent person to head an institution, and then leave all the decisions to him. Public choice theory has helped us see that we should stop searching for heroes and that we should not concentrate power in any one person.

It is important to always create checks and balances, to create forces of accountability, so that the leadership of an organisation will serve the people of India and not pursue its self-interest.

In the public choice perspective, everyone involved in government works for himself, and all policymaking is marred by conflicts. Conflict is the normal state, and we should not be uncomfortable about it. Differences between persons and agencies are normal and healthy, and should be played out in the public domain. We should resist the over-dramatisation of conflict that the media emphasises. We should disagree in polite language, maintain good personal relationships, and work through formal procedures for resolving conflicts.

As I said at the start, there are two elements in every law. For State intervention, we need authorisation by Parliament when we seek to coerce private persons. So every interference in the life of a private person must map to an authorisation in a law. The second element that is required in all law is to address public choice problems. We in India have traditionally been optimistic about the State, and have skimped on the checks and balances that create accountability and performance. A lot more work is required in coding sound procedures into law, so as to produce better performance by the State apparatus.

1.4 The fundamental role of incentives

The single big idea in economics is that people respond to incentives. This has far-reaching implications for policy thinking. It is dangerous to look at the world, and come up with the design of an intervention, and hope that it will have a narrow impact as expected. Human beings look at policies and rethink their optimisation.

There are innumerable funny stories that illustrate this. In Hanoi, under French rule to meet the menace of rats, a bounty programme was introduced where people were paid for each rat tail that they brought in. This led to the farming of rats. A more rewarding example is perhaps India's vaccine story. By removing price control on vaccines, India has become the world's largest producer of vaccines, and that too, at lower costs. It has also become a very innovative industry. Our vaccine industry has saved hundreds of thousands of lives in Asia and Africa, as reported by the Gates Foundation.

In designing incentives, we must be chess players, and anticipate the moves that self-interested people will make. There are two important elements of this story.

The first is the Lucas Critique. When we look at the data, it may show certain patterns. But when the policy changes, people will re-optimise, so those patterns will change. Policy changes induce structural breaks in the data, and limit our ability to use historical data to make policy.

The second is the interlinkage with public choice theory. Politicians and bureaucrats are not benevolent; they are self-interested actors. Therefore, *politicians and bureaucrats respond to incentives*. Changes in the rules of the game will generate behavioural changes on their part also. Most of the time in India, the dominant problem is that of State capacity, and getting to State capacity requires envisioning how officials and politicians will optimise under a proposed change of policy.

As an example, a major milestone in building State capacity is shifting the control of monetary policy away from the RBI Governor to the 'Monetary Policy Committee', under conditions of transparency. Each member of the MPC is personally accountable for how he votes, and is forced to give out a rationale into the public domain. This is much like each judge on a bench. MPC members respond to incentives. This pressure of personal accountability prevents MPC members from pursuing their personal incentives in their voting behaviour.

1.5 Through the general equilibrium lens

A deep insight of economics is the concept of 'general equilibrium': the result of the interactions on an economy-wide scale of all economic agents. By default, we are wired to look more narrowly. For reasons of functional specialisation, the lines of turf, and the limitations of our mind, it is easier to look at one sector at a time. This is 'partial equilibrium' thinking. But every policy thinker must maintain a general equilibrium perspective at the back of his head.

As an example, when we think about tax policy, it is important to narrowly look at the incremental effects of every move. But it is even more important to see these moves in a general equilibrium context. A great deal of the debate in India about the goods and services tax (GST) involves practical squabbles about this commodity or that location. But the best insights into GST are obtained by thinking at the level of the full economy, about how the incentives of all private persons will change, how resource allocation will be reshaped, and how production and prices will change on an economy-wide scale.

The other example is the implications of fiscal transfers in a federal country like India. You will recall the critique by some prosperous states of India of the Finance Commission transferring larger resources to the lagging states. The general equilibrium analysis by the Institute of Economic Growth and the India Development Foundation prepared for the 13th Finance Commission showed that well-designed fiscal transfers to lagging regions are indeed a non-zero-sum game or process, where the economic impact on all regions is positive, or in other words, it benefits all.

1.6 The dharma of competition

The market economy yields good outcomes for society when there are high levels of competition. Competition pushes firms to cut costs, to innovate, and to deliver the best bargains for customers.

Every firm constantly tries to adapt to the changing world of what consumers want and what technology makes possible. Every firm peers into the future, and speculates about the kinds of products and production processes that will prove to be profitable. Some firms will always make mistakes in this and go out of business. Their departure frees up labour and capital that can go to more productive firms.

When a firm goes out of business, we feel a certain sorrow about its departure. But a key idea of economics is that the birth and death of firms is healthy and desirable. The great economist Joseph Schumpeter termed this process 'creative destruction'.

For this to work properly, we require a well-functioning bankruptcy process. In this, the key distinction is between firms with valuable organisational capital and those without. Bankruptcy at the level of firms or individuals is intertwined with the macroeconomics of business cycles. In good times, many firms do well, whether capable or not. Recessions are an *agni pariksha* (trial by fire), which certain firms do not survive. This has its own cleansing impact. I have often felt similar issues prevail about firm creation also: the firms that get started in bad times seem to be a bit more capable.

In India, we have traditionally felt that all firm failure is a bad thing. The very phrase 'sick company' suggests the need for a hospital to nurse it back to health. We need to shift gears, and revel in the process of creative destruction. There is a great circle of life, and both firm creation and firm destruction are required for a sound ecosystem of firms.

The desire for vigorous creative destruction animates our interest in competition policy. All across the economy, we require a progressive outlook supporting entry and competition. By default, political economy favours the incumbent, and leads us towards stagnation where one industry after another is locked up by a few powerful incumbents. The key insight from economics is to constantly use the power of the State to prise open these closed systems.

To me, the promotion of competition is the uppermost reason to promote the policy of privatisation of PSUs like Air India or SAIL. The presence of such public sector players with deep pockets and soft budget constraints distorts competition and leads to an inefficient allocation of national resources.

1.7 Public expenditure calculus: The marginal cost of public funds

When we think of expenditure in government, we think of a rupee of public expenditure just like we think of a rupee of our personal expenditure. However, taxation is an inefficient process. People respond to incentives, and hence tax policy distorts the behaviour of people. This imposes a cost upon society. The distortion associated with a tax is proportional to the square of the tax rate, which is a powerful argument in favour of low rates and a wide base.

These issues lead up to a critical concept in public finance: the *marginal cost of public funds* (MCPF). The MCPF tells us the cost to society of ₹ 1 of public spending. This is typically much larger than ₹ 1.

There is remarkably little work on measuring the MCPF in India. Arbind Modi, Ajay Shah and I estimate that it may be around ₹ 3. This means that the cost to society for every rupee of public spending is around ₹ 3. This brings a whole new perspective to the revenues and expenses of the government.

Where is this large value of ₹ 3 coming from? Our enumeration of the sources of inefficiency from the existing tax system is as follows:

1. Income tax distorts the work–leisure tradeoff and the saving–consumption trade-off.

2. Commodity taxation distorts production and consumption, particularly when there are cascading taxes.

3. We in India have a menagerie of 'bad taxes', including taxation of inter-state commerce, cesses, transaction taxes such as stamp duties or the securities transaction tax, customs duties, and taxation of the financial activities of non-residents. From 1991 to 2004, we thought the tax system was being reformed to get rid of these, but from 2004 onwards, things have become steadily worse, starting with the education cess and the securities transaction tax. All these are termed 'bad taxes' in the field of public finance, because when money is raised in these ways, the MCPF is large.

4. India relies heavily on the corporate tax, and has double taxation of the corporate firm. In the last decade, corporate income tax and the dividend distribution tax added up to 35% of total tax collection. Double taxation induces firms to organise themselves as partnerships and proprietorships, which is a distortion and drives up the MCPF.

5. There is the compliance cost by taxpayers and tax collectors, which is a pure deadweight cost. At the extreme, these include the costs imposed upon society by illegality and criminality owing to corruption in the tax system.

When some firms get away with tax evasion, this changes the incentives of ethical firms to invest, which imposes enormous costs upon society as the most ethical firms are often the highest productivity firms.

6. There are the consequences for GDP of the political economy of lobbying for tax changes, which arise when we do not have simple, single-rate, tax systems. For example, if there was only one customs duty (e.g. 5%), this would be much better than having different rates. Eighty per cent of the countries that have introduced a GST after 1995 have opted for a single-rate GST.

7. At the margin, public spending is actually financed out of deficits which are deferred taxation, intermediated through the processes of public debt management. Hence, in thinking about the MCPF, we must also think about deficits and their financing. There is an additional deadweight cost here as the State practises financial repression in which some financial firms are forced to buy government bonds. This is akin to a narrow commodity tax, which is a bad tax.

On the revenue side, this is a call for reforms of tax policy and tax administration, so as to reduce the cost to society of financing the State. On the expenditure side, this is a call for reforms of expenditure programmes, so as to ensure that public money is only used for applications where the gains to society of ₹ 1 of expenditure exceed ₹ 3.

1.8 Social cost-benefit analysis: A litmus test for policymaking

The public policy process involves a stylised set of questions:

1. What is the problem that we're out to solve? Are we sure that there is, indeed a market failure?

2. What is the intervention that is proposed?

3. How would we implement the proposed intervention? What are the State capacity constraints that we would face? How would we build State capacity for our desired intervention?

4. Are we certain that under our real world implementation constraints, the proposed intervention will indeed address the malady under examination?

5. Do the benefits outweigh the costs?

The last question is that of cost-benefit analysis. Proponents of many policies are often quite convinced that they are correct. Cost-benefit analysis is the discipline of trying to tote up the numbers.

The first element of costs is the direct costs borne by government. The second element of cost is the intrusion upon private persons that is caused by the policy proposal. Against this, we have the claimed benefits. Are we sure that the benefits to society outweigh the costs?

Cost-benefit analysis is also termed 'regulatory impact analysis' in the context of economic regulation. All over the world, regulators generally perform a formal Regulatory Impact Analysis for every legal instrument that they issue. This is a healthy practice, particularly when Parliament places the power to write regulations upon unelected officials. We need to go in this direction with all regulators in India.

I have no illusions about the scientific precision that can be achieved in this analysis. These kinds of calculations are notoriously vulnerable to changes in assumptions. However, there are two strong reasons why such analysis is valuable. First, the very act of conducting the analysis forces the decision makers to improve their understanding of the problems that they seek to solve. The release of documents with cost-benefit analysis will help improve the policy process as independent persons will critique the assumptions and the calculations, often bringing fresh insight into the question.

Second, with all its imprecision, cost-benefit analysis is able to block some egregiously wrong initiatives. Many times in India, we have made outright mistakes. We have a long litany of blunders, small and large, in the policy process. The formal step of cost–benefit analysis, in my opinion, would have blocked perhaps one-fifth of the blunders. Cost-benefit analysis is not a panacea; it does not guarantee good outcomes. However, blocking one-fifth of the blunders would, in my estimation, be a huge contribution. We are all very conscious of the adverse consequences to society of large policy mistakes, and we would be delighted if we could cut down the number of blunders by 20%.

1.9 Mimicking the "Sunset Clause"

Alongside cost-benefit analysis, the ex-post review of major policies, or policy inspired losses, is highly desirable. As an example, Section 62 of the Indian Financial Code requires a review of all regulations three years after implementation. Every law or regulation should state its objective at the outset. After three years have elapsed, it should be possible to empirically examine whether these objectives were met. This would make it possible to strike down interventions which did not deliver on their objectives. We gain from such an approach because we will then be able to back away from failed interventions. But even more important, we gain from this because this will force us to think more clearly about each intervention and clearly articulate the objective that is sought to be achieved.

1.10 Professor Tinbergen's "Assignment Principle"

We in India are late industrialisers. We built a democracy at an early stage of development. Democracy has brought a large number of demands upon the State. It is difficult for elected leaders to ignore these demands.

Too often, we have succumbed to mission creep. We tend to go after too many policy problems, and end up with inadequate resourcing on each of them. What do I mean by resourcing? The most scarce resources are the time of the top political and administrative leadership, and the time of the experts. If these key persons could focus on a more narrow set of questions, we would get a lot more done.

There is a lot to gain by paring down to a drastically smaller set of priorities, focusing upon them, and making genuine progress.

In this, we must be careful to respect what economists call 'the assignment principle'. Professor Jan Tinbergen showed that for optimal policy design, the number of policy instruments should be equal to the policy objectives.

One tool of policy caters to one objective. We have to assign an objective to each instrument. After that has been done, that instrument has been 'used up'. It cannot then pursue multiple objectives. Public choice theory predicts that public organisations will *favour* multiple objectives as this gives reduced accountability, and this is indeed what we often find in the world. It is our job, as policy thinkers, to hold the metaphoric feet of every agency to the fire, and hold it accountable for a narrow set of goals associated with a narrow set of powers.

This principle has numerous valuable applications in Indian policy thinking. As an example, I believe that had this insight been a driving force in designing MGNREGA, we would have got better outcomes.

2. The art of policymaking: Some reflections

So far, I have talked about ten big ideas which, I think, are the things that economics has to say that public policy will find useful.

I will now switch gears into somewhat more speculative terrain. These are my views about the world, these are born of my experience. Real world policymaking is not just economics; it is the arena of political economy. Public policy interventions always have winners and losers; they will have consequences for the distribution of income and wealth, and these conflicts that will be played out through democratic politics. There is a role for philosophy, politics, intuition and experience, over and beyond sharp economic analysis.

2.1 Sequencing

Every time we face a group of inter-related reforms, it is important to look at questions of sequencing. Is there a logical order in which they should be approached? I think there are three dimensions to sequencing:

1. Economic considerations;

2. Political economy considerations; and

3. Sequencing in the construction of State capacity.

One familiar idea is to have exchange rate reforms before we undertake trade reforms. Removing administrative barriers to the exchange rate, and getting up to a floating exchange rate, is the sensible first step. This gives a continuously self-adjusting price which counteracts changes in competitiveness. Once this is done, and the local economy is opened up, there will be continuous adjustment of imports and exports in response to changes in the exchange rate.

Conversely, it is more harmful to have government management of the exchange rate and an open economy. Persons in the open economy will then rapidly see the power of the government in changing their profit rates and will organise themselves to lobby for a favourable exchange rate policy. As an example, in China, a large export sector sprang up under a distorted exchange rate, and lobbied to preserve the distortion. These problems are avoided if the first stage in the reform is to achieve a floating exchange rate, and get the nascent exports sector to think that lobbying for exchange rate depreciation is not a choice.

In similar fashion, we must place financial reforms before macro reforms. This is because macro policy requires the machinery of a sound financial system. Inflation targeting requires a monetary policy transmission, which requires the underlying financial reforms in the form of competition in banking, the bond–currency–derivatives nexus and capital account liberalisation. Fiscal reform requires debt management and the bond market. These preconditions generate a natural sequencing. First we must build a capable financial system, and then we must undertake monetary and fiscal reforms. In India, we seem to be coming at this in the reverse order.

Yet another prominent example relating to the importance of sequencing is that of the electricity sector. Now, it is widely recognised by experts that for achieving better results in India, we should have reformed the distribution sector first before introducing an independent power producers regime.

Political economy is the second valuable source of insights into sequencing. All of us are aware of the seminal contribution of Anne Krueger, Jagdish Bhagwati and T. N. Srinivasan on the issues of internationalisation and the local elite. In the initial condition, we are trapped in a domestic political economy, with large domestic distortions along with a narrow elite that defends those distortions. Policy actions that open up the economy are a good first step because they reshape the incentives of the local elite in favour of taking on the domestic barriers to high productivity.

The third dimension of sequencing is in the construction of State capacity. We should walk before we can run. Our first objective should be to establish easy objectives for State capacity, and fully succeed in building this State capacity. Only after this is done should we try for a more complex problem. As an example, it is better to first build a single-rate GST with a low GST rate, achieve full mastery of this, and only then consider more complex possibilities such as high rates, multiple rates, etc. As Professor Bird observes, in developing countries, "tax administration is the tax policy."

2.2 The information constraint

Our ability to undertake rational analysis, and to undertake post-mortems of policy initiatives, is bounded by our availability of information. Consider the problem of air quality. How bad is air pollution in India? What is the root cause? What are the interventions which can make a difference? When interventions were undertaken in the past (e.g. shifting taxis to CNG), did they deliver useful results? Making progress on these questions requires fine-grain data on air quality at thousands of locations in India. At present, this data just does not exist.

A particularly disappointing feature of the Indian statistical environment is that in addition to having limited data, some of our standard public data sources are also flawed. We are thus forced to first evaluate the soundness of each public data source before commencing to use it. It is not as simple as blindly accepting all data from official government sources. Each of us needs to commit considerable resources to *evaluating* the soundness of various kinds of statistics that are available in our field.

What you measure is what you can manage. In India, our public policy capabilities are highly circumscribed by the unavailability of data. This creates the need for informal information channels. In an ideal world, we would like to have statistics and analytical models. In our reality in India, statistics are limited, which hampers our ability to undertake formal economic analysis on many problems.

We must also prioritise time and resources for improving statistics. Every policymaker should kick off some long range initiatives to improve statistics in his area. Economic statistics is not just the work of the CSO—it is the work of myriad persons all across the economy. When sound, new, statistical measures come about, they will have inadequate and short time series for a long time. The ancient Greeks said, "A society becomes great when men plant trees whose shade they know they will never sit in". In similar fashion, I feel that a society becomes great when policymakers initiate statistical system development that they themselves will not be able to reap the fruits of.

2.3 Unintended consequences

Intervening in social systems is messy business, and very often, things go wrong. Why does this happen? Why do we joke about the 'law of unintended consequences'? I think many things are simultaneously going on, all of which work against us:

- *Error:* Our facts and our analytical models are incomplete. We know less than we think. Hence, we make errors.

- *Wishful thinking*: We suffer from 'confirmation bias'; we tend to look for the facts that support our positions. Once a tentative position is taken, we lose objectivity.

- *Political economy dominates*: The ideal technocratic plan is never implemented in the real world. What will be put to field will always be tugged at by various political considerations.

- *Limitations of execution*: The frail management systems through which policy initiatives are implemented result in an intervention which diverges substantially from what was originally intended.

- *The plan gets derailed*: As the boxer Mike Tyson said, "Everybody has a plan until they get punched in the mouth". We start doing something, but unexpected events show up, and we are forced to respond.

- *Time horizons:* A policy strategy may work as intended in the short term, but it can yield unpleasant side effects in the long term.

- *People respond to incentives:* Citizens, officials and politicians all respond to incentives. Behaviour changes once a new policy is introduced. This often changes the world when compared with what was understood at the time the policy analysis was undertaken. This is completely unlike physical systems. The behaviour of air molecules does not change when we use them to put planes aloft. Empirical regularities which were present in the data are changed when behaviour changes, so the best study of sound data prior to the intervention does not lead to a sound understanding of the post-intervention world.

- *Nonlinearities:* Unintended consequences flow from nonlinear science. Nonlinearities, and the interactions of a large number of moving parts, are notorious for potentially inducing chaos in physical systems. Social systems suffer from the even greater problem that the moving parts are not fixed creatures but optimising persons. It would be hard enough to analyse nonlinear interactions between 1.3 billion people; it is even harder to do this as each one is a sentient being in the quest for life, liberty and happiness.

To some extent, this is about more sophisticated analysis. We can do better in our analysis. We can be better steeped in microeconomic thinking. We can take the Lucas Critique to heart. But we must also be wise and respect the infinite complexity of social systems.

I see value in the weary belief that the outcome of every policy intervention will surprise us. We should be mindful of following the sage advice to policymakers by Deng Xiaoping and cross the river after feeling the stones.

We can move fairly briskly on modifications *of the State apparatus* engaged in the routine management process of understanding areas of failure and undertaking reorganisation. But we should be wary of policy plans that aim to remake society.

2.4 The value of criticism

As policymakers, we develop a point of view. We should be humble and recognise that many times, we will be wrong. This makes it useful to engage with our critics.

In every society, there is an undersupply of criticism. Criticising the government imposes costs upon the critic. The gains from criticism are diffused; the entire society benefits from the criticism. The self-interest of the critic leads him to ignore the gains for society at large, and thus to undersupply criticism. This is similar to the standard economics argument about individual incentive leading to an under-investment in higher education, as the decision maker does not value the spillovers, the positive externalities for society at large.

We should thus recognise the scarcity and value of criticism, and create an environment where we disagree without being disagreeable. There should be pleasant friendships, and an environment in which many persons are comfortable airing divergent views. Critics of public policy strategies are a valuable part of society, and essential for the process of crossing the river by feeling the stones.

2.5 The issue of policy entropy

In a somewhat neglected paper by Professor Anne Krueger, there is an important insight that in a democratic society, a policy that may initially allow only a few exceptions deteriorates over time as the list of exceptions tends to expand due to political lobbying, and, thus negates the policy objective. This suggests that policies should be designed to be as simple as possible and with few exceptions.

2.6 The problem of the last mile

While designing policies in New Delhi, we should be mindful that these will be implemented by functionaries at the local level. Hence, policies will lead to the desired results if and only if this aspect has been taken into account by appreciating local capacity constraints. Of course, local capacity constraints can be mitigated by taking adequate time for preparation and training.

I now come to my last observations relating to the art of policymaking which I learnt from Lata, my wife, who is a psychologist by training and worked in a school in Delhi as a student counsellor. She taught me the importance of communication for better policymaking. Human beings do not like unpleasant surprises. Hence, if we do not want policies to shock and lead to policy reversal due to negative actions, you must prepare the citizens by explaining the *pros and cons* of the policy by consulting the maximum number of stakeholders. I recall how much I benefited from this advice. When we sharply increased the prices of petroleum products in 1997, this price increase went through like a knife through butter because we had prepared the ground over one year through debate and discussions at different fora. Similarly, in our 2012 Report on Fiscal Consolidation to the UPA Government, we recommended a strategy for reducing the oil subsidy through a series of small successive price increases instead of the unpleasant shock of a one-time sizable price increase. The UPA Government implemented this strategy and succeeded in eliminating the subsidies on transportation fuels.

2.7 Suggestions for improving policymaking

Let me now turn to how we can improve policymaking in India. Here I start with the role of policy research. There are two steps to this. First, there has to be research on the Indian economy and Indian society. Policy research is very contextual and, hence, one needs to understand the context first. Knowledge about the Indian economy and society can come only if authentic and up-to-date information is available to researchers. Much of the official Indian data are unsuitable for this. Either the information comes too late and policy decisions are based on out-dated facts. Or the type of information that is available is not what we need for current policy. Or we do not have the granularity of the data required in a highly diverse society.

These pose serious problems in a fast-changing society like ours. When we make, for example, policies aimed at poverty, we base them on poverty estimates that are at least 2–3 years old and on characteristics of poor households that were true about 5 years ago. Today, employment for our youth is the most pressing concern, but any reliable employment data is old and does not give any information on the variables we need to know before designing policies. For example, it is impossible to get any estimate of the magnitude and type of skill gaps that need to be addressed by policy. Appropriate and timely data will encourage research and creation of knowledge that can then be used to develop contextual policy prescriptions. Data poverty is particularly acute when it comes to policymaking at the state or local levels.

Second, we should be encouraging independent policy think tanks, universities and research organisations that will conduct policy research and public debate and discussions. Shri Lovraj Kumar, a distinguished past President of NCAER and my mentor, used to say, "Vijay, in open societies more knowledge leads to better policies", and this is where independent research will help us. NCAER, founded by Dr C. D. Deshmukh along with others, is an outstanding reason for my optimism in this regard.

There are two other suggestions for improving policy outcomes. We observe that many a times, policies get translated into laws. Ruefully, the drafting of laws is not always of a high standard, creating avoidable litigation and reducing the effectiveness of policies. In fact, many legal scholars have pointed out that the number of cases and the pendency in our courts will come down dramatically by just improving the drafting of laws. The other suggestion for improving our policymaking and policy outcomes is to strengthen parliamentary oversight through Standing Committees, as happens in mature democracies like the US. I readily recall the important contributions that Standing Committees have made towards improving our policies and laws and their execution. A referral of Bills to Parliamentary Committees has almost always improved the Bills, and thus policy outcomes.

3. Concluding remarks

Now, let me come to my final observation. From the years spent with the government, I have learnt that policies formulated in a transparent manner and implemented on an 'MFN' basis have a much greater chance of acceptance and achieve better outcomes. A prominent example of this relates to the potentially contentious policy issue of sharing of taxes in a federal system like India. The awards of the Finance Commissions for the sharing of revenues between the Centre and states, as well as among the states, have been accepted by both the Centre and states precisely because these fiscal transfers were formulaic, meaning that their policy recommendations were arrived at on a fair and transparent basis.