

ment, import duties become progressively higher. However, it is an open secret today that there are any number of methods of circumventing these regulations. Are the checks on kit imports then really comprehensive enough to ensure an adequate absorption of design and development know-how in the country? Secondly, are they of a nature that would provide adequate incentive for domestic manufacturers to gear up and start producing state-of-the-art electronic components?

On these two questions hinges a great deal of the future growth potential of the Indian electronics industry. The Indian components industry has thus far grown largely in conjunction with the equipment sector. But when policy-makers were planning for a rapid diffusion of television, computers and communication through the country, it was apparent that this scheme of conjoining the growth of the equipment sector to that of the components sector would not be feasible in the short-term. The reasons are fairly clear: equipment manufacturing capacity can be established at rather short notice, for a capital investment which is really very marginal when compared to the value added. Components manufacture, on the other hand, is a highly scale-dependent enterprise, with necessarily high levels of capital expenditure, and long gestation periods. Thus if there is a sharp increase in indigenous equipment production, it would not be possible to meet the derivative demand for components through domestic production. The idea would then be to meet the short- and medium-term demand for components through liberalised imports; the increase in the demand for components would then provide indigenous manufacturers with the incentive to gear up and produce for the future needs of the equipment sector.

But one would search in vain for some preliminary signal that this abstract logic of policy is being translated into reality. On the performance of the Semiconductors Complex (SCL), Chandigarh—the only manufacturer of large-scale integration circuits (LSI) in the country—the DOE seems so embarrassed as to pass over it in the space of a few paragraphs.

It was initially anticipated that 35 per cent of the rated capacity of SCL would be dedicated to servicing the requirements of the telecommunications sector. But with the Indian Telephone Industries' plans for electronic switching systems being still, euphemistically speaking, in a "fluid state", it is not really clear when this demand will really materialise for SCL's output. Meanwhile, there is a heavy burden of down-time imposed on equipment at SCL—a burden that by current international norms would be insupportable for a competitive vendor of semiconductors.

Another major potential customer—the indigenous computer industry—has been lost because SCL has not managed to get the right kind of products for this sector. Agreements for the purchase of circuit designs (photomasks) were worked out with Rockwell International in two major product lines: the model 6502 eight-bit microprocessor, and the "read-only-memory" (ROM) chips widely used in per-

sol computers. Both these are vital components of the BBC microcomputer that the Ministry of Education decided to adopt for its school computers programme—but they were never likely to have many users outside the programme. The 6502 was, even when it was selected, a fairly dated version of the microprocessor chip; virtually all domestic manufacturers had long since switched over to later versions.

SCL today has to depend upon stray export orders to sustain itself. With its proclivity to find apparent advantage in adversity, the DOE congratulates itself on securing an "export order of a few thousand electronic watch modules to West Germany and Hong Kong. The symbol of India's efforts at the frontier of electronics has thus become a purveyor of low-value, low-sophistication chips in the world market. There is no assurance that this outlet will not suddenly dry up. And then SCL will have to really scramble to get the revenues that will enable it to plan for obsolescence.

A potential source of salvation for SCL would lie in mounting the hitherto absent measures to attune itself to the requirements of the local market. The number of semiconductor chip types that go into the typical computer system runs into several hundreds. Communications systems are also rather complex assemblies of functionally very diverse semiconductor chips.

As the only manufacturer of LSI chips, SCL can hardly hope to keep track of the

diverse applications of these devices. The answer would then be to maintain uncommitted production at as high a level as possible, and allow potential customers to contract for supplies of specific kinds of components, tailored to their requirement.

A singular advantage of chip fabrication is that it has few invariants. Within certain broad parameters, it provides for a remarkable degree of flexibility in choice of product. The analogy of the foundry is appropriate here. Just as a foundry is able to cast metal in any shape, given the mould, a chip fabrication facility can make chips of any sort, given the photomask incorporating the circuit design. This kind of customised chip manufacturing has the added advantage of being relatively scale independent.

The proposal to make SCL a "silicon foundry" was very much in the air when the Task Force on LSI/VLSI Manufacture submitted its report in 1983. But very little progress has been reported in that direction. This perhaps is a reminder that the pace of change and the emerging possibilities in electronics require a certain flexibility of approach that is a world removed from the bureaucratic stolidity of the DOE. And if the DOE wakes up a few years on to discover that all its forecasts about the benefits of liberalisation were way off the mark, then it certainly will not be able to fall back on the alibi that there were no early warning signals.

ANDHRA PRADESH

Incarceration of S A Rauf Right to Life vs Security of State

K Balagopal

TRY this riddle: how long can a person be kept in jail without being convicted of any crime?

For ever is the answer, in spite of Article 21, the Supreme Court in *Mankeo Gandhi vs Union of India*, in *Sunil Batra vs Delhi Administration*, and all those cases you have read about. The procedure is simple and 'lawful', in a manner of speaking, for all that the intentions are mala fide and contrary to all the declarations on Human Rights that India is signatory to. Here is the procedure (patented, as far as I know, by the Andhra police) which I formulate algorithmically keeping the twenty-first century and fourth generation computers in view: first you arrest the person and charge him with any crime you please provided only it is serious enough to delay the granting of bail; if and when the bail is granted you ensure that the guarantors for the bail bond (colloquially called the 'sureties', by a transfer of epithet) are local people (I do not know what our activist judges in the higher Courts say about the matter but their subalterns in the* lower Courts always insist that the sureties must be local, the better to keep track of them, you see); then they are at your mercy, you can pick them up at the Court as they come to present themselves before the magistrate

You have two options now: either you charge them with some crime (for instance, that they came to Court armed with explosives to attack the judge) and send them also to jail to keep their friend company; or you put them in lock-up, thrash them a bit and extract a statement from them alleging that the prisoner's lawyer coerced them criminally to guarantee the bail bond. This has the additional advantage that you can now charge the lawyer also under a few sections of the Indian Penal Code. In either case the bail order is rendered infructuous.

This cannot go on for ever, obviously. The people are a slippery tot, and India being a poor country there are not enough resources to police every single one of them properly and adequately. So after a while the prisoner will manage to come out on bail. You must be prepared for the eventuality. The best way is to keep a couple of Special Branch CID men posted permanently at the jail, to find out who is coming out on bail each day. When your prey is due to be released, take your jeep along with suitably armed policemen and park the vehicle right at the door-steps of the jail. It is true that jails have their own administration that is supposed to have its principles and procedures, not to mention self-respect. But that

makes no difference, for officialdom in our country is reasonable and always willing to ignore the finer sentiments (like prisoner's rights or their own self-respect) in the interests of Security of State, or even mere law and order. So you can pick up your victim as he comes out on bail and stow him away somewhere for a while; you thrash him to a pulp and then again bring him before a Magistrate with the allegation that this man whom the Court was gracious enough to release on bail was caught—much to your righteous shock and surprise—committing yet another crime. The best charge to fabricate is that he was found carrying a bag full of explosives. This has many advantages; one, that even normally being charged under the Explosive Substances Act is a serious business; two, that in these days when the Indian Penal Code is gradually being reduced to a single enactment called the Terrorist and Disruptive Activities (Prevention) Act, the charge enables you to book him under this Act; three, there is the marvellous convenience that (unlike in a murder charge, where you have to procure a properly murdered dead body, which can be rather a nuisance) this is a crime without a victim, for it is a crime of intent and not execution. So then, your prey is back in jail, with the extra benefit that this time he will be that much less willing to apply for bail.

Nevertheless—and this is what life's hard experience teaches—no one likes to be in jail permanently; after a while, after the sores have all healed, thoughts of his wife and children—or the Revolution, as the case may be—will drive him to take bail once again. You, of course, apply the same procedure once again, and see that he is back in jail. If he takes bail yet once more you do this yet once more.

No, this is not an endless cycle, there is *Nirvana* at the end; great advantage of this procedure is that if at the end of each cycle the prisoner is both physically and morally beaten down that little bit extra, the State gains an equal advantage; not merely the negative advantage reflected in the prisoner's degradation but the positive advantage that with each case filed against him the prisoner becomes a more and more 'dangerous' person; to continue the Buddhist metaphor, with each cycle the prisoner accumulates demerit and you accumulate merit. At the end of the fourth cycle or so he crosses the line beyond which his freedom is a threat to the Security of State, Public Order and the rest of the ritual chant that has justified all the repressive legislation in India. So, after going through the cycle described above three or four times you have enough material to clamp a National Security Act warrant on him, and you can then breathe free for one full year (two years, if the locale of this drama has been declared a Terrorist-affected area, like Punjab for instance). Apart from the Human Rights question, to a philosopher it will seem extraordinary that mere words—and that too the ungrammatical sentences scribbled on a series of FIRs by semi-literate policemen—can change material reality, can convert a free citizen into a threat to the Security of State, and thereby a prisoner-without-trial. But then whoever said that words cannot change

material reality was obviously a fool—it depends upon who controls the words and what kind of reality one is talking about. When the reality itself is a tissue of fabrications masquerading as truth even mere gestures can change it. And this epistemological inversion is sanctified by our Courts which have repeatedly held—in deciding petitions challenging preventive detention warrants—that mere multiplication of as yet unproved charges is sufficient to make a free citizen a danger to Public Order.

* * *

S A Rauf, once upon a time a talented lawyer of Anantapur, and prominent leader of one of the CPI-ML factions, was arrested by the police at Hyderabad on March 10, 1983. He was charged in three crimes that were committed in Warangal district during 1981, and lodged in the Central Prison at Warangal. This prison, it must be added, is one of the most difficult in the country to get out of—I do not mean break out of, but get out of by lawful means, with a release order duly issued by a Court of Law. Serving as it does the north Telangana districts which have witnessed a militant struggle of poor peasants over the last decade, the prison has been converted into a test case for the programme outlined above. Indeed the programme was tried out and standardised in this prison. As far as release from this prison is concerned, no Court of Law—not even the Supreme Court of India—has any effective jurisdiction; it is the police headquarters that has the final say in the matter. There was one boy, a harijan, named Yaqub after a muslim *pir*, who was arrested some time in 1982 on an 'attempt to murder' charge for having assaulted a prosperous Reddy landlord of his village. The boy obtained bail in the third week of his detention, but it was one full year later, after passing through the cycle jail-police station-jail three or four times, and getting mercilessly thrashed during each intermission outside jail, that he was finally released, broken and battered in spirit and willing to give an undertaking to the sub-divisional police officer that he would give up his 'extremist' politics and settle down with a job. The police officer—to give the devil his due—was kind enough to get him a job; or so one is told.

Rauf, as I said, was charged in three cases. In two of them, he was charged with having entered into a conspiracy to commit murder (both the victims bore the name Narayana Reddy, one of Upparigudem in Mahababad taluq and the other of Odedu in Chityal taluq). The third charge, under the Explosive Substances Act, was that while a secret meeting was being conducted by Rauf at some village in Wardhannapet taluq, the police surprised the gathering and they ran away throwing bombs at the police.

So far so good. Without prejudice to the State's mala fide intentions in framing these charges, one may say that its behaviour was proper and lawful. It is a fact of life and law that the State can charge any citizen with any crime whatsoever and incur no loss if the charge is later proved to be far-fetched.

The tricks started once the High Court gave Rauf bail in one case after another. He

was released on bail in the three cases on December 4, 1983. The police were waiting with their jeep parked outside the jail. They picked him up, put him in lock-up, and served National Security Act warrant on him dated December 5, 1983. The grounds of detention were precisely the three cases in which he was already arrested and just then released on bail; in addition, it was also held that he had egged on his party comrades in jail, as well as those who came to visit him while he was in detention, to commit further crimes, resulting in their actual commission in far off places such as Asifabad and Nellore. This was a rather unusual way of charging a person already in jail with further crimes; the police were to use it effectively again against Rauf.

The detention was challenged in the High Court, with the contention that since the grounds mentioned were crimes in which the detenu was already arrested and was going to be tried, and since the self-same High Court had, in its wisdom (surely not its mercy), given him bail for those cases, they could not be used as grounds of detention to put him in under NSA. The High Court countered the contention with the formulation that a linear cumulation of (even alleged) violations of law and order adds up to a threat to Public Order. Justice Punneya said: "It is now well settled that where the activities of a person result in the commission of several crimes, his activities should be treated as affecting Public Order (and not just law and order) and therefore he can be detained under 3(2) of NSA". Having well settled the issue thus he threw out of the petition.

In the normal course of things, Rauf would therefore be in jail until December 4, 1984, but not later. Sensing this, the police implicated him as a conspirator in another murder that took place in July 1984, while he was still in jail. He was said to have conspired with persons who came to visit him in the jail. Since it is the duty of the Special Branch OD to listen in to the conversation that any NSA detenu has with visitors, the government should have simultaneously suspended the local Intelligence men for dereliction of duty, but of course it did no such thing. This outrage on Law upset even the imperturbable Sessions Court of Warangal, and the Court discharged him of the case even before the case could be committed for trial.

Meanwhile efforts were afoot to hasten the trial of one of the murder cases in which Rauf was accused. As he was about to be released on December 4, on December 3, the case came to a dramatic end and not only Rauf but 21 others too were sentenced to life imprisonment for the murder of one person, Narayana Reddy of Upparigudem.

The penultimate act of the drama started with an appeal by the convicts to the High Court. As the appeal was being heard, there was a strike or agitation of sorts at Warangal Central Prison and Rauf was transferred in punishment to the Central Prison at Visakhapatnam. On April 3, 1986 the High Court acquitted Rauf and 12 others, and since he had already been acquitted of the other two charges, he should have come out a free man. But even before the acquittal

order could reach the Visakhapatnam prison, the very day after the judgment in fact, the Warangal police were knocking at the gates of the Central Prison, Visakhapatnam, with a production warrant to produce Rauf at a Court in Warangal and remand him to the Warangal prison, for he was wanted in yet another murder case as a conspirator. He had, they alleged, conspired with visitors to Warangal prison to commit a murder that thereby took place at Regondla in Parkal taluq, some time in August 1985. And so Rauf was back behind the walls of the Warangal prison.

The Court gave him bail once again, on May 27, 1986. But the police are now more alert. In the previous cases they were late in their attempt to prevent the 'sureties' from reaching the Court, and in their impotent rage they only succeeded in arresting them

after the event; in required a Habeas Corpus writ from the High Court to get them out. One of the earlier sureties was a woman of Chalcwai, and perhaps feeling delicate about arresting a woman, the police merely broke down the door of her house, smashed up the cooking pots, and abused her roundly. This time they are more alert. They are stalking the corridors of the District Court complex at Warangal, to pick up anybody who might venture there to guarantee Rauf's bail bond,

The prison walls are perhaps smirking, telling themselves we have swallowed up this man for ever, no matter that this country is the largest democracy in the world, and this State is ruled by the beacon light of self-styled anti-authoritarian forces and assorted free-lance democrats. Heaven forbid their smirk remains the last laugh.

Mathematical Methods in Theoretical Economics

Report on a Conference

Tapas Majumdar

CONFERENCES held in this capital city are usually high-profile: Questions of less than Paramount National Importance tend to get neglected here as a rule in all seasons. This past half-year, moreover, has been particularly bad for selling themes that could be of conceivable interest only to the hardcore specialists. In the event, the conference on "Economic Theory and Related Mathematical Methods" at the Delhi Centre of the Indian Statistical Institute (March 19-21) passed off peacefully but without quite hitting the media headlines. However, the fact that it could be organised at all and with some success in what clearly has been India's Year of the High Policies calls for a few comments and at least a nod of approval!

The conference was rather remarkable in at least two ways: First, it had been institutionally sponsored by the Indian Statistical Institute's Delhi outfit which, albeit admittedly a centre of excellence, had hitherto seldom demonstrated any obvious concern for first principles in economics. Now that a group of young and high-powered economic theoreticians is revealed to have been assembled here, a conference of this kind is bound to raise expectations in the profession of further consequential activity. But to such prospects I will return later.

The second distinguishing feature of this conference was the conjunction of high technical quality and broad theoretical interest of many of the contributions. I could count at least nine out of the twenty odd papers presented to the conference—and I may well be leaving out some that I did not read—that, in my judgment, were not only very competently written but also addressed to a range of fundamental issues in theoretical economics that could be probed if not laid bare by the application of related

mathematical methods. The conference thereby achieved a hit-rate of at least one in two which, in prevailing conditions, would be considered highly satisfactory almost everywhere.

The conference was organised by Parkash Chander, Shubhashis Gangopadhyay, Debraj Ray and Kunal Sengupta—all of ISI, Delhi Centre. The other local participants were from Jawaharlal Nehru University's Centre for Economic Studies and Planning, Delhi School of Economics, Institute of Economic Growth and the National Institute of Public Finance and Policy. Participants also came from the Centre for Development Studies, Trivandrum, Madras Institute of Development Studies, Burdwan University, Calcutta University, Jadavpur University, Indian Institute of Management, Calcutta, and Indian Statistical Institute, Calcutta.

It would be virtually impossible, on grounds of technical competence alone, for any one person to report reliably on all the papers presented at such a conference even if there were time and space for it. I am tempted, nevertheless, to give the readers of *EPW* my own personal comments on a few of the contributions that seem to me to be representative of the variety and quality of a larger set. I only add the caveat that given below are the highly personalised impressions of a *non-participant* observer whose sheer inquisitiveness about the concern of a paper rather than any special acquaintance with the related mathematical method, in general, accounted for its having been included for comment.

II

S R Chakravarty and B Dutta argued in 'Migration and Welfare' that there were two essential features of the type of rural-urban migration process that was activated and fed by growing earning differentials in towns.

First, due to overall growth, mean income in the economy went on increasing. Second, the proportion of individuals in the lowest wage-brackets in the economy also went on increasing at the same time. Since the usual social welfare functions are so defined that welfare was made to depend both on aggregate income and on income distribution, the implication of this dual phenomenon was that the net welfare effect of this particular type of migration was determinable unambiguously only if the trade-offs between the two (efficiency vs equity) were capable of being explicitly stated.

In other words, no change of social welfare due to migration seemed to be predictable *in general*. However, the paper showed that for three *specific* social welfare functions (including particularly the well known Gini function) it was possible (in almost all cases) to make unambiguous statements about the direction of welfare change. For these, almost every alternative hypothetical configuration examined by Chakravarty and Dutta had specific implications for social polity with respect to a Harris-Todaro type migration process.

In 'Dynamic Processes and Local Games', P Chander formalises the description of a non-tatonnement process in the determination (by the Planning authority) of the output of a given public good in each time-period. This output decision is assumed to be arrived at on the basis of 'proposals' of the individual consumers which are made after the announcement of a uniform imputation of costs by the planning authority. Each proposal, if realised, naturally will imply the diversion of resources from the production of some private good. The planning authority, of course, is assumed to accommodate in each time-period only some proposals.

The reason for considering a non-tatonnement process is the consideration that the cost of exchange of information between the centre and the agents through infinite iteration that tatonnement would imply is prohibitive. However for a non-tatonnement process to be plausible (i.e., acceptable to the consumers) it must be plausible at each step and not only over-all and in the long-run. In other words, the consumer may well object to the planned change at a step if he is convinced that the future iterations will not compensate him for his current loss.

The consideration leads Chander to examine whether the existing Green and Laffont procedure proposed in 1979, based on H R Bowen's 'An Interpretation of Voting in the Allocation of Economic Resources' (*QJE* 1943) can be modified in such a way that the payoff of the consumer at each instant will be at least as large as the payoff if his 'proposed' demand for the public good were met. Chander poses this as a problem in the theory of n-person co-operative games and introduces the concept of a local co-operative game to extend the Bowen-Laffont procedure in a way that successfully accommodates his compensation criterion. The implication of Chander's proposal for decentralised planning would be obvious.

'Excess Capacity and Entry Deterrence' by S Gangopadhyay, D Ray and K Sengupta is