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DEPARTMENT OF ECONOMICS

**STELLA MARIS COLLEGE**

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# EDITORIAL

In tune with the College objective of over all development of women students the department aims towards making them discover their potential, develop their personality, become socially aware and accept social responsibility with a sense of duty and conviction. It is our endeavour to inspire learners to develop analytical thinking and creative writing. Ankur the department journal provides a forum to discuss wide-ranging topics in Economics and related subjects enabling them to integrate theoretical and practical aspects of basic economic problems in the global and national sense.

We have great pleasure in bringing out this year's issue. We thank Dr. Sr. Annamma Philip, Principal for her encouragement and support.

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# FINANCIAL INVESTMENTS AND ENVIRONMENT

As in the case of all dynamic systems, investments and resultant industrial activity springing from this leads to an invariable discharge of wastes and byproducts. These substances, toxins of free-state chemical complexes which may form hazardous compounds, become a part of the ecological system and distort their functioning. Based on the relationship between environmental quality, economic performance and social welfare it becomes evident that sustainable development demands that larger investments be directed towards environmental protection and restoration of the productive and assimilative capacity of natural capital. Increased investments will have to be made not only for adapting to the environmental limits but also for shifting them. The pattern of investments should move away from environmentally destructive type to more eco friendly ones. Investments in modern biotechnology, research in production etc, are important examples of this. It is by influencing today's long-term investment decisions that the policy and decision-making community can have the largest impact on the international communities sustainable development efforts.

The ensuing discussion has focussed primarily on these aspects: Economic Growth via rapid financial investments seems the 'Mantra' in today's context of economic reforms in our country. Investment, in all its different forms, shapes our lives as well as that of generations to come. However continuous investments especially in non-eco-friendly industries can have a detrimental impact on our environment. In many cases it can be said that today's resource degradation is a function of earlier investment decisions (particularly by the Western countries) about the scale and quality of consumption and production. This calls for increased understanding of investment processes for improved management of the environment.

If we consider the case of our country India, a different strategy from that of developed countries is called for. This is because in the developed world, industrial revolution preceded environmental consciousness. However if we consider the present economic scenario in India, domestic and export compulsions make certain demands on us. We can certainly learn from the experience of developed countries about the hazards of over-industrialisation but at the same time, we simply cannot afford to ignore the minimum needs of our population.

## **Developing Countries - Dilemma.**

Although increasingly aware of environmental values developing countries are constrained by severe budgetary constraints and hence find it difficult to make investment in environmentally sound techniques, if less expensive, but polluting alternatives exist. Further they argue that now, it is their turn to benefit from the technologies the industrial world has been using for a long time. However, one must take note of the fact that much of today's technology is not environmentally sustainable and hence in the long-run not economically sustainable.

Moving over specifically to the Indian scenario, it becomes apt to mention the challenges facing our country. India has about 16% of the World's population, 20% of the World's cattle and 55% of the Buffalo population and only 2% of the total land area. There is severe pressure on natural resources because of simultaneous increase in population, economic growth and heavy backlog of pollution control projects.

The environmental problems facing our country are threefold :

**Type 1 :** These problems arise out of lack of development such as deforestation due to fuel wood

extraction, hygiene related problems, soil erosion, lack of sanitation and protected water-supply. If the tempo of development is slow type 1 problems will intensify.

**Type 2** : are caused by lack of environmental safeguards in development projects such as air and water pollution, hazardous waste disposal, water logging in irrigation projects, pesticide pollution and fertilizer runoff into streams. If sufficient investments are not made in development projects to compensate for environmental degradation, these problems will increase.

**Type 3** : are global environmental problems such as global warming, ozone depletion, marine pollution, loss of genetic diversity, automobile pollution etc., created by the current pattern of development, life-style and energy use mix.

Indeed we as a nation, are in a rather precarious situation, with paradoxical environmental problems.

Type 1 problem arising out of lack of development, Type 1 and 2 arising out of the developmental process. Therefore, if we do not develop rapidly, Type 1 problem will overtake us. If we do not care for the environment Type 2 problem will overwhelm us. Environmental management issues will have to be seen in this context. There are 4 options open to India.

- a) Increased / high economic growth via heavy investments in all types of industries with low environmental safety investments. This is clearly undesirable because it leads to increased levels of pollution and pollution related industries.
- b) low economic growth and low environmental protection. This again is undesirable as it leads to increased poverty and pollution i.e., Type 1 and Type 2 problems will exist.
- c) low economic growth and high environmental protection. This would prove unsustainable from the long-term point of view since they would not have enough resources at their disposal to pursue this option.
- d) Increased economic growth via investments accompanied by increased investments in environmental protection. This will help raise income levels of the poor and protect our environmental resources. In a liberalized context, only this can sustain development with environmental protection. Thus the fourth option seems ideal considering our conflicting priorities of rapid development and a high degree of environmental protection.

Let us now consider a specific environmental problem e.g., Global warming. According to the United States Environmental agency (Sepa - 1989) 50% of this phenomena is caused by Co<sub>2</sub> emissions, 18% by methane, 14% by CFC's and 6% nitrous oxide and 12% surface ozones. Activities contributing to these omissions are 57% by energy used production, 17% by industrial activities emitting CFC's, 3% other industrial activities, 14% by agricultural practices and 9% by land use modification. It would be apt now to take a closer look at issues relating to investments in our country to see whether it contributes to global warming and other environmental hazards.

There are two related issues namely

- 1) The pattern and type of investments in our country in the recent past and whether it is environmentally sustainable.
- 2) Investment made by countries in pollution control techniques. It has been observed that the growth of industries that emit pollutants or discharge effluents has been higher in 1970's and 1980's during the period of rapid industrialisation. Many consumer goods segments such as

paper and leather products and goods such as petroleum products, fertiliser, caustic soda, iron and steel and sulphuric acid have experienced a doubling of output between 1961-62 and 1991-92. The industrial growth pattern along with the industrial transition is affecting the environment because of poor investments towards environmental protection. The investment proposals approved between 1991 and '94 show that the major segments of industries which are growing are : Petroleum refineries, Thermal power generation (energy use industries), Chemicals (emission of CFC's) and food-processing. These segments thus fall under those categories of activities which contribute largely to global warming.

### **Foreign Collaboration Approvals August 1991-Oct. 31st 1995.**

(Rs. in Millions)

Sectors	Value
Fuels (Power and Oil Refinery)	107420
Chemicals	33582.3
Telecommunications	32388.4
Service Sector	29753.6
Metallurgical Industries	28547
Electrical Equipments	26268.2
Food Processing	21936
Transportation	19269.8
Hotel and Tourism	18934.4
Textiles	15008.5
Miscellaneous	64665.3

Source : Secretariat of Investment Approvals

A close look at the sector-wise break-up of the FDI Approvals between August 1991 and October 1995 indicate that in terms of value, fuels category inclusive of power and oil refineries constitute the largest segment followed by Chemicals. This trend seems alarming from the environmental point of view.

There is another dimension to investments in our country. It must be noted majority of investments are flowing to four major states namely: Maharashtra, Gujarat, U.P. and T.N. Rapid Industrialisation and consequent urbanisation in these four states has resulted in the rapid growth of low income population residing in squatter settlements. Though programmes to ensure adequate water-supply and sanitation in urban areas have made some progress, the urban population without access to potable water and sanitation is increasing in number. Therefore one of the fall-outs of rapid industrialisation is degradation of urban environmental quality.

The New Economic Policy envisages rapid industrialisation via financial investments, both domestic and foreign. Let us consider a few examples to show how the policy of liberalisation via delicensing and inviting foreign equity upto 51% in industries could result in serious environmental problems.

The "Blue-Revolution" seems to be the talk of the country today. The growing importance of marine products exports has made it one of the largest foreign exchange earners for India. According to the Marine Products Export Development a wing of the Union Commerce Ministry, there has been a steady increase in the export earnings in this sector which crossed nearly 1 billion dollar mark in 1994-95. Such a rapid growth potential in this area has urged the government to encourage foreign participation especially in deep-sea fishing. Opening up the exclusive economic zone to foreigners as part of the liberalisation and globalization policy has invited resentment from the local fisherman. Use of sophisticated mechanical trawlers would apart from reducing the fish population also damage their larvae thereby restricting fish catch in the future for the local fisherman.

Industrial growth of a country has to be judged from the quality of environment. According to a recent World Bank Survey Indian industries consume more energy compared to those of the advanced countries. For eg. energy consumption in Indian Steel and Cement Industries is higher by 80-110% and 30-40% respectively. The steel industry is the second largest consumer of fossil fuel in India next to thermal power stations. The need of the hour is judicious use of depleting fossil fuel resources and reduction in specific energy consumption and gaseous emissions. However, a glimpse of the foreign collaboration approvals shows an alarming trend of investments flowing into the fuels cartogory inclusive of thermal power.

Besides the major thrust of the government has been on export-promotion. Environmentally, increased exports would result in shifting dirty or polluting technologies to developing nations. In the past few years there has been a spurt in the export of manufactured products through polluting processes. For eg. Indian chemical exports was to touch Rs. 4284 crores during 1992-93 which is nearly 1½ times more than in the previous years. The manufacture of dye and dye-intermediates are not only expanding in the small scale sector but exports have been steadily mounting.

If we consider agricultural exports we find that the major threat to the environment has been through the replacement of traditional food-crops by the hybrid cash-crops. Degradation of land, pollution through pesticides and fertilizers and loss of bio-diversity has been some of the more disturbing environmental impacts. Exports of our genetic resources and consequent destruction of our forest is causing concern. Recent modification in the export policy reportedly necessitated by the World Bank, have liberalised the export of the following items: Wild Orchids, Processed Brown Sea-Weeds, Machine finished sandalwood products, handicrafts made out of sea-shells etc. Permitting export of orchids and plants pose a serious threat to our biological diversity. Similarly, the export of sea-shell items will have an impact on the ecology on our coastal and marine areas. Besides India exports nearly 40% of the specific pesticides (iso-proturon) whereas few years ago, this enviromentally hazardous product was actually imported into the country. Today exports from our country are beset with many challenges since countries are imposing quality and enviromental standards for both product and processes. Therefore, Indian producers will have to step up environmental protection to be globally accepted. Further it pays to concentrate on the pattern of export investments to prevent environmental destruction.

In conclusion, it can be said that in India, there is a need to harmonize the growth objective with enviromental protection. There are five suggestions to achieve this.

- 1) A national policy needs to be evolved on the management of hazardous wastes. It should aim at reducing wastes and utilising it for manufacturing recycled products. Campaigns to remove prejudice agaist use of recycled products should also be conducted.

- 2) Channelising our investments towards more eco-friendly industries and where this is not possible for the sake of economic growth enforcing stringent rules for installing pollution-abatement techniques.
- 3) Better communication between industry and pollution control boards.
- 4) Encouraging investments in pollution-control techniques by
  - a) Extended marked support for recovery of product through fiscal concessions.
  - b) Acceleration of depreciation allowance on pollution control equipments.
  - c) Incentives for indigenous manufacture of quality equipment.
  - d) Reduced import duty on pollution control equipment
  - e) Starting common centralised effluent treatment plants for industries in particular area manufacturing similar products.
- 5) Evolving rational standards and parallel support systems and facilities for effective implementation.

It will take nearly ten years for today's shift in investment pattern towards eco-friendly industries and pollution control techniques to yield positive significant impact on the environment. Harmonizing growth via investments with environmental protection is undoubtedly a daunting task but certainly not impossible.

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**Teresa Paul**  
M. Phil., Economics

## GLOBAL TRENDS IN CONSUMER ELECTRONICS

The international markets of the consumer electronic goods have been stagnating over the past few years. In the region-wise share of the world market, North America, Western Europe & East Asia (baiscally Japan) dominate world markets, with a combined share of 77% among them. Of the top 11 consumer electronics market leaders -7 are from Japan, 2 from western Europe and 2



from Korea, China accounts for 9% of the world electronics market. Even though the major markets are in Europe & North America the major production bases are in East Asia. The global audio industry is completely dominated by Far East countries. The consumer Electronics industry concentrates in areas where an infrastructure of components suppliers exists. The major technology trends driving the changes worldwide are - integration & miniaturisation digital technologies, automation in design and manufacturing, zero defects and wide-screen / high-definition television.

The Indian consumer electronics market is negligible as compared with the rest of the world, and will remain so for the foreseeable future. The market profile in India tends to move toward low-end, "no-frills" products with basic featuring. The low market profile in Indian can be attributed to the - unavailability of technological capabilities available abroad, insufficient quality orientation, lack of adequate product knowhow, weak components infrastructure, low volumes of production & inefficient manufacturing processes, high tariff/cost structures & bureaucratic complexities. However, India possesses important strengths to become globally competitive in its industries. A large pool of technical talent & skilled workforce is available at relatively lower cost as compared with other parts of the world, and is potentially productive with proper motivation and training. Some suggested steps to make the Indian consumer electronics industry globally competitive are - quality improvement security ISO 9000 certification, focusing more attention to the customers' desires in product development, upgradation of the design knowledge for medium to high-end products, automation of the product design & manufacture process, etc.

**Archana Bajaj**  
I MA Economic

## **PUBLIC SECTOR FUNCTIONARIES - HOLDING THE PUBLIC TO RANSOM?**

The last few months have seen a disturbing trend the world over, be it in a super-power country like the United States, a highly industrialized nation like France, or a developing nation like India. Ironically, at the heart of the problem, the culprit is none other than the mass of public sector functionaries or their equivalent. These are the people, who by the very definition, are supported largely by the taxpayers, in order to smooth out the crinkles in the functioning of the public sector, and not to create the crisis itself.

Taking the case of the United States, the fallout amongst political parties led to a delay in sanctioning funds for payment of salaries of government employees. It is indeed true that their fiscal deficit is rather staggering. However, it is not reason enough to justify the sudden standstill of government agencies and their closure as a result of the decision by top level government employees. This hampered the functioning of many governmental agencies around the world, causing severe inconvenience to the American taxpayers who found much of their official paperwork crippled, as also international trade dealings. The alternative offered by the American government was a cut in social security and medicare. Naturally, this caused much alarm, as medical care is prohibitively expensive in the United States on account of high insurance costs resulting from malpractice suits. Budget cuts could mean public humiliation for Americans in the eyes of the world, for they may not

be able to pay dues to international agencies such as the NATO, the UN, etc.

France, the country of wine and cheese, Paris, the world capital of culture, fashion and élan. It was an embarrassment for the refined French when their capital city was brought to a grinding standstill by their public functionaries. The underground metro system, the fundamental artery to all movement in Paris was completely paralysed as its employees went on strike. Their grouse was President Chirac's proposed altered social security system. They were joined by their counterparts in other important infrastructure governing public bodies. They literally held the public to ransom. The President they had elected was to reconsider his position or else Parisians would face a cold winter with no electricity and movement by public transport would no longer be possible. Again, this standstill meant large losses suffered by the economy, not to mention tremendous discomfort to the common taxpayer.

As for India, one need hardly be reminded of all the strikes and go-slow agitations in the public sector. It is there for everyone to see. The spot strike by Indian Airlines pilots was rewarded by a salary hike of 85%. This is practically impossible to justify given the losses that the airline is incurring. At the end of it all, one cannot even claim loyalty on the part of public sector employees, for at the drop of a hat, they are off to greener pastures, the private sector. A low level of efficiency coupled with widespread corruption and the ever-present threat of a strike: surely the taxpayer does not deserve this kind of treatment. In principle, the tyranny of the public sector is to come to an end with privatisation. Unfortunately, no concrete steps have been taken in this direction. In fact the topic of privatisation is glaringly omitted in all national discussions and political speeches. One could speculate that this too is on account of the fact that the implementation of the policy is in the hands of functionaries.

The question that arises is whether there exists a solution to this problem. It is evidently not an isolated case, but rather an epidemic, spreading from country. Given the concept of a Welfare State, it is neither possible nor practical to imagine a world without the public sector. Yet one cannot expect the common man to silently bear this injustice. The public sector functionaries do not under any circumstances have the right to hold the country to ransom, crippling the system when they do not fancy a policy measure. Must one be Marxian in approach and await a revolution, or is there something that can be done? This is a question that must be examined by every individual, as well as society at large.

**Nitila Natarajan**  
I.M.A. Economics

## ENERGY AND ENVIRONMENT

As we enter the last decade of the twentieth century, the pursuit of prosperity is influenced as never before by environmental realities. What is new is the growing realization that political and economic decisions once made with an eye to particular regions or business impacts - must now be made with the earth in mind. The false dichotomy between commerce and nature is giving way as people come to see that development cannot be economically sound over the long-term unless it is environmentally sound.

Energy is essential for every industrial and commercial process and cannot be recycled. Because

the supply of fossil fuels is finite and non-renewable, future generations may not have the same access to cheap energy sources that we do. Moreover, extracting, transporting and converting all forms of energy imposes environmental costs though some energy forms are less damaging than others. For those reasons, ecologically sound development must include policies that achieve a sustainable energy system and take the environmental costs of energy usefully into account.

The increased focus on energy efficiency is also being driven by the fact that the environmental implication of the growth in energy demand in developing countries are very large worldwide. Energy economists opined that energy is considered as an index of economic development. For an overall economic development of a nation, energy is essential to ensure adequate and sustained supply of energy for every sector of the economy. As a matter of fact, of late, energy has come to be viewed as a saboteur of civilization destroying the environment and consuming the patrimony of future generations.

If we take a quick look at the forms of energy we see that :

Subsidizing the price of electricity has both economic costs and environmental effects. Low prices give rise to excessive demands and by undermining revenue base reduce the ability of utilities to provide and maintain supplies developing countries use about 20% more electricity than they would if consumers paid the true marginal cost of supply. Underpricing electricity also discourages investment in new cleaner technologies.

Because of the need to serve the borrowing incurred to build new generating capacity some developing countries are now starting to raise electricity tariffs. Some are considering or implementing privatisation programs usually in the hope of tapping capital markets to build new capacity. Price increases may be easier in countries in which parts of the energy industry are privatized and management is also likely to be improved.

Switching to natural gas, where it is economically available carries many environmental advantages. Its use offers reductions in sulphur dioxide of more than 99.9% in relation to conventional coal-fired, boilers with poor or no emission control technologies. For many countries gas offers the prospect of both cheaper electric power generation and less local pollution.

Fossil fuels will continue to be the predominant energy source for the next several decades, and the main task ahead will be to use them in economically and environmentally satisfactory ways. But if the threat of Greenhouse warming made it necessary to restrict the use of fossil fuels, could the world's demands for commercial energy still be met is a big question mark.

Biomass fuels; About half of the people cook all or some of their meals using biomass fuels. Until the twentieth century such fuels - mainly firewood - provided most of the world's energy. Today biomass in all its forms (wood, agricultural and forestry residues and dung) meets about 14% of the world's energy demands and accounts for 35% of the energy supplies more than is met by coal, oil, gas or hydropower.

Nuclear Power has 2 handicaps; its costs and its environmental risks. Discoveries of fossil fuel reserves and progress in production and conversion technologies have helped to hold down the prices of fossil fuels. At the same time, the costs of nuclear stations have risen for a variety of reasons : long lead times and delays in seeking approval, meeting environmental safeguards and constructing the plants, the costs and risks of disposing of radioactive wastes and the prospective costs of decommissioning plants. This has resulted in development of renewable energy like land, solar and biomass.

Solar energy : Each year the earth's surface receives from the sun about ten times as much energy as is stored to the whole of the world's fossil fuel and the world's primary energy demand - can be captured in solar thermal systems, which produce heat from electric power generation and from domestic and commercial issues, or with photovoltaic systems which produce electric power directly from sunlight.

The potential availability of  $5 \times 10^{15}$  K Whr/year of solar energy over the country the actual energy generation through installed solar thermal devices is at present less than 130 MK Whr/year according to DNES report of 1991-92.

After the Oil Shock of 1970's, the Action plan emerged to ease the dependency on oil and subsequently reduce their expenditure scarce forex. The recommendations pertained to actions that were known a priori as for (eg).

1. Governments should undertake surveys and assessment programs regarding alternatives to oil, gas, coal & nuclear power, using the information as a basis for planning for the development of hydro and other environmentally benign sources of energy.
2. More research should be undertaken on alternative sources of energy particularly as applied to poor countries.
3. The costs and risks of demonstrating new technologies should be shared so as to accelerate their application.
4. More training should be provided for personnel involved in both policy making and project preparation and in building operation and maintaining new components of their country's energy systems. In formulating integrated energy strategies, governments must first review both supply and demand side options and set priorities that address major impediments to improving the efficiency with which energy is produced and consumed.

## Renewable energy

In India, Non conventional or renewable sources of energy have played a fringe role in overall commercial energy generation until recently. Plan funding for non-conventional energy sources has been around 0.1% of total plan expenditure in the sixth plan and 8.3% in seventh and eighth plans.

Estimates of potential energy availability suggest enormous room for growth upto 20,000 mw from wind energy, 17,000 mw from biomass and 10,000 mw from mini-micro hydel projects. Ocean thermal sea wave and tidal power have a potential of another 79,000 mw.

### Potential availability of power

Biogas plants	—	12 million numbers
Improved chulha	—	120 million
Biomass/bioenergy	—	17,000mw
Mini-micro hydel power	—	10,000mw
Wind power	—	20,000mw

Ocean Thermal Power	—	50,000mw
Tidal power	—	9,000mw
Sea wave power	—	20,000 mw
Total solar output over the Indian landmass	—	$5 \times 10^{15}$ KWhr/year

Source : CMIE Report July 1995.

## Conservation, Promoting Energy Efficiency and Sustainability

Promote energy efficiency is the least-cost and most effective immediate option for reducing the local, regional and global environmental problems associated with energy use. In all countries and particularly in developing countries, the scope for economically and technically feasible investments in energy efficiency is large. Grasping these opportunities offers attractive returns over expanding energy supplies and can save many tens of billions of investment dollars over the next decade. Promoting energy efficiency requires governments to reduce energy subsidies. Governments in most countries are deeply involved in energy markets through public ownership, regulation and fiscal interventions. As a result while some energy sources and uses are heavily taxed, others are available to users at far less than the heavily taxed, others are available to users at far less than the incremental side effects. Government ownership or regulation of some energy supplies though theoretically justified by economies of scale in conversion or distribution has usually been a vehicle for direct and indirect energy subsidies. The belief that cheap energy is essential for economic growth is behind energy subsidies, but low energy prices typically mean low and stagnant energy efficiency and not rapid economic growth. On the contrary, many countries have achieved rapid economic growth since 1973 with relatively high energy prices and little increase in the energy consumption.

With the evergrowing demand for electric power and continuously depleting fossil fuels such as coal, oil and gas, various alternate sources of energy have been restored to by advanced nations. While wind, geothermal and water power are safe to use, they cannot be tapped at all times in all places.

In addition to the economic cost of meeting the developing world's rising energy needs, the environmental price is steep. Over the last 2 decades, rapid expansion of energy sector in south has been accompanied by a decline in urban air quality as well as serious land and water degradation from mineral exploitation and fuelwood harvesting. And as energy use rises, so does the emission of greenhouse gases, though the developing world still only accounts for a modest percentage of global emissions. Growth along conventional lines will only intensify these trends.

Adopting new technologies is not the sole means of improving energy efficiency. Good operational and management practices, many of them straight forward and inexpensive, can minimize energy waste. In the developing world the use of more efficient appliances and processes could result in energy savings of as much as 50% with consumers reaping savings from 25% over the life of the equipment.

On the supply-side, 15% increase in power plant efficiency and a decrease in transmission losses of about 6% are possible. Together with a 25% increase in end-use efficiency, these efforts could

areas. In addition, the transportation sector offers developing countries tremendous opportunities for saving energy through efficiency measures, including proper road and vehicle and mass transit systems.

Despite the obvious economic advantages, developing nations have been slow to embrace the concept of energy efficiency. For one energy planning has traditionally focussed on increasing supply as fast as possible, not managing supply to maximize services.

Another barrier to adopting efficiency measures is economic instability. Hyperinflation, causes interest rates to rise, dries up investment capital and makes it difficult to calculate the payback period for efficiency investments reducing their attractiveness.

To conclude we can say that Good environment policies are good economic policies and vice versa. Efficient growth need not an enemy of the environment and the best policies for environmental protection will help and not hurt economic development.

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**Sowmya S.**  
M.Phil Economics

## AGRICULTURE INDUSTRY AND ENVIRONMENT

The environment in which human beings originated and survive has number of constituents like air, water, soil, plants - all of which maintain a complex structure in themselves, based an inter-relationship and interdependence, based on certain fundamental principles. Survival of human beings at present and in the period ahead is largely dependent upon a natural balance among all elements surrounding us. We all want to breath fresh air, use pure water and live in noiseless atmosphere. Unfortunately, we find ourselves surrounded by polluted air and water and noisy world. All these combine together may be called Envirnomental Pollution, which has emerged as a major problem all over the world. Environmental degradation has 3 damaging effects. It harms health, reduces economic productivity and leads to the loss of amenities. Pollution-free environment is essential for sustaining life of all living beings on the earth.

This discussion is confined mainly to the pollution caused by the chemical fertilizers and pesticides or insecticides used in the agricultural fields and also in their industrial manufacturing process. While technology induced farming is required for feeding the surging population, the excessive use

This discussion is confined mainly to the pollution caused by the chemical fertilizers and pesticides or insecticides used in the agricultural fields and also in their industrial manufacturing process. While technology induced farming is required for feeding the surging population, the excessive use of chemical fertilizers, pesticides, in agriculture has caused environmental imbalance and is causing problems to all living beings on the earth.

The miracles of the '60's have become the nightmare of the '90s. Environmental consciousness has exposed the shortcomings of the technology which failed to take into account the environmental aspects. Through combination of genetic manipulation and chemical inputs, spectacular increases in traditional foodcrops were achieved. Even the rise in consumption of pesticides was encouraged in many developing nations through costly subsidies, tax-incentives and agricultural extension programs. However, only recently have the environmental costs of such technological advances been evaluated as pests became resistant to pesticides, thereby necessitating the use of stronger and more harmful chemicals. Good agricultural lands experienced serious loss of soil nutrients. The chemicals made their way through the food-chain into people affecting their health. Also irrigation without proper drainage led to water-logging and salinity, rendering precious cultivable land infertile.

The pesticide problem is most serious one and needs to be tackled on a war-footing. The number of persistent chemicals that are sold in the country and the discriminate use of plant protection chemicals are matters of grave concern to the public and the policy-makers. The pesticide residue in food-chain in vegetables, eggs, fish, meat, milk and milk products and edible oil have been detected in different places in the country.

The most productive agricultural and aquaculture regions in the country have been showing severe pesticide pollution. 'Kuttanad', the rice bowl of Kerala is showing serious fish diseases, which has been caused by pesticide poisoning. the presence of some of the banned chemicals such as DDT has affected the ecology of the unique rice-belt which has been altered drastically. The fate of Chilka lake in Orissa is no different. The wild life especially the birds and the aquatic animals have been severely affected by the high doses of chemicals.

Besides these, there are instances of pesticides poisoning killing humans and livestock. More than 665 people died in 1989-90 because of pesticide poisoning and thousands of cases of crippling resulting from pesticides have been recorded in the country.

India is the largest producer and consumer of pesticides in South Asia. and the pesticide use has been on the rise in the last three decades. Andhra Pradesh is the largest user in the country followed by Tamilnadu and Uttar Pradesh. The per hectare use of the plant protection chemicals is highest in Tamilnadu, which is far ahead the second and third major users namely Punjab and Andhra Pradesh.

Insecticides most of which are neuro-toxins followed by fungicides and herbicides are widely used in the country. Several toxic agro-chemicals that have been banned in the developed countries are still being used in India.

The danger is particularly greater among the small-holders, who are ignorant of the toxic nature of the chemicals they handle. Most of the pesticides they spray do not have proper instructions or warnings. In the recent years, the scientists have become aware of the need to restrict the use of the plant protection chemicals.

The other major cause of concern arising from intensive farming is the fertilizer pollution. Though

the synthetic, inorganic nutrients are not directly toxic to man and other life forms they have been found to upset the existing ecological balance. The nutrients escape from the fields and are found in excessive quantities in rivers, lakes and coastal waters. Algae blooms occur when the nutrient load is high and these smother other aquatic vegetation and also interfere with the oxygen regulation in the water-bodies. This phenomenon may lead to loss of fish.

A survey of 3,000 wells found about 20% of them had an excess of nitrates per litre and 3% over 100 mg per hectare. Among all the sites, the presence of nitrates are greater in wells in villages compared to those in the fields. Blue baby syndrome in infants and gastric problems and carcinogenesis have been related with nitrates in drinking water or diet.

Alternatives to exclusive reliance on chemical pesticides do exist, some of which are currently being applied in the developing as well as the industrialised world. The most common alternative approach is known as Integrated Pest Management (IPM) in which both crop and pest are seen as part of a dynamic agroecosystems. IPM attempts to capitalize on natural biological factors that limit pest outbreaks, only using chemicals as the last resort.

Organic manures like farmyard manure, crop residues, biogas slurry, crop wastes, oil cakes, earthworms and composts help in improving fertility of the soil. Application of these soil amendments would change the Rhizosphere environment by affecting porosity, aeration temperature, water-holding capacity and soil microflora. These manures contain ingredients necessary for the crops such as nitrogen, phosphorous, potash, sulphur, calcium and magnesium etc.

Plant products like neem, tulsi, marigold and bougainvillea have been found effective against number of disease and insect-pests. Many neem-based formulations like Neemark, Neemguard etc., are available in the market and are in great demand. Likewise, the ecological agriculture will become popular gradually. There have been several positive steps towards this direction. IPM and nutrient recycling systems have been advocated widely. The reliance on synthetic agro inputs is gradually removed by substituting them with farm grown inputs for ecological and economic reasons.

The current pattern of industrial activity altering the natural flow of materials and introducing novel chemicals into the environment on a vast scale is toxifying the environment. Some analysts fear that the toxic burden is nearing a threshold beyond which it will destabilise ecosystems and alter planet wide nutrient cycles.

Enthused by the Green Revolution India went ahead with producing more of chemical fertilizers. The effect of fertilizer on our soil and on our economy is already discussed earlier, but the effect of fertilizer factory on our environment is alarming. Fertilizer plants generate large quantities of air-pollutants. The main pollutants are fluorine gas, particulates, sulphur-dioxide and trioxide from sulphuric acid or phosphoric acid units and nitrogen oxides, ammonia, hydrocarbons and particulates from nitrogen based plants. It is unfortunate to note that although compared to the cost of the plant itself, pollution control equipments costs very less. Most of our units, even public sector units do not install them.

A variety of insecticides, fumigants, weedicides and pesticides are produced for agricultural use. The impact of the manufacturing process of these chemicals on environment is also highly damaging. For manufacture of various type of Benzene Hexa Chlorine (BHC), about thirty cubic metre of waste water is released per tonne of BHC. The characteristics of the waste water indicate that it is highly corrosive and toxic. Another commonly used insecticide, DDT generates 50-60 cubic metre



It is estimated that about one third of the large and medium water polluting companies generate hazardous wastes, notably the pharmaceuticals, pesticides, petroleum, fertilizer and inorganic chemicals. Disposal of these wastes is largely uncontrolled. Health officials are concerned about the effects of hazardous wastes on humans.

The risk of widespread environmental damage will continue to grow until industrial patterns change. A detailed study of various aspects of environment and source of pollution was discussed before. In every step, we take towards development we may notice some harm or other is caused to environment unless, of course, the precautions are taken. Does that mean we shall stop all development ? Everytime we plan for a project, we are being opposed by environment lobby inspite of the fact that we also need the developmental processes for our survival to match the process of the development elsewhere.

We certainly need such projects for our development. At the same time, we need pollution-free environment. We need development but a sustainable development. All our development projects should be pollution free. Their effluents or releases are to be treated properly before release. Wherever possible they are to be recirculated to produce byproducts.

In India, the Environmental Acts and Laws are to be updated so that no one who releases pollution should escape punishment. Pollution Control Boards are to be made more active and are to be given more powers. They are to be headed not by bureaucrats but by knowledgeable persons.

\*Environment Studies are to be made as separate faculty so that we may have a professional look.

\*Every aspect of a developmental project must have environmental outlook.

Environment and development does not mean only controlling pollution. It also means the way we live, our sanitation, our home and our water-supply. We must live with sound health with appropriate amount of food. On the whole, for sustainable development we need a holistic approach to have an environment for everyone to be happy both today and tomorrow.

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**Cyrylla Fernandez**  
M.Phil, Economics

# MULTINATIONALS AND ECONOMIC DEVELOPMENT IN INDIA

Multinational Corporations have emerged as a major force on the world economic scene, accounting for over one-fifth of all production. They are considered to be very powerful, having overthrown even dictatorships like the one in Chile. An MNC is an independent economic entity that cuts across national boundaries. It employs some immobile factors of production such as labour and land in conjunction with two factors which move freely within the corporate empire, namely capital and technology. The decisions in an MNC are taken centrally on the basis of its position in all the countries where it operates

There is often a great debate as to whether it is advisable to allow MNCs to operate in developing economies and whether they are exploitative. Those who believe that MNCs have a very big role to play in development cite the example of Singapore which has really received a great boost due to investments by MNCs and has grown to the extent where it has now qualified for the status of a developed nation.

Prior to the liberalization process, the economic policy was inward looking and attempted to keep the MNCs out by restrictions such as FERA and so on. Therefore there were not many MNCs operating in India. However, the shortcomings of such a policy were realized and hence it was modified.

As part of the new policy, FERA has been diluted and companies are now allowed to own 51% equity and even more in order to attract more MNCs. As soon as one year after the new policy was announced the Government had approved as many as 495 proposals for collaborations involving a staggering amount of Rs. 1800 crores. Recently, the setting up of 100% subsidiaries has been allowed and this has led to a large number of new entrants such as Coca Cola, etc. Unfortunately, it has been noted that insistence on high priority sectors has given way to all sorts of investment-consumer durables, leather products, etc.

There are several advantages derived from the presence of MNCs in India. Some of these are:

- MNCs are financially very strong and provide cheap capital. Investment in India represents a considerable risk for MNCs due to lack of adequate infrastructural facilities, nevertheless they do invest here. They lead to an increase in income, output and employment which through the multiplier leads to a substantial increase in those variables.
- They provide the advantages of expertise, superior management, training and education. Training the local labour leads to human capital formation. MNCs transfer advanced technology. They conduct market research and create new demand through advertising.
- They force local producers to be competitive as well as quality conscious. Therefore the consumers have not only a wider choice of products, but also access to better quality products.
- An MNC may be a vehicle for making effective the country's comparative advantage since as a planning unit, it makes resource allocation decisions.
- According to Baldwin, it may not be economically profitable from a private viewpoint to add a new product to a country's production list unless the international firm mechanism is used. Hence MNCs may enter these specific areas bringing with them the required capital and technology.
- India could benefit largely in social terms with the entry of MNCs in areas such as

pharmaceuticals. MNCs may make available life saving and other crucial drugs required. According to Dr. Raja Chelliah, India requires a capital inflow of about \$2.5 billion, the deficit of the current account deficit over foreign aid. MNCs can help bridge this deficit in addition to bringing in technology. This would be preferable to a high external debt which comes laced with certain conditions.

However, MNCs have come to be regarded as agents of exploitation for the following reasons :

- Some MNCs insist on 100% subsidiaries which means that they export all the surplus profits back to their country of origin.
- The local staff employed in the MNCs are paid very high salaries and this may lead to discontentment among local labour employed in indigenous enterprises.
- MNCs transfer second rate and overpriced technology which is not even suited to India. MNCs may bring in capital intensive technology to India which is actually labour-rich and relatively capital poor. For this technology which is not suitable for our economy, we have to pay very high royalties.
- The long term effect of MNC investment is usually negative on the Balance of Payments as they repatriate huge amounts in the form of royalties, profits, interest, dividend, etc. For example, in India, in the early 80s, the assets of MNCs were valued at approximately Rs. 2401 crores and in the same period the remittances abroad per year was approximately Rs. 133 crores which is a sizeable amount for a developing country and this can have serious consequences in terms of an adverse Balance of Payments situation.

There are certain other disadvantages, but these are relatively minor.

In the ultimate analysis, the advantages derived from the presence of an MNC in a developing country appear to surpass the disadvantages. Therefore what is required is national control of international firms. The local government may impose certain conditions such as limits on profit repatriation, regulated transfer prices, compulsory local partners and so on.

No discussion with respect to the role of MNCs in India is complete without reference to specific cases such as the Kentucky Fried Chicken controversy. KFC, viewed as the icon of American corporate culture has been accused of dishing out food unfit for human consumption. Proponents of economic nationalism are using this incident, close on the heels of the Enron controversy, as an excuse to throw out foreign companies. High voltage campaigns on the part of MNCs may be required to counter such a situation and new investors may be unwilling to do so.

However, there is no doubt that MNCs play a positive role in developing countries in certain fields like power generation, steel, petroleum, etc. But they should not be allowed to proliferate in consumer goods required by the upper strata of society and neither should they be allowed to indulge in activities which may drain away the resources of the country. Great prudence is required. The economic power of MNCs can be judged by the fact that today, with the solitary exception of India, whose National Income is only twice that of the annual income of General Motors, economic resources of most other developing economies are much less than that of large MNCs. In conclusion, Multinational Corporations are a necessary evil.

**Nitila Natrajan**  
I M.A. Economics

## GUESS THE PROPOUNDERS AND SEARCH FOR THEM

A	G	N	I	R	O	K	C	V	O	W	I	X
B	C	H	A	M	B	E	R	L	I	N	N	B
D	E	K	E	Z	X	Y	I	U	K	E	E	N
U	K	R	L	I	U	N	C	V	S	R	O	P
N	A	V	T	E	F	E	H	N	T	W	M	O
A	R	I	U	I	Y	S	A	J	A	A	H	Y
P	L	C	F	U	L	H	H	X	L	A	Z	V
I	M	E	F	A	S	O	U	T	W	E	C	P
G	A	R	W	K	H	Y	H	N	E	A	H	I
E	R	P	C	I	I	U	K	W	T	J	E	N
Y	X	I	J	U	S	N	S	E	I	Y	E	K
F	H	N	R	I	C	A	R	D	O	N	K	Y
S	K	C	I	W	L	L	A	H	S	R	A	M

1. General Theory of Employment
2. Theory of Interest
3. Theory of Surplus
4. Theory of Population.
5. Factor Proportion Theory
6. Marginal Utility Analysis of Demand
7. Theory of Monopolistic Competition
8. Kinked demand curve theory
9. Comparative cost theory.
10. Mark up theory of inflation

Answers on page : 28

# LIBERALISATION AND THE AGRICULTURAL SECTOR

Liberalisation refers to a shift from a highly regulated economy to one in which market forces have greater role to play. The Government thus acts as the supporter of the economy rather than as a controller or regulator.

Achieving food security has so far been the overriding goal of agricultural policy in India. One can now discern the beginnings of a significant shift in the perspective for agriculture in India, Consolidating the food security already achieved and moving much further to avail of the opportunities opened up by trade, is emerging as the guiding principle of agricultural policy in the period ahead. Liberalisation is viewed as a long term restructuring of the economy for faster growth. It is based on an approach of growth and development radically different from the approach adopted so far relying on the government control of the commanding heights of the economy.

The growth of food grain output has so far been limited by domestic demand. Population growth and the rise in per capita will no doubt necessitate a significant rise in the output of food grain. However it is necessary to bear in mind the significant downward shift taking place in the demand for food grain. If agriculture is not to be constrained by the domestic demand but contributes to raising the overall economic growth, then the agricultural output, needs to be stepped up for exports by diversifying into areas such as dairying and other animal products, horticulture, floriculture, etc... the demand for which is less inelastic or less unfavourable than for food grain. Trade in these areas will contribute to modernising these sectors in the sphere of production as well as processing and marketing.

The prospects for employment generation do not appear to be brighter atleast in the short run. A number of special employment and rehabilitation programmes are being envisaged as safety nets to cope with the consequences of structural adjustment. However agriculture can act as the biggest safety net in the process of adjustment not only by lightening the rigour of inflation but also by providing new avenues of productive employment.

Raising the productivity of the resources used in agriculture through their better allocation between different crops and through their better allocation between different crops and regions and by adopting improved technologies is a major objective of liberalisation. Export orientation will provide incentives for the regional specialisation in crops according to their comparative advantage as well as for the adoption of new technologies in production, processing and marketing. The institution of peasant proprietorship in India has been conducive to decision-making by the individual farmers so that the allocation of resources at the farm level has on the whole been efficient.

Productivity of resources can be enhanced further by extending infrastructure to the less developed areas and by introducing new technologies. Removal of input subsidies where they have outlived their utility would also promote their efficient allocation as well as give impetus to the evolution of cost reducing innovations. Besides, the efforts for conservation of soil and water resources in dry land areas need to be stepped up with a view to creating the necessary conditions for the profitable application of yield-increasing technology.

There is considerable scope for improving productivity through the extensive application of known technology as well as by evolving new technologies. The studies conducted by the international

food policy research institute in collaboration with the Indian council of agricultural research show that the potential for productivity increase by extending the known technology to new regions and crops by redeploying the existing resources is significant. Firstly by bridging the gap between the actual and the potential productivity for the use of fertilizers in respect of crops and regions where the level of fertilizer use is far below the optimum levels. The second major source is the balanced application of nitrogenous, phosphatic and potassic fertilizers in all the regions.

A number of studies have shown that favourable macro economic environment including openness in trade have been conducive to the adequate development and diffusion of new cost reducing technologies in agriculture. This has happened on account of favourable terms of trade for agricultural inducement to improve quality and reduce costs for becoming internationally competitive. The development of certain forms of infrastructure including human capital is essential to raise the profitability of investment in research. Development of irrigation roads processing and marketing network would facilitate the widespread adoption of new technology by raising the yields, reducing their variability and by ensuring remunerative and assured prices for the products.

Improvement in the literacy levels of the farmers and in the system for the dissemination of information is essential particularly when the new practices are sophisticated and the rate of technological advance is rapid. The importance of infrastructural development for Indian agriculture is underlined by the fact that both in respect of irrigation and literacy, only about 50% of the potential has been realised so far.

The rainfed or dry land areas in the country are getting degraded due to depletion of soil fertility and moisture. Experience has shown that a critical minimum of soil fertility and moisture levels are essential for the profitable adoption of new technology.

A large part of the economy, rural and agricultural, still remains unorganised and backward. Unless the government plays an effective roll the problems arising from the weaknesses of the unorganised parts would further worsen with time.

There are three subsectors in agriculture which need sharply contrasting policy regimes. The first subsector consists of agricultural/agrobased activities carried out by the business entities belonging to the modern organised industrial sector. Liberalisation is likely to encourage them to take up the production and marketing of speciality items in the fields of horticulture, floriculture, fisheries etc. They may also establish links with farmer groups for supply of farm outputs for processing into branded products for sale in domestic and export markets. It's activities could be of considerable help in increasing exports creating skill based opportunities in agriculture and in technological upgradation of farming. This sector should not receive any further aid or support as it is expected to be efficient and competent enough to function on it's own. The other two subsectors in agriculture consists of green revolution areas which have made considerable progress towards modernisation and other areas containing some of the most backward parts of agriculture. The production of wheat has increased from 6.4 millions in 1949-50 to 55.1 millions tonnes in 1991-92, rice has increased from 2.8 million tonnes and oilseeds from 5.2 to 18.3 million tonnes. It can be seen that wheat has benefited most from the supportive policies for adoption of new technologies intensified use of modern inputs and increased availability of dependable irrigation. Cotton & Oilseeds are illustrative of the policy makers attempts in recent years to move beyond the green revolution crops. Their performance is relatively modest as compared to wheat & rice. With patience and perseverance our policies do have the capacity to promote growth in situations which have been considered so far as uncongenial for modernised agriculture.

The green revolution subsector has been nursed so far by a policy regime whose main components have been substantive subsidies on modern inputs. A beginning has been made to remove restrictions and to progressively reduce subsidies. Freedom from restrictions and exposure of the subsector to market determined output & input prices would enable it to become capable of operating without any clutches. The other subsector has received meagre policy support so far except relief and assistance programmes. The subsector usually attracts attention only during period of distress. The other side of the coin is that as compared to the situation some decades back these areas are now likely to be far more responsive to development intervention.

Dr. M.S. Swaminathan has described the eastern region of India as a non green revolution green area offering scope for substantially higher production within a reasonable time. The performance of West Bengal in recent years in agricultural and rural development has been impressive. Even the jute industry is showing some signs of revival through diversification of products and prospects of increased exports. The region needs major reforms in infrastructure, markets, credit and cooperatives.

Liberalisation implies freeing of domestic input & output markets and permitting exports & imports in response to the changing demand and supply conditions. Agriculture is still subject to numerous restrictions which would have to be progressively relaxed to improve the incentive framework for producers.

Liberalisation can be a step in the right direction provided it is used as a strategy not to withdraw the government from the economy but to shift the focus of government policies and concerns from helping and subsidising the organised parts of the economy which are now viable enough to operate on their own. Government support is needed in building up the economy and society in the vast unorganised parts lacking developing and remaining backward. Such a strategy can promote broad-based agricultural growth which would not only increase the growth rate of the economy but more important enable the backward areas and the poor to participate in growth and share in its benefits. Without a long term perspective and a strong commitment to help the unorganised and poor liberalisation instead of promoting growth would only intensify the gathering crisis in the Indian economy.

**Preeti Fernando**  
1 M.A., Economics

## 1995 NOBEL PRIZE WINNER

- **ROBERT-E-LUCAS (Jr.)**

The 1995 nobel prize for economics has been awarded to Robert E. Lucas (Jr.) who has been the driving force behind what is called the "new classical economics". The prize has gone to the Chicago School for the fifth time in the last six years. This award recognises the work of Lucas on the relationship between policy making and people's expectations. He was awarded the prize for having "developed and applied the hypothesis of rational expectations and thereby having transformed macro-economic analysis and deepened our understanding of economic policy".

The centre-piece of his theory, the 'rational expectations hypothesis' (REH) shatters what J.M. Keynes had propounded over 60 years ago. Let us now move on to his approach keeping in mind

that any decision involving the future, in some way involves the expectations of the decision-maker in it.

## THE NEW-CLASSICAL APPROACH :

The new-classical approach is firmly based on the methodology of rational economic man. The characteristic features are :

- (i) economic agents optimise
- (ii) markets clear
- (iii) expectations are formed rationally

An important distinguishing characteristic of the new-classical approach is that it makes different assumptions about the supply side of the economy from those found in Keynesian models. Under Keynesian non-market clearing conditions aggregate supply depends upon the level of effective demand. In the new-classical approach supply depends on relative prices and not on quantities. This is consistent with the results of the Walrasian general-equilibrium models. So we can add a fourth feature of new-classical models:

- (iv) aggregate supply depends on relative prices.

The assumption of flexible prices and wages is key to the conclusions of the rational school. However, many economists have questioned its realism and there are many questions left unanswered by the new-classical school.

## Lucas' Intertemporal Substitution Model :

The basic promise of Lucas' approach is that one should model the behaviour of rational agents whose decisions depend on relative prices only. Households and firms make decisions about what to do about the present period with the future very much in mind. Household utility has the usual specification that it depends positively on present and future consumption and leisure. Agents' decisions are therefore, crucially dependent upon expectations about the future wages and prices are governed by individual's notions of what are 'normal' values, since actual wages and Prices are assumed to move towards their normal values. Because of this reasoning 'normal' and 'expected' values are used interchangeably. Therefore, if current real wages exceed normal and expected values, then households regard the current real wage as being temporarily above the future real wage. This gives an incentive to households to work more in the current period and less in the future (i.e.) they substitute current leisure for future leisure. Because this model presumes this type of behaviour, it is known as intertemporal substitution model. A key feature is that short run supply of labour with respect to real wage is relatively elastic. In the long run, labour supply is unresponsive to changes in the real wage. The intertemporal substitution model explains fluctuations in unemployment in terms of voluntary choices of households to vary their supply of labour over time in response to perceived temporary changes in the real wage. The model does not take account of any job search since unemployment is equated with withdrawal from active labour force.

The Lucas labour supply function is

$$\frac{L_t}{E(L_t)} = h \left( \frac{W_t}{E(W_t)} \right)$$



Where $L_t$	-	labour hours supplied in the current period
$E(L_t)$	-	normal long run labour supply
$W_t$	-	real wages in the current period
$E(W_t)$	-	normal expected real wage

Similarly, the supply decision of a firm depends on its perception of the current price of the product of the product relative to its future price. If the firm perceives a future increase in the demand for its product, this will mean a rise in the product's price level relative to its marginal cost at the present production level. However, if the rise in price is only temporary, there will not be any additional investment but will have an incentive to expand current output by utilising existing capital more intensely and hiring more labour hours.

In the intertemporal substitution model households change their supply of labour in response to temporary changes in relative prices, while firms supply responses are much greater for perceived permanent relative price changes than for temporary changes. That labour supply and output supply move together over the trade cycle is due to the fact that neither households nor firms are certain whether wage and price changes are permanent or temporary. The difficulty, agents have in distinguishing temporary from permanent changes is a crucial feature of the new classical models as it is vital in generating fluctuations in output and employment.

### **Monetarist Rules and the Lucas Critique :**

One of the ironies of the rational expectations revolution is that, while it has lent support to the monetarists' advocacy of fixed rules, it has also raised a devastating point against a key monetarist argument. Monetarists note that the velocity of money has shown a surprising amount of stability. From this stability they conclude that we can stabilise  $MV = PQ =$  nominal GNP by fixing a fixed money rule. Robert Lucas pointed out that people behave differently when faced with different kinds of policies. If a nation clamps down hard on money - as the United States did in the 1979 to 1982 period - you should expect that velocity will behave differently from the era when monetary policy was more passive. Monetarists, no less than Keynesians, have stumbled over the Lucas critique. The most basic problem of this model is that they consider economic agents to behave like super-computers. That's not all. They also assume that the agents know the structure of the model so well that they can compute the optimal forecasts that represent their expectations. While this may not be a bad assumption to make if we are analysing the demand and supply of a fruit, there can, however be no justification for generalising the entire economy.

### **CONCLUSION :**

It is now time to sum up the results of this theory. Are we all rational-expectations theorists now? Is Keynesianism as dead as Keynes himself.

As we saw, rational expectations macro economics essentially combines the assumptions of flexible prices (or continuous market clearing ) with rational expectations. Many macro economists find the first assumption grossly inaccurate and the second one unproven. What happens to this theory when the assumptions of perfectly flexible wages and prices is abandoned ? In general, policy will regain its power to affect the economy - atleast in the short run. Perhaps the most powerful criticisms of rational-expectations macro-economics are targeted at the predictions of this theory. The theory

forecasts that misperceptions lie behind business cycle fluctuations. Another prediction is that unemployment rises because people quit their jobs (i.e.) people quit because they misperceive real wages, thinking that jobs are more plentiful than they actually are. This proposition suggests that the quit rate would rise in periods of unemployment while in reality, they fall during recession. The rational expectations theorists have not fallen silent in the face of these criticisms, but it's far out predictions are a sobering reminder that the ultimate test of a theory is fit, rather than elegance.

In recent years the Nobel Prize for economics has been dominated by Americans - 23 since its inception in 1968 and in particular, by the Chicago School of which Lucas is the fourth in succession. Naturally, one would expect the country to be economically sound. But it is the largest debtor nation. With the world plagued by poverty, violence and inequality, one may feel that perhaps the focus of this prize should shift towards works that address these issues.

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- **Aarthi. G**  
III B.A. Economics

## PECULIAR WORLD OF ECONOMICS

One of the examples of the peculiar world of economics is the one about a woman housekeeper who becomes her employer's wife. As a housekeeper the value of her work paid for in cash is included in the gross domestic product (GDP) of the economy. But after marrying her employer she is not paid for the same work which she continues to do. So on becoming a housewife her contribution to the economy is no longer valued.

If women's work is given proper economic value then as the Human Development Report (HDR) 1995 says, "the entitlement to income and wealth would change radically, and the legal system would be overhauled accordingly, rights to property and inheritance would change, as would access to credit based on collateral, direct entitlement to social security benefits, tax incentives for child care and terms of divorce settlement".

But what is the value of women's work ? We know that the time and effort taken by mothers to cook and to clean are not considered of economic importance. But when people are hired and paid a wage to cook and clean, contribution are valued as economic activities.

The HDR report of 1995 prepared by the United Nations Development Programme put together the results of the National survey on unpaid work. the surveys have distinguished economic and uneconomic activities. A non-economic (personal) activity is one which "cannot be delegated to third parties" example eating and sleeping, cleaning and cooking can be delegated and are classified as economic/productive activities. Among the economic activities there is again a distinction between market oriented and those that are not market oriented. The former is included in the System of National Accounts (SNA) and is included in the estimation of GDP. The Non SNA activities are ignored in the valuation of economic activity. The obvious example of this is when women work on household chores.

### **Results of the HDR :-**

- ❖ Out of total time spent by men and women in all economic activities, the contribution of women exceeds that of men in the sample countries. In developed countries female contribution is 53% and male effort 47%.
- ❖ The reason why this larger effect is not acknowledged is because they are non SNA activities.
- ❖ The time expended by women in developed countries was 66% in Non SNA, 34 in SNA activities, while that of men was 24% in the former and 46% in th latter.

**Sudha**  
I BA Economics

## **DOCTORS AND CONSUMER PROTECTION ACT**

Not all professions can seek 100% perfection. One such profession is the medical field. Recently with many cases of faulty diagnosis, woefully insanitary conditions in the wards and botched surgery etc., the Supreme Court is forced to bring in the Medical Profession into the purview of the Consumer Protection Act.

On November 13th 1995, Section 2(1) (0) of the Act states clearly that the "Services" rendered by a doctor to a patient comes under the act. The "Service" is clearly defined as consultation, diagnosis and treatment both medical and surgical. However, the act states only a "Partial Protection". This means that the Act excludes Government Hospitals and other such institutions that offer their service free of charge.

**The Profession & the Act :** High-tech hospitals and mushrooming nursing homes have pictured and presented medical profession as yet another business. The profession in India has been donning a "holier than thou" mantle, where every practitioner goes religiously by the "Hippocratic Oath". But this was changed....., and the business of quick "Bucks" has put the service motive of the profession as the last category in a doctor's agenda This business motive cannot be helped or debated upon because they are an intergral part of a society where money becomes the remote

control. Thus, if the doctor feels so, he should be prepared to pay a price in terms of sheer business ethics for any default. Thus the law in the business spirit checks the cases of negligence and carelessness.

Keeping in mind the doctors, it should be noted that minority of doctors who are dedicated to their work may develop cold feet. But doctors can remain warm, if they are dedicated and devoted to their job, because justice is done here and no one is punished just for the heck of it.

Speaking on behalf of the medicals one may wonder if the consumer forum has the competence and expertise to judge the profession's act of commission and omission. This aspect remains a question mark in every doctor's mind when he may be at the witness box.

The Act has caused the profession some amount of worry. The doctors are using their knowledge and skill in all circumstances with fear and hindrance, tampering their responsibilities and professional liberties. This will force the doctors to raise their fees and hospitals will curtail their free treatments. This will not affect the doctors but will affect the customers in turn, as the poor masses will have another addition to their "disadvantages".

On the ethical side, the doctors may tend to shy away from critical cases fearing litigation. The doctor - patient relationship based on trust and confidence will be replaced by patient autonomy. Many frivolous complaints may file up as customers may misuse the provisions of the act. This will hamper both the customer and doctors. Instead of visiting and attending the sick, doctors will be spending more of their valuable time with lawyers and at courts. Aggrieved patients or their next of kin will have to be filing civil suits, and shelling out court fees, and wait for years in the corridors of courts for the elusive justice.

Medicine is not a trade, patient is no buyer and the doctor is no seller. Yet it is essential to bring the profession under the rules of the act due to negligence and default on their part which has caused unaccountable inconvenience to the masses. In respect to this, there have been suggestions given by various experts:

- The Government should have ammended the Indian Medical Act to given the medical councils statutory powers to deal with the cases of negligence and malpractises.
- Should suggest measures to be adopted by the doctors in dealing emergency cases.
- Should introduce internal audit of all adverse clinical events.
- Peer review of performance of general practitioners will be a deterrant against negligence.
- emphasize self regulation.
- practitioners should attend Continuing Medial Education.

To conclude, one question arises, is this necessary for our country where even clear drinking water, sanitation, education are all still distant dreams. However the inclusion of doctors in the Consumer Protection Act is not to modify the adage "An apple a day keep the doctor away" into "A doctor today keep the apple prices go up, up and away".

**INFORMATION: USHA THAKUR KOTHARI** - launched "Usha Medio-Legal Protection Centre" - the first of its kind in India.

**Sowmya Balasubramanian**  
III B.A., Economics

# POVERTY

Poverty! Poverty! Poverty!  
The term widely known to humanity  
Has raised untold misery  
Parliament always looked with intense curiosity  
But unable to wipe it, in reality  
Vast majority still lack basic necessity  
Only a fraction enjoys facility  
Even though government brought in equality.

Politicians promises to onslaught poverty  
Has in fact resulted in futility  
But serve as powerful tods in increasing their popularity  
Very few identify their fidelity  
They speak aloud of fraternity and providing facility  
Just to attain their majority.

Life is a bed of thorns! In totality!  
Especially for those who suffer acute poverty  
To eradicate it from our society  
Every Indian must strive with sincerity & charity  
Though it may take a century  
it is  
We who shape our destiny.

**M. Twinkle Amala**  
II M.A. Economics

## ANSWERS

- |                 |               |
|-----------------|---------------|
| 1. KEYNES       | 6. MARSHALL   |
| 2. HICKS HANSEN | 7. CHAMBERLIN |
| 3. KARL MARX    | 8. SWEEZY     |
| 4. MALTHUS      | 9. RICARDO    |
| 5. BERTIL OHLIN | 10. ACKLEY    |

**TABLE - I**  
**NOBLE AWARDEES AND THEIR COUNTRIES 1969-1994**

Sl. No.	Year	Noble Laureate	Birth Year	Age at which awarded	Universities	Countries
1.	1969	Jan Tinbergen	1903	66	The Netherlands School of Economics.	Netherlands
		Rangar Frisch	1895	74	Oslo University	Norway
2.	1970	Paul A. Samuelson	1915	55	Massachusetts Institute of Technology	USA
3.	1971	Simon Kuznets	1901	70	Harvard University	USA
4.	1972	Sir John R. Hicks	1904	68	All Souls College	Britain
		Kenneth J. Arrow	1921	51	Harvard University	USA
5.	1973	Wassily Leontief	1906	67	Harvard University	USA
6.	1974	Gunnar Myrdal	1898	76	Stockholm University	Sweden
		Friedrich Von Hayek	1899	75	Salzburg University	Britain
7.	1975	Leonid Kantorovich	1912	63	Leningrad University	Soviet Union
		Jialling Koopmans	1910	65	Yale University	USA
8.	1976	Milton Friedman	1912	64	Chicago University	USA
9.	1977	James E. Meade	1907	70	Cambridge University	Britain
		Bertil Ohlin	1899	78	Stockholm School of Economics	Sweden
10.	1978	Herbert A. Simon	1916	62	Carnegie-Mellon University	USA
11.	1979	Theodore W. Schultz	1902	77	Chicago University	USA
		Sir W. Arthur Lewis	1915	64	Princeton University	Britain
12.	1980	Lawrence R. Klein	1920	60	Pennsylvania University	USA
13.	1981	James Tobin	1918	63	Yale University	USA
14.	1982	George J. Stigler	1911	71	Chicago University	USA
15.	1983	Gerard Debreu	1921	62	California University	USA
16.	1984	Sir Richard Stone	1913	71	Cambridge University	Britain
17.	1985	Franco Modigliani	1918	67	Massachusetts Inst. of Technology	USA

Sl. No.	Year	Noble Laureate	Birth Year	Age at which awarded	Universities	Countries
18.	1986	James Buchanan	1919	67	George Mason University	USA
19.	1987	Robert M. Solow	1924	63	Massachusetts Inst. of Technology	USA
20.	1988	Maurice Allais	1911	77	Ecole Nationale Superieure des Mines, Paris.	France
21.	1989	Trygve Haavelmo	1911	78	Oslo University	Norway
22.	1990	Harry M. Markovitz	1927	63	Baruch College	USA
		Merton H. Miller	1923	67	Chicago University	USA
		William F. Sharpe	1934	56	Stanford University	USA
23.	1991	Ronald H. Coase	1910	81	Chicago University	USA
24.	1992	Gary S. Becker	1930	62	Chicago University	USA
25.	1993	Douglass C. North	1920	73	Washington University	USA
		Robert William Fogel	1926	67	Chicago University	USA
26.	1994	John C. Harsanyi	1920	74	California University	USA
		John F. Nash	1928	66	Princeton University	USA
		Reinhard Selten	1930	64	Bonn University	Germany

**Source** : 'Nobel Economists - Lives and Contributions' - Volume - I  
K. Puttaswamaiah.  
Indus Publishing Company, New Delhi - 1995.

**TABLE 2**  
**CITATIONS FOR AWARDS**  
**AWARDS 1969 - 1994**

Sl. No.	Year	Nobel Laureate	Field	Prize Citation
1.	1969	Jan Tinbergen Ragnar Frisch	Macroeconometrics	"for having developed and applied dynamic models for the analysis of economic processes"
2.	1970	Paul A. Samuelson	General Equilibrium Theory	"for the scientific work through which he has developed static and dynamic economic theory and actively contributed to raising the level of analysis in economic science".
3.	1971	Simon Kuznets	Development Economics	"for his empirically founded interpretation of economic growth which has led to new and deepened insight into the economic and social structure and process of development".
4.	1972	Sir John R. Hicks Kenneth J. Arrow	General Equilibrium Theory	"for their pioneering contributions to general economic equilibrium theory and welfare theory"
5.	1973	Wassily Leontief	Input-Output Analysis	"for the development of the input-output method and for its application to important economic problems".
6.	1974	Gunnar Myrdal Friedrich Von Hayek	Macroeconomics and Institutional Economics	"for their pioneering work in the theory of money and economic fluctuations and for their penetrating analysis of the interdependence of economic, social and institutional phenomena".
7.	1975	Leonid Kantorovich Tjalling Koopmans	Normative Allocation Theory	"for their contributions to the theory of optimum allocation of resources"
8.	1976	Milton Friedman	Macroeconomics	"for his achievement in the fields of consumption analysis, monetary history and theory and for his demonstration of the complexity of stabilisation policy"
9.	1977	James E. Meade Bertil Ohlin	International Economics	"for their path-breaking contribution to the theory of international trade and international capital movements".



Sl. No.	Year	Nobel Laureate	Field	Prize Citation
10.	1978	Herbert A. Simon	Administration Science	"for his pioneering research into the decision-making process within economic organisations".
11.	1979	Theodore W. Schultz Sir W. Arthur Lewis	Development Economics	"for their pioneering research into economic development research with particular consideration of the problems of development countries".
12.	1980	Lawrence R. Klein	Macroeconometrics	"for the creation of econometric models and their application to the analysis of economic fluctuations and economic policies".
13.	1981	James Tobin	Macroeconomics	"for his analysis of financial markets and their relations to expenditure decisions, employment, production and prices".
14.	1982	George J. Stigler	Industrial Organisation	"for his seminal studies of industrial structures functioning of markets and causes and effects of public regulation".
15.	1983	Gerard Debreu	General Equilibrium Theory	"for having incorporated new analytical methods into economic theory and for his rigorous reformulation of theory and for his rigorous reformulation of the theory of general equilibrium".
16.	1984	Sir Richard Stone	National Income Accounting	"for having made fundamental contributions to the development of systems of national accounts and hence greatly improved the basis for empirical economic analysis".
17.	1985	Franco Modigliani	Macroeconomics	"for his pioneering analyses of saving and of financial markets"
18.	1986	James Buchanan	New Political Economy	"for his development of the contractual and constitutional bases for the theory of economic and political decision-making".
19.	1987	Robert M. Solow	Growth Theory	"for his contributions to the theory of economic growth"

Sl. No.	Year	Nobel Laureate	Field	Prize Citation
20.	1988	Maurice Allais	Market Equilibrium and Econometrics	"for his pioneering contributions to the theory of markets and efficient utilisation of resources"
21.	1989	Trygve Haavelmo	Probability Theory and Econometrics	"for his clarification of the probability theory foundations of econometrics and his analyses of simultaneous economic structures"
22.	1990	Harry M. Markovitz Merton H. Miller William F. Sharpe	Financial Economics	"for their pioneering work in the theory of financial economics"
23.	1991	Ronald H. Coase	Transaction Costs	"for his discovery and clarification of the significance of transaction costs and property for the institutional structure and functioning of the economy"
24.	1992	Gary S. Becker	Microeconomic Analysis and Human Behaviour	"having extended the domain of micro-economic analysis to a wide range of human behaviour and interaction, including non-market behaviour"
25.	1993	Douglass C. North Robert William Fogel	Economic History	"having renewed research in economic history by applying economic theory and quantitative methods to explain economic and institutional change"
26.	1994	John C. Harsanyi John F. Nash Reinhard Selten	Games Theory	"for their pioneering analysis of equilibria in the theory of non-cooperative games"

