Recent Developments in Macroeconomics[*]

G.S. Gupta
IIM, Ahmedabad

1. <u>Introduction</u>

Economics is concerned with the material well-being, which is contained in the quantities and qualities of goods and services at one's command. Microeconomics, which is concerned with the relative productions and relative prices, attempts to maximize the material well-being through the most efficient allocation of resources. In contrast, macro-economics, which deals with national aggregates like, national income, unemployment and inflation, concentrates on full utilization of resources in the short-run and augmentation of these resources in the long-run for maximising the material well-being. The recent research is concentrating on the micro foundation of macroeconomics and thus the tow-fold taxonomy is getting blurred.

The modern economists have realized the significance of atleast some aspects of the non-material factors. For example, A.K.Sen has argued in favour of "developing capabilities among human-beings" and "providing more options" to them as important considerations for economics.

Economics is both a positive as well as a normative science. In its positive role, macroeconomics is concerned with

> ➢ Monitoring the economy
> ➢ Business cycles
> ➢ Economic growth

The first objective is achieved through appropriate measurement of significant macro-economic variables and their timely publication. The second objective requires the development of causal models to explain economic fluctuations around the world. Again, for the third objective, growth determinants need to be identified, and their contribution to growth variations across space and time must be quantified.

The normative branch of economics focuses on the recommendations for appropriate policy actions to improve the data quality (accuracy and timely publication), to counter business cycles and to promote economic growth. Obviously, these presuppose a set of economic goals and trade-offs among them if they are incompatible, as well as the constraints, if any, facing the alternative economic policies. Fortunately for us, there is almost an unanimity among economists and policy-makers with regard to economic goals for an economy, viz. growth, price stability, social justice and independence from

foreign powers. However, as would be clear a little later, some differences still persist with regard to the compatibility of some of those goals (economic growth/low unemployment and price stability) as well as the relative significance of the alternative policy (fiscal and monetary) tools. In what follows, we shall review the developments in macroeconomics in the context of its subject matter as well as its goals and policies. Economic tools of demand and supply (aggregate demand and aggregate supply) will be employed to explain business cycles and economic growth.

2. **Monitoring the Economy**

An appropriate monitoring of an economy requires upto date data on major macro-economic variables for the country under review as well as for the other relevant countries. The most basic variables include

- ➢ Level and growth in national/per capita income
- ➢ Unemployment rate
- ➢ Inflation rate

The relevant countries are the ones with which the economy under review enjoy (or expected to enjoy in future) significant trade-investment-political relationships. For India, these must include G-8 countries, (highly industrialized), China, Singapore, Taiwan, Republic of Korea and Malaysia (high achievers), Mexico and Argentina (frequently in trouble), and so on.

The international organizations like the World Bank, IMF, UNO, collect and publish the relevant data on various macro-economic magnitudes on their comparable definitions for various countries. Economists and policy-makers analyse these data and comment on the relative performances of various countries over time. It is often argued that "data do not lie". True, if the data is fairly accurately measured. Unfortunately, inspite of the vast developments in this area, a lot remain to be done. To illustrate this, consider the per capita income and unemployment rate data for India and USA. In 1999, GNP per capita for the two countries stood at $450 and $30,600, and the unemployment rate at about 4.2 percent and 7 percent (daily basis), respectively. Economists regard the per capita income as a surrogate measure of the standard of living, and, if so, is India as poor as the above data indicate? Even if the distortions due to the arbitrariness of the foreign exchange rate are removed, GNP per capita at the PPP (purchasing power parity) for India stands at $2,149. The latter figure comes to about 7 per cent of the US per capita income. The question remains, are Americans 14 times richer than Indians? The most would say "no". The anomaly holds due to the measurement error in GNP, which is caused by the relative magnitudes of

- ➢ Non-market economy
- ➢ Black/parallel economy
- ➢ Services/tertiary sector

Unemployment rate data are faulty, for they are based on the willingness to work and time worked only, and thus ignore the important yardsticks like

> ➢ Income
> ➢ Productivity

In India, there is relatively a lot of disguised and under-employment, which go unrecorded. Inflation data are better, though they also suffer from some limitations, like

> ➢ Use of fixed / changing weights
> ➢ Change in products' qualities
> ➢ Emergence of new products
> ➢ Sampling error

Growth rate data across countries are fairly comparable, for the relative share of the parallel economy as well as of the service sector do not change perceptibly from year to year. Thus, the macro-economic data are not perfect. However, they are still as good as possible and thus are quite useful for analysis.

There is no denying the fact that the developments in minimizing the impact of the above factors have been going on continuously. To cite a concrete example, per capita income figures are available both at the official exchange rate as well as at the PPP rate, and the data on HDI (human development index) now form a regular feature in all publications. To support the earlier argument, India ranked 161st, 151st and 121st out of 174 countries in 1998 on the basis of the GNP per capita at the official exchange rate, GNP per capita at PPP, and HDI, respectively. Thus, our relative position is better in terms of the PPP income and health plus education than on the measured income. Furthermore, the sample size for data collection and other methodologies are improving, and the lag in their publication is shrinking.

3. **<u>Business Cycles and Stabilization Policies</u>**

Business cycles are fact of life. All countries suffer from these, though not necessarily that the booms and busts synchronize across countries. The world-wide periods of significant recessions and prosperities may be noted as follows:

> ➢ Great Depression: 1929-33
> ➢ Stagflation: 1974-75, 1980-82
> ➢ Prosperity: 1984-88, 1992-2000
> ➢ Recession: 2001

The US economy commanding over 25 percent of the world output, obviously happens to dominate the above events. During the four years of the Great Depression, real GDP fell by about 30 percent, unemployment rate increased by over 20 percent and the general price level fell by about 20 percent in USA. During 1974-75 and 1980-82, the growth rate turned negative and the inflation

rate hit the two digit numbers in many large economies. The 1980s and 1990s have, in general, been the periods of good economic progress. The year 2001 has been a bad year again, and this one is perhaps the worst as it is the most widely spread. However, unlike the previous recessions, the past year has not been accompanied by inflation.

A careful analysis of the world-wide data for the last several decades would indicate that though business cycles have occurred and re-occurred, their depth (amplitude) and duration have reduced over time. The reason for this must lie in the improvement in macro-economic theory and policy as well as its practice over time.

A good macro-economic theory must explain all the above facts. When an existing theory fails to account for the empirical facts of the past and present, it got to be replaced by new/modified theory. Towards this end, macro-economics has witnessed the following **revolutions** since the classical theory:

➢ Keynesian model (1936)
➢ Phillips curve (1958)
➢ Role of price expectations and theory of natural rate (M. Friedman 1968)
➢ Rational expectations hypothesis (R. Lucas 1973)

Some other significant developments include

➢ Pigou effect (1943)
➢ Policy lags (M. Friedman 1959)
➢ Mundell-Fleming model (1967)
➢ Supply-side economics (A. Laffer: late 1970s)
➢ Information barrier (Friedman-Lucas: 1970s)
➢ Real business cycle (Kidland and Prescott:1982)
➢ New Keynesian economics (1980s)

The above developments have taken the macro-economic theory through the

➢ Classical dichotomy
➢ Keynesian consensus
➢ Lucas theory of policy irrelevance

This is not the place to go into the details. However, a little explanation of these three states is in order. Under the classical system of laisses-faire, nominal wage-price flexibility and perfect information, there was no involuntary unemployment, the factor and product markets determined the factor employments and output, and the money market determined the general price for the given output. Firms would produce as much as they deemed the most profitable, implicitly ignoring the physical resource constraint. The fiscal policy had no role (full crowding out) and money supply affected the nominal magnitudes without exercising any role on the real variables. This theory

(**classical dichotomy**) was shattered by the experience of the Great Depression.

Bank failures, and crash in stock and real estate markets eroded the household wealth and business confidence, which led to the Great Depression. Private consumption and investment, the principal movers of the economy, fell without a corresponding increase in government expenditure and / or money supply. This prompted Keynes to advance his (the alternative) theory of income determination. Fall in the effective demand was diagnosed as the cause of the slump, and tools of the fiscal and monetary policies as the solution to the problem. The supply side and the physical resource constraint were totally ignored. Pigou effect proved handy to restore the effectiveness of monetary policy when faced with the liquidity trap situation. The Hicks' IS-LM model became the most popular paradigm to explain business cycles and the roles of stabilization policies to tame them. The model was, however, incomplete, for it did not explain the general price. The Phillips curve provided the missing link and the economists could boast to have had the complete macro-economic theory expressed in the form of a stable Phillips curve. The said curve provided the menu in terms of the trade-off between the rates of unemployment and inflation, and the demand management (stabilization) policies could be used to hit any point on the curve, depending upon the wisdom of the policy-makers. Keynesians embraced the Phillips curve hypothesis. Unfortunately, this "**Keynesian Consensus**" was not to last too long!

Stabilizing policies did not yield the expected results. Milton Friedman rationalized this through the recognition of the policy lags, both inside and outside, and advanced his arguments in favour of the policy by "rule" instead of "discretion". Mundell-Fleming (MF) extended the model to incorporate international flow of goods and capital. This reinforced the arguments towards the downward sloping of the aggregate demand (AD) curve. Further, the M-F model, through the international trade effect, substantiated the role of monetary policy and reduced that of fiscal policy, particularly under the flexible exchange rate system and capital account convertibility. Under the fixed exchange rate system, of course, the monetary policy is superficial and fiscal policy alone is effective in controlling business cycles. The M-F theory also led to the recognition of the international trilemma, by which liberalization, regulation and sovereignty could not be pursued simultaneously.

Stagflation of mid 1970s, caused by the OPEC crisis, further eroded the Keynesian consensus. Demand management policies could cure either unemployment (through accommodating strategy) or inflation (through extinguishing strategy), though worsening the other, but not both the evils simultaneously. Further, the cost- push inflation led to the fresh expectations of greater inflation in future. But the Keynesian theory does not incorporate inflation expectations, though it considers expectations of real variables affecting the consumption and investment decisions. The direct tax rates had also risen to their heights. The supply-side economics, theory of adaptive expectations and the natural rate theory were then advanced to explain / remedy the situation. Tax

cuts and, incentives to work, save and invest were argued to help nullify the adverse supply shock of OPEC, and thus were recommended as the new tools to remedy stagflation. The rate of unemployment could now deviate from the natural rate of unemployment on either side in the short-run but not in the long run, a polar opposite view to the stable Phillips trade-off hypothesis. Fiscal and monetary policies could be used to affect output and unemployment in the short-run, and the price level both in the short and long run. The so revised (inflation augmented) Phillips curve slopes downward in short-run and remain vertical at the natural rate of unemployment in the long run. Since the natural rate of unemployment is positive, no country could ever hope to hit or even target the zero- rate of unemployment, at least in long-run.

Robert Lucas, Thomas Sargent and others discovered the systematic error in the adaptive expectations' theory and advanced the alternative theory, called the rational expectations hypothesis, which has proved to be revolutionary and universally acceptable. This has ultimately given rise to the current **theory of policy irrelevance**. Under this, all systematic/expected changes in policies are incorporated in forming expectations (called the Lucas critique), and hence they exert no influence on output and unemployment. However, policy surprises are effective. This suggests that the Phillips curve is downward sloping even in the short-run if and only if there are policy surprises. In the long-run, the said cure is, of course, vertical at the natural rate of unemployment. Thus, at this state of knowledge, the economy could deviate from the natural rate of unemployment and the stabilization policies could counter/cause such deviations but only in the short-run. In the long-run, expected price (inflation) equals actual price (inflation), and hence there is just the natural rate of unemployment. However, since the long-run exists only in theory, in real life, countries could experience unemployment rate both above as well as below its natural level, and the policy surprises could be effective. The so found unemployment could be voluntary or involuntary, though the Keynesians would prefer to call it involuntary and the classicists the voluntary. The rest is perhaps the consensus view. Incidentally, the rational expectations' theory is derived on the optimizing behaviour and thus this constitutes a microeconomics foundation of macroeconomics.

Both the new classical economists (NCE) as well as the new Keynesian economists (NKE) always believed in the falling AD curve, and now they also believe in the upward sloping AS curve upto the natural rate of output, and vertical thereafter. However, their belief in the latter is on different grounds. While the NCE rationalize the rising AS curve on the basis of the asymmetric information (fooling of workers model) or information barrier, the NKE do so on their argument for the market dis-equilibrium/ nominal wage-price rigidity. The said rigidity is well rationalized on the optimum behaviour of workers, households and firms, through what are known as the menu cost, staggered wage-price contracts, coordination problem, efficiency wage, insider-outsider model and asymmetric information apparatuses. This forms an another source for the microeconomics foundation of macroeconomics.

With regard to the question "what causes business cycles", the difference is merely in degree and not in kind. While both the schools believe that either any demand or supply shock or both could cause deviations away from the trend in output, unemployment and inflation, NCE attach greater significance to the supply shocks and NKE to the demand shocks in this context. Real business cycle theorists go a step beyond their fellow NCE and suggest that the technological shocks and inter-temporal substitution of leisure constitute the basic cause of business cycles, and that these shocks could explain even the multi-year cycles, which could not be explained through the "information barrier" model. Thus, both the classicalists and Keynesians could be right. The former because the real factors like the natural resources, natural calamities, inter-temporal substitution of leisure, imported inputs' prices and technological changes could lead to supply constraints, and thus cause shifts in the AS curve and thereby trigger fluctuations in output and unemployment. The latter because the people's expectations and hence consumption and investment expenditures, foreign demand, government fiscal and monetary decisions, etc. could lead to demand constraints, and hence shifts the AD curve as well as the AS curve, which, in turn, could produce economic fluctuations away from the trend. The prosperity of the 1980s and 1990s was brought about through the economic reforms in terms of liberalization, privatization and globalization, which have worked through augmenting both the AD as well as the AS. The recent recession is Keynesian in nature as it has come through demand constraints, triggered by falling stock and stagnant real estate prices, and the contagion effect.

With regard to the question "whether fiscal or monetary policy is a better tool for stabilization", the difference is again minor. There is a consensus that both policies are useful. The NCE perhaps hold the view that the monetary policy is more powerful than the fiscal (Monetarism) while the NKE holds the opposite opinion. The differences are due to their beliefs/findings with regard to the interest sensitiveness of investment and money demands, Ricardo-Barro's theory of equivalence (of tax and debt financing of fiscal deficit), policy lags, etc. Nevertheless in practice, when the nominal interest rate is low, monetary policy is less effective (due to the liquidity trap) and when it is high, fiscal policy is less effective (due to public debt), and we have the Gibson's paradox of the pro-cyclical pattern of nominal interest rate. All economists now realize that there is no perfect competition in the factor and product markets, nominal wages and prices are not fully flexible, and that information is neither perfect/timely nor cost less. To this extent, there is a consensus.

This is fine but the macro-economic theory, which was supposed to be complete in the 1960s in the form of the menu along the stable falling Phillips curve, is not so unambiguous currently. In consequence, business cycles persist though much weaker than before, and the stabilization policies, though useful, offer no panacea to counter them promptly. This is partly because of the constraints these policies face and partly because of their inherent limitations. The constraint to monetary policy emanates from the government need to monetize part of the fiscal deficit and the presence of the non-bank financial intermediaries. Those to the fiscal policy come from its asymmetric nature and government solvency

(Gramm-Rudman-Hollings Act, USA), i.e. the size of internal and external debt relative to GDP and foreign exchange reserves. Further, the monetary policy is better operated through controlling the money supply rather than the interest rate, as the latter has bearings on the fiscal deficit and debt servicing. The inherent limitations of all the stabilization policies arise due to

> ➢ Inaccurate estimates and forecasts of economic events
> ➢ Unstable policy multipliers / elasticities
> ➢ Long and variable policy lags
> ➢ Incompatible goals / priorities
> ➢ Political costs of policies

4. **Economic Growth**

While taming of business cycles could be a major concern for the developed countries, economic growth remains the primary focus for the developing countries. The growth works with the miracle of the compounding principle, and it is this differential which alone can assist the poor countries to catch up or at least narrow the gap with the rich countries. Further, the relatively small base of the poor countries offers them an advantage to achieve the higher growth trajectory.

A careful review of the historical data would suggest that growth rate has varied both over the time and space. For example, growth rate in India stood at 3.5 percent during the 1950-80, 5.8 percent during the 1980s and at 6.1 percent during the 1990s. These rates compare quite favourably with those at 3.0, 3.0, and 3.4 percent in USA, and at 4.0, 3.2 and 2.5 percent in the world as a whole, during the corresponding period, respectively. However, in comparison to China, which has witnessed the two digit growth rates during the 1980s and 1990s, India's achievements remain quite weak. Even the South-East Asian countries have surpassed India's achievements. While Japan out performed most of the countries during the 1960s, China remained the top performer during the last two decades. What causes the variations in the growth rate is yet the other domain of macroeconomics.

While the Harrod-Domar model of economic growth concentrated merely on the accumulation of the physical capital as the sole source of economic growth, the Solow model of the new classical system considered both the labour and capital inputs, besides the technology. Further, the latter model assumes constant returns to scale, growth rate of labour equals that in population, and exogenously determined technical progress. These assumptions imply that the saving rate remains a positive determinant of economic growth only until the steady-state, beyond which the growth rate depends solely on the growth rates in population and technology, both of which happen to be exogenously determined variables. For this reason, the Solow model has been dubbed as the exogenous growth theory.

The later developments have produced the endogenous growth model. These developments suggest that though the population growth may be exogenous,

labour growth is not so. Also, technical progress is now explained through research and development, education and training, integration of economies, and capital formation. In particular, the following additional factors are believed to affect the growth:

> Natural resources, which may not be subject to depreciation
> Growth in the labour force through increase in the proportion of population in labour force and number of working hours per period
> Human capital through investment in education and health, which may not be subject to the law of diminishing marginal return and depreciation
> Industrial structure, particularly in favour of infrastructure (both physical and legal), non-defence, knowledge based industries, larger units, research and development, and private sector units
> Globalization
> Entrepreneurship, like those of Bill Gates, Narayan Murthy, Ambanis, Tatas, Birlas, et. al.

Further, economists like Paul Romer have argued that the law of diminishing marginal returns to capital may not hold good in some sectors, and, of course, it does not apply during the initial stage. If so, the Solow theory's prescription that the saving rate affects the growth rate only temporarily (upto the steady state) would not be true. Saving is once again considered as a permanent source of economic growth. Also, it is argued that technology is partly a public good, for it is non-rival in consumption and atleast partially (permanently) non-exclusive. Under such a situation, technical progress in one country would boost the growth rate in other countries as well.

Many of these factors are subject to significant influences from the economic policy practiced in the country under question. This is amply evident from the experiences of the high achievers, including China and tiger countries in the South East Asian region. Their early moves towards liberalization, privatization and globalization have produced rich dividends. India is a bit late riser in these spheres, but still potentials remain. If China could attract over $40 billion of foreign investment each year for several years in a row, why it is that India is still hovering under $4 billion/year of foreign investment?

Earlier economists were worried about the vicious circle of poverty. The developments in macroeconomics and globalization have succeeded in breaking these links. Relatively poor countries (China, Malaysia and others) have produced high saving rates, which have been supplemented through attracting foreign investments, and the non-capital growth factors have been exploited to generate good growth rates. Nevertheless, the role of most of these factors in growth in only marginal. The standard of living in a country basically depends upon its capacity to produce wealth.

5. **Conclusion**

The world economy is witnessing prosperity over time. Not merely the per capita income is on the upward trend, poverty is falling, income inequalities are atleast not widening, and inflation is reasonably tamed. Further, the deep recessions of the Great Depression variety, the multi-year cycles of the mid-seventies and early eighties kind, and hyperinflation of the type of 1922-23 in Germany and 1945-46 in Hungary are the history. The trickle down theory is hardly controversial now. Developments in macro-economic theory and its application in practicing economic policy do deserve some credit to these accomplishments. If economics could lead politics, our children, like we as compared to our parents, can surely look forward to the better days ahead. This, of course, is contingent on the absence of any serious natural (like earthquake and epidemics) or/and human-made (terrorists attacks) calamities.

References

1. Friedman, M. (1968): The Role of Monetary Policy, <u>American Economic Review</u>, 58 (March), 1-17.
2. Friedman, M. (1969): The Lags in the Effect of Monetary Policy, in Friedman, M., edn.(1969): <u>The Optimum Quantity of Money and Other Essays</u>, Chicago, Aldine.
3. Greenwood, B. and Joseph Stiglitz (1993): New and Old Keynesians, <u>Journal of Economic Perspectives</u>, 7(Winter), 23-44.
4. Gupta, G.S.(2001): <u>Macro-economics</u> : <u>Theory and Applications</u>, Delhi, Tata McGraw-Hill.
5. Harrod, S.R. (1939): An Essay in Dynamic Theory, <u>Economic Journal</u>, 49(March), 14-33.
6. Keynes, J.M. (1936): <u>General Theory of Employment, Interest and Money</u>, London, Macmillan.
7. Kidland, F.E. and E. Prescott (1982): Time to Build and Aggregate Fluctuations, <u>Econometrica</u>, 50(Nov.), 1345-70.
8. Lucas, R. (1987): <u>Models of Business Cycles</u>, Oxford, Blackwell.
9. Mankiw, N.G. (1990): A Quick Refresher Course in Macroeconomics, <u>Journal of Economic Literature</u>, 28(Dec.), 1645-60.
10. Mundell, R. (1963): Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates, <u>Canadian Journal of Economics and Political Science</u>, 29(Nov.), 475-85.
11. Phelps, E.S. (1967): Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time, <u>Economica</u>, 34(Aug.), 254-81.
12. Phillips, A.W.H. (1958): The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957, <u>Economica</u>, 25(Nov.), 283-99.
13. Pigou, A.C. (1943): The Classical Stationary State, <u>Economic Journal</u>, 53, 343-51.

14. Romer, P.M. (1986): Increasing Returns and Long-run Growth, <u>Journal of Political Economy</u>, 94(Oct.), 1002-37.
15. Sen, A.K. (1976-7): Rational Fools : A Critique of the Behavioural Foundations of Economic Theory, <u>Philosophy and Public Affairs</u>, 6,317-44.
16. Solow, R.M. (1956): A Contribution to the Theory of Economic Growth, <u>Quarterly Journal of Economics</u>, 70(Feb.) 65-94.
17. Solow, R.M. (1994): Perspectives on Growth Theory, <u>Journal of Economic Perspectives</u>, 8(Winter), 45-54.