

Economic Fluctuations and Stabilization Policies*

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I. Introduction

- 1. Growth, stability and distribution** are the three principal concerns of economics. Since economics deals with the material well-being alone, the growth is defined in terms of the growth in real national income, the stability (rather instability) in terms of the fluctuations in real national income or in the rate of unemployment (the two are linked through the Okun's law) and in the (general) price level (inflation/deflation), and the distribution in terms of the income distribution across households. Economists are unanimous in each country aiming at a high growth rate, high stability and a fair, though not equal, distribution. But, most economists believe that the growth and price stability are incompatible goals in the short-run (Phillips' curve), and thus an ideal mix of the two is a debatable issue. The famous Kuznets' curve suggests that the growth and desired income distribution do not always move in tandem. The paper is basically addressed to economic fluctuations and their monitoring through the application of stabilization policies. Time series data on economic fluctuations and the indicators of stabilizing policies in selected countries are analyzed to examine the depth and spread of these fluctuations, and the actual uses of the corresponding policies. Inherent limitations of these policies are highlighted to appreciate their less than perfect role in taming business cycles.

II. Economic Fluctuations

- 2.** Economic fluctuations are fact of life. All countries have suffered from these, though the booms and busts have not always synchronized across countries, and neither the length nor the amplitude have been uniform. Tables 1-3 provide the time series data on the three most significant macro-economic variables (viz. growth rate, unemployment rate and inflation rate) for the select countries, including India, China, Malaysia, the G-7 countries and the world. The average growth rate in these countries during the last about 40 years (1964-1997) has fluctuated between the low of 2.3% in UK and the high of 9.2% in China, with the standard deviations of 2.2% and 6.7%, respectively. For the world as a whole, while the average growth rate during the said period stood at 3.7%, the standard deviation of that turned out to be 1.4%, giving a coefficient of variation of 38%. These indicate a fairly high degree of volatility both over space and time. The graph of India and world's growth rates, unemployment rates and inflation rates in Figures 1.1 through 1.3,

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respectively further highlights the presence and depth of business cycles. These reveal that, among the countries included in the graphs, the maximum fluctuations in the growth rate were in China, in the unemployment rate in UK, and in the inflation rate in India. In India, the drought of 1979-80 (when the agriculture output fell by 12%) left that year the worst with a negative growth rate of 6% and the mild reforms induced prosperity (when industrial output went up by 9.6%, and finance, insurance, real estate and business services' output was up by 11.4%) of the second half of the 1980s took the growth rate to its peak rate of around 10% in 1988-89. Some **striking examples** of extreme fluctuations in the globe are cited below.

- a. The **Great Depression** of 1929-33 was fairly wide spread across all countries. During these four years, the GDP fell by about 29% in USA, 22% in Australia, 18% in Czechoslovakia, 16% in Germany, 11% in Each of France and Hungary, 9% in Sweden, 6% in U.K., and so on. The unemployment rates were high accordingly and most countries had experienced fairly high rates of deflation.
- b. The **hyper- inflation** (inflation over 1000%/year) plagued several European countries, including Germany, Hungary, Austria and Poland, during the 1920s and again Hungary during August 1945 to July 1946. Several Latin American countries, including Argentina, Bolivia, Brazil, Nicaragua, Peru and Ukraine, have suffered from this disease during the 1980s and 1990s.
- c. The **stagflation** during 1974-75 and 1979-82 was fairly wide spread through out the world. As the data in Tables 1 and 2 would reveal, the growth rate in the world output fell monotonously from 5.8% in 1973 to 0.7% in 1975, and from 4.1% in 1978 to 0.4% in 1982. The world inflation rate stood at the two digit levels in all these years. Several countries including USA and U.K. had experienced negative growth rates in most of these years, and the rest had lower than their respective trend rates in all these years. Most of the countries had suffered a two-digit inflation rate or a high one-digit rate.
- d. The fast growing **prosperity** was witnessed in Japan during the 1950s and 1960s. The Japanese economy is currently suffering from recession for over a decade. China had experienced a relatively high growth rate (two-digit level) during the most of the 1960s (barring 1967, when she had the worst recession), and the 1980s and 1990s. USA suffered the worst recession after the Great Depression during 1979-82 but has performed reasonably well during the most of the 1990s. India has had a negative growth rate in 1956-57, 1964-65, 1972-73, and 1979-80 (maximum at - 6.0%), and a maximum growth rate of about 10% in 1988-89. Most of the South East Asian nations have achieved high growth rates during 1986 through 1996 until they were caught up by the recent financial crisis. The business cycles are found in Europe as well, as the growth rates in those countries were either negative or low during the periods of stagflation (1974-75, 1979-82) as well as the early 1990s, and better in most other years. African countries and Latin American countries have witnessed even worse cycles. The world recorded the highest growth rate at 6.2% in 1964 and the lowest at 0.4% in 1982. In general, the 1980s and 1990s have been the decades of a relatively **good performance** in most countries.

- e. Since the early 2001, most regions in the world are experiencing a recession, which is in terms of a **fall in the growth rate** rather than a negative growth rate. This recession, like the Great Depression of the early 1930s, and the stagflation of the mid-Seventies and early Eighties is well spread across countries. However, the inflation rate has been quite modest lately in most countries.

The unemployment and inflation data (vide Tables 2-3) further demonstrate the recurrence of business cycles. As per the Arthur Okun's law, the unemployment figures are just the mirror image of the growth rate. The average inflation rate during 1964-2000 fluctuated between 3.2% in Germany and 9.1% in India, with a standard deviation of 1.8% and 2.8%, respectively. The said figures for the world turned out to be 11.1% and 5.9%, respectively. Thus, the standard deviation of inflation was fairly high as well.

3. The fluctuations in the real income and inflation rate have **not been uniform** through the various cycles. During the Great Depression, both the real income as well as the price fell. During the stagflation, the former fell while the latter rose. The same trend was witnessed, though at very different rates, during the hyper- inflation. During the last decade, the prosperity was accompanied with mild inflation. While inflation was perhaps the number one economic ill during the stagflation and hyper- inflation, currently it is very much within the desired range in most part of the world.
4. The **fundamental factors** behind these fluctuations are shocks in aggregate demand (AD) and/or aggregate supply (AS). These can be caused by changes in one or more of the exogenous variables (policy or non-policy ones) and the behavioural parameters of the decision-makers, viz. consumers, input suppliers and firms. The **non-policy variables** that affect AD include autonomous components of consumption, investment, export and imports, which, in turn, are guided by the confidence and expectations of consumers and firms, both domestic and foreign. The non-policy variables that impinge on AS include weather/monsoon, prices of inputs, raw-materials and intermediate goods, stipulations about pollution and environment regulations, business expectations about future prices, factor supplies, technology, discovery of new natural resources, etc.

The **policy variables** that have bearings on AD include money supply (or the high-powered money), government fiscal operations like government expenditure, taxation and transfer payments, and the foreign exchange rate, tariffs and quotas. The classists (supply-siders) believe that direct taxes (personal income tax, corporate tax and the rebates on saving and investment) affect AS as well, through incentives/disincentives to supply more labour, and save and invest more or less.

The **behavioural parameters** affecting AD include propensities to consume/save, invest and import, interest sensitiveness of investment and money demands, price elasticities of import and export, etc. Workers' leisure-work preference, firms' attitude towards risk and profit, industrial relations and riots, etc. constitute the behaviours parameters that affect AS. While the behavioural parameters are fairly constant in the short-run, the non-policy

and policy variables do change even in the short-run. Thus, the shifts in AD and AS could be caused by a variety of factors even in the short-run, and any one or more of them could have triggered/reinforced a particular contraction or recovery.

5. Economists are **unanimous** with regard to the downward sloping of the AD curve, which is caused by the Keynesian, Pigou and international trade effects, though these are partly offset by the income re-distribution and price expectations' effects. Also, there is a near consensus even about the slope of the AS curve, which is upward sloping upto the potential (natural level of) output in the short-run, and vertical thereafter, and vertical at the potential output in the long -run. However, different schools attach varying significance for the reasons behind this slope. For example, the classists think that the short-run AS curve slopes upward primarily because of the mis-perceptions about the real wage and relative prices, the Keynesians think the shape is largely due to the nominal wage-price rigidity.
6. What had **caused** the Great Depression, hyperinflation, stagflation, relative prosperity of the 1980s and 1990s, and recent recession? Surely, not a single factor but may be one could talk of the major factor behind each of these big events. Hitherto, economists used to distinguish between the real and monetary business cycles, the former caused by the supply factors (classists) and the latter by the demand factors (Keynesians). However, today, we have the convergence of these two schools and the unified theory, called the eclectic or heterodox approach, recognizing the role of both kinds of such factors. Of course, even to -day, the different schools attach varying emphasis on the main factors behind the cycles. In particular, while the classicalists, postulating the wage - price flexibility and market clearing, argue for the technological changes, inter-temporal substitution of leisure, and misperfections about the real wage and relative prices as the principal factors behind fluctuations, the Keynesians consider the nominal wage-price rigidity as the main source of business cycles.

Lack of effective demand has been identified as the single most important factor that caused the Great Depression. The stock market crashed on October 29, 1929 (Monday) with the Dow Jones Industrial Average (DJIA) falling by 12% in a single day. The wealth of the households got eroded, which affected consumption expenditure adversely. Banks got into the problem of recovering their loans, and thereby, their non-performing assets mounted, thus investment suffered. The confidence of both the consumers and firms shattered. The fall in demand led to poor sales, causing high level of inventories, which prompted firms to cut productions and lay-off of the workers. The unemployment grew and the vicious circle led to a deep recession. Since USA happens to be an economic power, it got spread across other countries, and there was the Great Depression. As it was demand caused, both output and price fell simultaneously.

The **stagflation** was triggered by the formation of a cartel by oil exporters (**OPEC**), leading to the restricted oil supply and significant increases in the crude oil price. The increase in the energy cost led to increase in the production cost of all goods and all over the world. The firms were forced to jack up their prices, and hence the AS curve shifted upward. This being an adverse supply shock, while the output fell, prices went up. In

consequence, the world for the first time experienced the twin evils of unemployed and inflation at the same time.

The **hyperinflation** of Europe in the 1920s was triggered by the war time damages and their reconstruction, causing heavy debts. When the debt became unsustainable, those countries fell on financing the deficits through increasing the high-powered (base) money (and thereby **money supply**) more and more, giving rise to hyperinflation. The Latin America's hyperinflation was caused by their attempts to grow through debts, and when debt became unsustainable, some of the countries got into external debt crisis, and all of them resorted to excessive printing of currency, causing hyperinflation. Needless to say, all these hyperinflations were accompanied by the equally high growths in the high-powered money.

The prosperity of the 1980s and 1990s could be credited to the spread of **globalization, technical progress**, and the proper handling of stabilizing policies. The countries, which liberalized the trade and international capital flows, grew faster than the others. The South-East Asian countries and China provide enough evidence to this hypothesis. The collapse of the USSR and the poor experience of the African countries offer the added support. The part shifting of the production base from the high cost North American, Japanese, and European regions to the low cost Asian and Latin American regions has helped taming the inflation through out the world. The telecommunication and computerization boom resulted into a structural shift from the traditional industries to the knowledge - based industries and services. The busting of this boom and the speculations in foreign exchange, causing the Asian financial crisis of the 1997-98, are considered to be among the main factors responsible for the current growth recession. The growing terrorism, fluctuating monsoons and environmental hazards have added fuel to the fire in aggravating the recession.

III Stabilization Policies

7. The built-in (**automatic**) **stabilizers**, viz. progressive direct taxes and social security system, are never enough to counter business cycles. **Fiscal policy**, monetary policy and the foreign exchange rate system provide the necessary tools in the hands of the policy-makers to tame economic fluctuations. Governments' fiscal operations, viz. government expenditure and taxation affect aggregate demand both directly and indirectly, and aggregate supply indirectly. Government expenditure is a component of AD, and taxation reduces private income, thereby the private consumption and investment. Part of the effect of the expansionary fiscal policy is crowded out through the reduction in private investment and net exports, as increased government expenditure leads to increase in interest rate, and through that the appreciation of the exchange rate (if the economy is on a floating rate system). The fiscal policy is more effective in a closed economy than in an open economy with floating forex rate and free movements of capital. In addition, tax cuts provide incentives to work longer and harder, and to save and invest more, thereby to increase aggregate supply.

The **monetary policy** operates through regulating the supply of money via its control on the high-powered money, and the other instruments like the Bank rate, open market

operations, cash reserve requirements and statutory liquidity ratio. It affects the interest rate, which, in turn, exerts influence on investment (Keynes effect) and net export (via forex rate, if floating). The real balance (Pigou) effect provides yet another source for the effectiveness of monetary policy. The **foreign exchange rate** exerts its influence on the relative price in the country in relation to abroad and thereby affects net export, which is a component of AD.

8. If all these policies are there, how is it that these did not work to **counter business cycles**? Two reasons. One, each of these policies is subject to some inherent limitations, and two, the respective governments may have failed to use them appropriately. Taking up the specific policy-wise limitations first, the **fiscal policy suffers** from the following:
- a. Fiscal expansion leads to fiscal deficits, which add to the public debt. Obviously, debt is sustainable only up to a limit.
 - b. Ricardo-Barro equivalence theorem suggests that if people have bequest motive and no liquidity constraint, tax financed government expenditure is tantamount to debt financed government expenditure, and the either is mostly crowded out through cuts in private expenditure, leaving little impact on AD.
 - c. Open economies with the floating exchange rate have additional crowding out of fiscal expansion through contraction in net export, via forex rate appreciation.
 - d. Public has little tolerance to cuts in government expenditure and increases in tax rates, and this limits the operations of fiscal policy in restricting the unsustainable recovery/prosperity. In other words, fiscal policy is asymmetric.
 - e. If the interest sensitiveness of money demand is low, and/or that of investment is high, fiscal policy is of little use.

The **monetary policy** also **suffers** from some unique factors:

- a. In some countries, monetary tools sub-serve the fiscal instruments. This happens when the central bank is required to monetize some part of fiscal deficit. The US Federal Reserve Bank is independent in this regard and the Reserve Bank of India is theoretical independent lately only.
- b. In countries where the exchange rate is fixed, and/or there are significance restrictions on the movements of capital in or out, the tools of monetary policy are not available to mitigate economic fluctuations. This is what is called, the international trilemma or impossible trinity. The Euro region of Europe, thus, does not enjoy the power of regulating their money supply. So are countries like Hong Kong and UAE, which are on the Currency Board, and Panama and Ecuador, which have "dollarized" (USA) their medium of exchange.
- c. The counter policy changes in the income velocity of money/liquidity preference could also frustrate the efforts of monetary authorities.
- d. The low interest sensitiveness of investment and/or high that of money demand acts as yet another constraints in the effectiveness of monetary policy.

The **forex rate policy suffers** from the limitations like

- a. Low price elasticities of exports and imports
- b. Counter reactions from other countries, as devaluation and re-valuation are components of "beggar thy neighbour" tools.
- c. Considerations, which suggest the adoption of the fixed exchange rate system/currency board/currency union or the dollarization (US \$), which prohibit the use of the exchange rate policy.

In addition to the above policy specific constraints, all the **stabilization policies suffer** from the following limitations:

- a. Policy lags, inside and outside, which are long and variable.
 - b. Errors in forecasting the exact magnitude of the recession/recovery.
 - c. Changing structure, causing the multipliers to be dynamic and not quite known
 - d. Political costs of hard policies.
9. The moot question now is, why these **policies really failed** to check the significant business cycles? Analysing first the Great Depression, we can safely say that the fiscal policy was not adequately applied, monetary authorities than had only limited powers to regulate the money supply, and the flexibility in the forex rate was not available due to the presence of the gold standard. If one examines the US data, which are readily available, the government expenditure as a proportion of GNP increased from 10% in 1929 to 19.2% in 1933, and the fiscal deficit increased from -1% (surplus of 1%) to 2.5% of GNP during the period under discussion. This limited use was due to the then prevailing classical belief in the non-interventionist policy, and the policy-makers over riding concern of ensuring the balanced budget operations. The beauty of the fiscal policy, particularly during the recession, was then hardly known.

During the four - year period of the **Great Depression**, the nominal money supply in the US actually fell by over 25%, though leaving the real money supply practically unchanged. The interest rate hardly moved to the either direction. Being on the gold standard, the Federal Reserve Bank did not possess the flexibility in issuing the high-powered money. Due to bank failures and non-availability of insurance against bank deposits, households and banks' preferences for the currency and reserves went-up, which adversely affected the deposit money (money multiplier). Further, the low level of interest rate augmented the liquidity preference, which, in turn, reduced the effectiveness of monetary policy.

Stabilizing policies suffered the set back during the **stagflation**, as they operate basically through aggregate demand. These policies could attack unemployment through being used as "accommodating" or inflation through being "extinguishing". However, countering unemployment leads to aggravate inflation and taming inflation worsens unemployment. To some extent, this hypothesis was modified by the "supply-side economics", which recognizes the effect of these policies on aggregate supply. Prompted by the latter possibility, many governments resorted to tax cuts and tax breaks on saving and investment. The results were only partially successful and accordingly there were ups and downs in unemployment and inflation during the said period. The recognition of the natural

rate of output and unemployment, policy lags and rational expectations hypothesis, further limited the scope of all stabilizing policies in taming business cycles.

Stabilizing policies have helped rescue the debt and foreign exchange crises faced by several countries, including Mexico, Argentina, Thailand and Indonesia during the 1980s and 1990s. Currently these tools are being applied successfully in many countries, including USA and India to tame the growth recession and to come out of the terrorist attacks. The time series data in Table 4 indicate the broad workings of these policies in select countries, viz. India, USA and China. Figures 2.1 through 2.3 provide a plot of these data against GDP growth rate in these countries. Table 5 gives the simple correlation coefficients between GDP growth rate and each of the growth rates in money supply, government expenditure as a proportion of GDP and fiscal deficit as a proportion of GDP for these countries. Table 6 provides the regression results of a reduced form model. A careful analysis of these results indicate the following:

- a. The tables and graphs reveal no particular pattern among the growth rates in GDP, growth rate in money supply, government expenditure as a proportion of GDP and fiscal deficit as a proportion of GDP in the three countries under analysis. However, if one just looks at the best and the worst years in terms of the GDP growth rate for each of the three countries, he/she would find the following pattern:

Country	Year	Best Year			Year	Worst Year		
		Money	Govt. Exp.	Fiscal Def.		Money	Govt. Exp.	Fiscal Def.
India	1988	A	AA	AA	1979	AA	A	A
China	1985	AA	AA	BA	1990	BA	BA	BA
USA	1984	AA	AA	AA	1982	AA	AA	AA

A: Average growth/%, AA: Above average growth/%, BA: Below average growth/%

It may be noted that if the stabilizing policies were applied to counter business fluctuations, their corresponding magnitudes would grow slower during prosperity and faster during recession. Thus, in the table above, a policy to have been applied as counter cyclical, we must have BA (below average) entry during the best year and AA (above average) entry during the worst year. On this criterion, out of a total of 18 entries in the table, only 5 qualify as the correct ones, 10 as totally opposite and the remaining 3 as the neutral (A: average) cases. Of the 5 correct ones, 3 are for USA (all during the worst year) and one each for India (for money supply during the worst year) and China (for fiscal deficit during the best year). This simple analysis thus suggests that the stabilizing policies were applied consistently only to tame recession in USA. In majority of the cases, these policies were pro cyclical, thereby facilitating the fluctuations rather than countering them.

- b. Though all the correlation coefficients are small, it is interesting to note that while the growth rate in GDP is negatively correlated with that in money supply in India, it is

positively correlated in the other two countries. Quite the reverse is true for government expenditure and fiscal deficit proportions. These suggest that while the monetary policy was conducted as an anti-cyclical policy in India, it was pro-cyclical in the other two countries. In contrast, the fiscal policy was anti-cyclical in USA and China and pro-cyclical in India.

- c. The regression results, in general, are poor. In case of China alone, the regression coefficients and the R-square values are significant. The sign of the coefficients of GM (growth rate in money supply) is negative for India and in one equation for USA, and it is positive for China and the other equation for USA. In contrast, the signs of the coefficients of GEY (government expenditure as proportion to GDP) and FDY (fiscal deficit as proportion to GDP) is positive for India and negative for the other two countries. These findings suggest that while the monetary policy was counter cyclical in India, the fiscal policy was pro cyclical there. Generally, the opposite was true for the other two countries. This observation corroborates the one inferred above on the basis of the correlation results.

10. **Economists differ** with regard to the relative effectiveness of different stabilizing policies. The classists favour the monetary policy over the fiscal instruments, as they believed that the demand for money and the other behavioural functions are relatively stable. In contrast, the Keynesians favour the fiscal policy, particularly to check recession, when the interest rate hardly responds to fiscal deficit. Both schools believe that for policies to be effective, they have to be credible.
11. The **foreign exchange rate policy** has not been used much in stabilizing the economy. The other two have been **applied with varied success**. We have collected the relevant data on the relevant policy variables in India, USA and China, and the same are reported in Table 3.

The improvements in the knowledge base, technology and transparency in policies, and recognition of the significance of macro economic (fiscal) balance in economic growth, among other factors, are responsible for the inadequate effectiveness of policies in countering the current growth recession. In summary, one can now simply state that policies exist to counter economic fluctuations, but these policies even today are not good enough to do away with business cycles entirely. Pump priming is desirable during recessions and thus easy fiscal-monetary policy mix is a good policy currently in operation in many countries.

IV Conclusion

12. Economic fluctuations have occurred, would continue to recur and they are **not entirely bad**. There are ups and downs in all walks of life and economic performance can not be an exception. There is nothing perfect in real life and so policies can not guarantee full freedom from fluctuations. Recessions provide opportunities to introspect, relax, learn the

ways to improve performance, discover new techniques, etc. Was not John Maynard Keynes motivated to revolutionize macro-economic theory and policy on experiencing the Great Depression? As also, Milton Friedman to counter the inadequacy of the Keynesian theory to account for the stagflation through his hypotheses of price expectations, natural rate of unemployment and policy lags. His ideas got the added support from Robert Lucas and others, through their advancement of the rational expectations' hypothesis. The new Keynesians accepted the rational expectations' theory and rationalized the wage-price rigidity hypothesis of the old Keynesian school. These, among others, have enriched our understanding of the economy and accordingly economic fluctuations are now better understood and managed than ever before. The discoveries of new products, new technologies and trends towards mergers and globalization, etc. have been inspired by the business cycles.

13. Deep or/and long recessions, and unsustainable prosperity are, of course, not good. The former brings undue hardship, resulting into both economic and social/psychological loss. The latter tends to raise the standard of living, which no one likes to reverse. Fortunately, atleast one of the three stabilizing policies analysed above, is effective under any condition to atleast partially counter fluctuations. It is because of this that the world has not seen any deep recession since 1929-33, and one can safely state, that such a great depression would never be there in future. Countries after countries have faced the slow down but they have all been **short-lived and relatively shallow**. The credit for this goes squarely to the development in macroeconomics and its application by policy-makers across the globe. These policies have been applied in the real world with varying successes. The lack of full success has been partly due to the inherent limitations of these policies and partly due to their poor applications. Needless to say, the international organizations, like the World Bank and IMF have helped the member nations to implement the effective counter cyclical policies, though the literature provides examples of their poor guidance/force as well. The policies do have **side effects**, some of which may be undesirable, but a judicious combination of the various tools can minimize the bad effects. For example, a proper mix of an expansionary fiscal and an expansionary monetary policy would tend to raise output without raising interest rate. Also, if an expansionary fiscal or monetary policy were accompanied with a devaluation of the foreign exchange rate, we would have higher output without endangering the trade balance.

Table 1: Growth Rates (Real GDP)

(Percentages)

	USA	Canada	Japan	France	Germany	Italy	UK	China	Malaysia	India	World
1950	8.5	7.6					3.6	19.0		0.3	
1955	5.5	10.5	8.8	5.6	12.1		3.4	6.4		2.5	
1960	2.2	2.9	13.3	7.2	31.5	11.7	4.6	-1.4		7.0	5.4
1964	5.7	6.7	11.4	6.5	6.6	2.8	5.2	16.5		7.4	6.2
1965	5.6	6.6	5.8	4.8	5.3	3.3	2.3	17.0		-4.7	5.8
1966	5.9	6.8	10.5	5.2	2.9	6.0	2.1	17.0		0.5	5.3
1967	2.6	2.9	10.9	4.7	-0.2	7.2	2.8	-7.2		8.2	3.7
1968	4.1	5.4	12.1	4.3	5.6	6.5	4.2	-6.5		2.5	4.3
1969	2.7	5.4	12.1	7.0	7.6	6.1	1.4	19.3		6.7	5.4
1970	-0.1	2.6	10.3	5.7	5.1	5.3	2.4	23.3		5.2	3.5
1971	3.2	5.8	4.4	4.8	3.1	-	2.8	7.0	7.1	0.6	3.7
1972	4.8	5.7	8.3	4.4	4.2	4.3	2.4	2.9	9.4	-0.8	5.1
1973	5.4	7.7	7.7	5.4	4.7	7.1	7.9	8.3	11.7	4.9	5.8
1974	-0.5	4.4	-0.8	3.1	0.1	5.0	-1.0	1.1	8.3	1.3	1.8
1975	-1.1	2.6	2.9	-0.3	-1.2	-2.7	-0.7	8.3	0.8	9.5	0.7
1976	5.1	6.2	4.2	4.2	5.5	6.3	3.7	-2.7	11.6	0.9	4.8
1977	4.6	3.6	4.8	3.2	2.5	3.7	1.0	7.8	7.8	7.7	4.2
1978	4.8	4.6	5.0	3.3	3.5	3.7	3.8	12.3	6.7	5.6	4.1
1979	2.8	3.9	5.6	3.2	4.1	6.0	2.3	7.0	9.3	-6.0	3.7
1980	-0.6	1.5	3.5	1.6	1.0	4.2	-1.9	7.8	7.8	7.5	2.6
1981	1.6	3.7	3.4	1.2	-	0.5	-1.1	4.5	7.1	5.8	1.6
1982	-2.3	-3.2	3.4	2.5	-1.1	0.3	1.3	8.3	5.6	3.6	0.4
1983	3.8	3.2	2.8	0.7	1.8	-0.4	3.8	10.4	5.9	7.6	2.6
1984	6.0	6.3	4.3	1.3	3.1	4.1	1.6	14.6	7.3	3.6	4.8
1985	2.9	4.8	5.1	1.9	2.1	2.7	3.7	16.2	-1.1	5.5	4.0
1986	2.8	3.3	2.7	2.5	2.2	2.8	4.0	8.9	1.2	4.9	3.4
1987	3.0	4.3	4.4	2.3	1.4	3.1	4.6	11.6	5.4	4.8	3.9
1988	4.0	4.9	6.2	4.5	3.7	4.1	4.4	11.3	8.8	9.9	4.5
1989	2.4	2.3	4.8	4.3	4.0	2.9	2.1	4.1	9.2	6.6	3.3
1990	1.1	-0.5	4.8	2.5	4.9	2.1	0.5	3.8	9.7	5.7	2.9
1991	-1.2	-1.7	4.1	0.7	3.6	1.3	-2.2	9.2	8.6	0.4	2.3
1992	2.0	0.9	1.5	1.3	0.8	0.9	-0.6	14.2	7.8	5.4	3.2
1993	2.3	2.3	0.3	-1.3	-1.2	-1.2	2.3	13.5	8.3	5.0	2.9
1994	3.5	4.7	0.6	2.8	2.9	2.2	4.4	12.7	9.3	7.9	4.3
1995	2.3	2.8	1.5	2.1	1.9	2.9	2.8	10.5	9.4	8.0	3.5
1996	3.4	1.7	3.9	1.1	1.3	0.7	2.6	9.5	8.6	7.3	3.9
1997	3.9	4.0	0.9	2.0	2.0	1.5	3.5	8.8	7.7	5.0	4.2
1998	3.9	3.1		3.2	1.9	1.4	2.1			6.2	2.8
1999	4.1									6.5	3.5
2000	4.2		0.25							6.1	4.8
2001	0.5		1.0							4.5-5.5	1.2
2002*											1.5
Mean*	2.8	3.7	5.1	3.0	2.8	3.2	2.3	9.2	7.4	4.5	3.7
SD*	2.2	2.4	3.5	1.9	2.2	2.4	2.2	6.7	3.0	3.7	1.4

Source: IMF: International Financial Statistics: Various Issues.

*For the period 1964-1997

Note: Blanks are left out due to non-availability of data.

Table 2: Unemployment Rates (Labour Force)

(Percentages)

	USA	Canada	Japan	France	Germany	Italy	UK	China	Malaysia
1964	5.0	4.3	1.1	1.4	0.4	4.3	2.6		
1965	4.4	3.6	1.2	1.5	0.3	5.3	2.3		
1966	3.6	3.3	1.3	1.8	0.2	5.7	2.2		
1967	3.7	3.8	1.3	1.9	1.3	5.3	3.3		
1968	3.5	4.4	1.2	2.7	1.5	5.6	3.1		
1969	3.4	4.4	1.1	2.3	0.9	5.6	2.9		
1970	4.8	5.6	1.1	2.5	0.8	5.3	3.0		
1971	5.8	6.1	1.2	2.7	0.9	5.3	3.6		
1972	5.5	6.2	1.4	2.8	0.8	6.3	4.0		
1973	4.8	5.5	1.3	2.7	0.8	6.2	3.0		
1974	5.5	5.3	1.4	2.8	1.6	5.3	2.9		
1975	8.3	6.9	1.9	4.0	3.6	5.8	4.3		
1976	7.6	7.1	2.0	4.4	3.7	6.6	5.6		
1977	6.9	8.0	2.0	4.9	3.6	7.0	6.0		
1978	6.0	8.3	2.2	5.2	3.5	7.1	5.9		
1979	5.8	7.4	2.1	5.9	3.2	7.6	5.0		
1980	7.0	7.4	2.0	6.3	2.9	7.5	6.4		
1981	7.5	7.5	2.2	7.4	4.2	7.8	9.8		
1982	9.5	10.9	2.4	8.1	5.9	8.4	11.3		
1983	9.5	10.8	2.6	8.3	7.7	8.8	12.4		
1984	7.4	11.2	2.7	9.7	7.1	9.4	11.7		
1985	7.1	10.4	2.6	10.2	7.1	9.6	11.2	1.8	
1986	6.9	9.5	2.8	10.4	6.4	10.5	11.2	2.0	8.3
1987	6.1	8.8	2.8	10.5	6.2	10.9	10.3	2.0	7.3
1988	5.4	7.7	2.5	10.0	6.2	11.0	8.6	2.0	7.2
1989	5.2	7.5	2.3	9.4	5.5	10.9	7.1	2.6	6.3
1990	5.4	8.1	2.1	8.9	4.9	10.3	6.8	2.5	5.1
1991	6.6	10.2	2.1	9.4	4.4	9.9	8.7	2.3	4.3
1992	7.3	11.2	2.2	10.2	4.8	10.5	9.9	2.3	3.7
1993	6.8	11.2	2.5	11.1	9.8	10.2	10.4	2.6	3.0
1994	6.1	10.4	2.9	12.4	10.6	11.3	9.4	2.8	2.9
1995	5.6	9.6	3.2	11.6	10.4	12.0	8.3	2.9	2.8
1996	5.4	9.7	3.4	12.1	11.5	12.1	7.5	3.0	2.5
1997	5.0	9.2	3.4	12.3	12.7	12.3	5.7	3.0	2.5
1998	4.6	8.3	4.1	11.8	12.3	NA	4.7	3.1	3.3
1999	4.2	NA	4.7	NA	11.7	NA	4.3	NA	NA
2000	4.0	NA	NA	NA	10.7	NA	3.8	NA	NA
2001	5.5								
Mean*	6.0	7.7	2.1	6.7	4.6	8.2	6.7	2.5	4.6
SD*	1.5	2.5	0.7	3.8	3.5	2.5	3.3	0.4	2.1

Source: IMF: International Financial Statistics: Various Issues. *For the period 1964-1997 / 85-86 - 98
Note: Blanks are left out due to non-availability of data.

Table 3: Inflation Rates (CPI)

(Percentages)

	USA	Canada	Japan	France	Germany	Italy	UK	China	Malaysia	India	World
1950	-1.4	3.0	-2.1	8.0	-6.2	-1.0	2.7		10.2	1.0	
1955	-0.3	0.2	-1.0	1.0	1.7	2.3	3.5		-3.2	-5.0	1.0
1960	1.6	1.3	3.8	4.2	1.5	2.1	1.0			1.6	2.4
1964	1.3	1.8	3.8	3.1	2.3	5.9	3.2	-3.7	-0.4	13.4	4.5
1965	1.7	2.5	6.6	2.7	3.2	4.4	4.8	-1.2	0.1	9.5	4.8
1966	3.0	3.7	5.1	2.6	3.6	3.2	3.9	-1.2	1.0	10.8	5.0
1967	2.8	3.6	4.0	2.8	1.6	0.5	2.4	-0.7	4.6	13.1	4.1
1968	4.2	4.1	5.4	4.6	1.6	1.5	4.7	0.1	0.2	3.0	4.4
1969	5.4	4.5	5.2	6.1	1.9	2.4	5.5	1.0	-0.4	0.6	5.1
1970	5.9	3.4	7.7	5.9	3.4	5.0	6.4	0	1.8	5.1	6.0
1971	4.3	2.8	6.4	5.5	5.2	4.9	9.4	-0.1	1.6	3.1	5.9
1972	3.3	4.8	4.9	6.2	5.5	5.8	7.1	0.1	3.2	6.5	5.7
1973	6.2	7.6	11.7	7.3	7.0	10.8	9.2	0.1	10.6	16.9	9.4
1974	11.0	10.9	23.1	13.7	7.0	19.1	15.9	0.7	17.3	28.6	15.1
1975	9.1	10.8	11.8	11.8	5.9	16.9	24.2	0.4	4.5	5.7	13.3
1976	5.7	7.5	9.4	9.6	4.3	16.8	16.5	0.3	2.6	-7.6	11.0
1977	6.5	8.0	8.2	9.4	3.7	18.3	15.9	2.7	4.8	8.3	11.4
1978	7.6	8.9	4.1	9.1	2.7	12.1	8.2	0.7	4.9	2.5	9.6
1979	11.3	9.1	3.8	10.8	4.1	14.8	13.5	1.9	3.7	6.3	12.4
1980	13.5	10.2	7.8	13.3	5.4	21.2	18.0	7.4	6.7	11.4	15.6
1981	10.3	12.5	4.9	13.4	6.3	19.5	11.9	2.5	9.7	13.0	14.3
1982	6.2	10.8	2.7	11.8	5.3	16.5	8.6	2.0	5.8	7.9	12.6
1983	3.2	5.8	1.9	9.6	3.3	14.7	4.6	2.0	3.7	11.9	12.7
1984	4.3	4.3	2.2	7.4	2.4	10.8	5.0	2.7	3.9	8.3	13.7
1985	3.6	4.0	2.0	5.8	2.2	9.2	6.1	11.5	0.3	5.6	13.5
1986	1.9	4.2	0.6	2.5	-0.1	5.8	3.4	6.0	0.7	8.7	8.5
1987	3.7	4.4	0.1	3.3	0.2	4.7	4.1	7.2	0.3	8.8	10.9
1988	4.0	4.0	0.7	2.7	1.3	5.1	4.9	18.7	2.6	9.4	16.8
1989	4.8	5.0	2.3	3.5	2.8	6.3	7.8	18.3	2.8	6.2	14.2
1990	5.4	4.8	3.1	3.4	2.7	6.4	9.5	3.1	2.6	9.0	29.4
1991	4.2	5.6	3.3	3.2	3.5	6.4	5.9	3.5	4.4	13.9	18.0
1992	3.0	1.5	1.7	2.4	4.0	5.2	3.7	6.3	4.8	11.8	18.0
1993	3.0	1.8	1.3	2.1	4.5	4.5	1.6	14.6	3.5	6.4	19.2
1994	2.6	0.2	0.7	1.7	2.7	4.0	2.5	24.2	3.7	10.2	22.7
1995	2.8	2.2	-0.1	1.8	1.8	5.2	3.4	16.9	5.3	10.2	14.7
1996	2.9	1.6	0.1	2.0	1.5	4.0	2.4	8.3	3.5	9.0	8.5
1997	2.3	1.0	1.7	1.2	1.8	2.0	3.1	2.8	2.7	7.2	6.0
1998	1.6	1.0	0.6	0.7	1.0	2.0	3.4	-0.8	5.3	13.2	5.8
1999	2.2	1.7	-0.3	0.5	0.6	1.7	1.6	-1.4	2.7	4.7	5.2
2000	3.4	1.7	-0.7	1.7	1.9	2.5	2.9	0.3	1.5	4.0	4.2
2001	2	0									
2002											
<i>Mean</i> *	4.8	4.9	4.3	5.5	3.2	8.1	7.2	4.25	3.69	8.56	11.1
<i>SD</i> *	3.0	3.3	4.5	4.0	1.8	6.0	5.3	6.60	3.38	5.62	5.9

Source: IMF: International Financial Statistics: Various Issues.

*For the period 1964-2000

Note: Blanks are left out due to non-availability of data.

Table 4: Money (narrow) Supply, Government Expenditure and Fiscal Deficit

(Percentages)

Year	Money Supply Growth			Govt. Expend. (% of GDP)			Fiscal Deficit (% of GDP)		
	India	China	USA	India	China	USA	India	China	USA
1969	9.8		5.9	8.6		19.34	2.52		-0.5
1970	10.8		3.8	9		19.5	3.15		1.11
1971	12.6		6.8	10.5		19.47	3.45		2.22
1972	12.7		7.2	10.7		19.32	4.27		1.37
1973	16.5		7.2	9.35		18.65	2.74		0.58
1974	14.3		5	10.5		19.43	3.22		0.73
1975	8.1		4.6	11.8		21.83	4.06		4.59
1976	15.5		5.6	12.24		20.56	4.35		3.13
1977	18.1		7.6	11.9		20.57	3.95		2.51
1978	20.4	0.1	8.2	12.85		20.12	4.89		1.9
1979	20.8	43.1	8	13.89	31.22	19.89	5.5	4.17	1.09
1980	12.3	24.8	6.3	13.23	26.59	21.62	6.54	2.85	2.47
1981	15.7	21.8	7.1	13	22.85	22.4	5.44	0.61	2.43
1982	10.8	14.1	6.6	13.7	20.95	23.26	6	0.54	4.5
1983	14.7	14.5	11.1	13.82	21.21	23.16	6.4	0.65	5.72
1984	17.8	21.4	7	15.17	21.64	22.5	7.6	0.69	4.97
1985	16	32.7	9.2	16.44	21.04	22.99	8.5	-0.22	5.16
1986	13	18.3	13.4	17.67	21.71	22.42	9.2	0.78	4.72
1987	14.7	26.4	10.6	17.91	19.18	22.08	8.37	0.5	3.5
1988	15.1	24.7	3.5	17.55	16.93	21.11	8.11	0.88	2.79
1989	18.1	7.8	0.9	17.9	17.13	21.2	7.92	0.97	2.84
1990	18.9	13.4	3.8	17.27	16.81	22.43	8.12	0.81	4.1
1991	16.6	25.5	6.1	17.04	15.93	22.39	5.8	1.12	4.49
1992	7.1	28.2	11.7	17.03	14.46	22.07	5.65	1	5.23
1993	18.1	30.3	9.7	16.84	13.45	21.37	6.89	0.84	3.46
1994	27.4	21.8	0.1	15.55	12.29	21.05	5.47	1.2	2.66
1995	11.1	27.2	-0.9	14.85	12.04	20.83	5.04	0.97	2
1996	14.1	17.3	1.4	14.84	11.93	20.69	4.84	0.76	1.44
1997	12.6	19.4	3.5	17.78	12.59	19.49	4.87	0.73	0.24
1998	11.7	26.3	3.5	14.99	13.93	19.28	5.26	1.15	-0.61
1999	17.1	11.2	10.4	15.99	16.43	18.35	5.77	2.12	-1.68
2000	10.7	21.4	-3.8	16.98	18.09	18.19	5.35	2.7	2.59
2001						18.87			-0.91
Mean*	14.79	21.38	5.97	14.28	18.11	20.86	5.60	1.17	2.55
SD*	4.11	9.01	3.82	2.88	4.99	1.48	1.79	0.97	1.87

Source: IMF: International Financial Statistics: Various Issues.

*For the period 1969-2000

Note: Blanks are left out due to non-availability of data.

Table 5 :Simple Correlation Coefficients

Growth rate in	India	China	USA
	Growth rate in GDP		
Money	-0.1415	0.26964	0.04185
Govt. exp	0.19073	-0.242	-0.3724
Fisc Deficit	0.16104	-0.3111	-0.2294

Table 6: Multiple Regression Results:

India:				
GY	= 9.380	- 0.148 GM	+ 0.257 GEY	R ² = 0.070
	(1.04)	(1.02)	(1.25)	
GY	=5.093	- 0.152 GM	+ 0.378 FDY	R ² = .061
	(1.97)	(1.03)	(1.11)	
China:				
GY	= 9.380	+ 0.244 GM	- 0.277 GEY	R ² = .339
	(3.21)	(2.60)	(1.94)	
GY	= 4.939	+ 0.331 GM	- 2.521 FDY	R ² = .533
	(2.72)	(3.86)	(3.45)	
USA:				
GY	= 14.775	+ 0.105 GM	- 0.621 GEY	R ² = .171
	(2.90)	(1.07)	(2.43)	
GY	= 3.030	- 0.06 GM	- 0.29 FDY	R ² = .064
	(3.84)	(.59)	(1.38)	

GY = Growth rate in GDP
 GM = Growth rate in Money supply (broad)
 GEY = Government expenditure as percentage of GDP
 FDY = Fiscal Deficit as percentage of GDP

Figure 1.1: Growth Rate: Real GDP

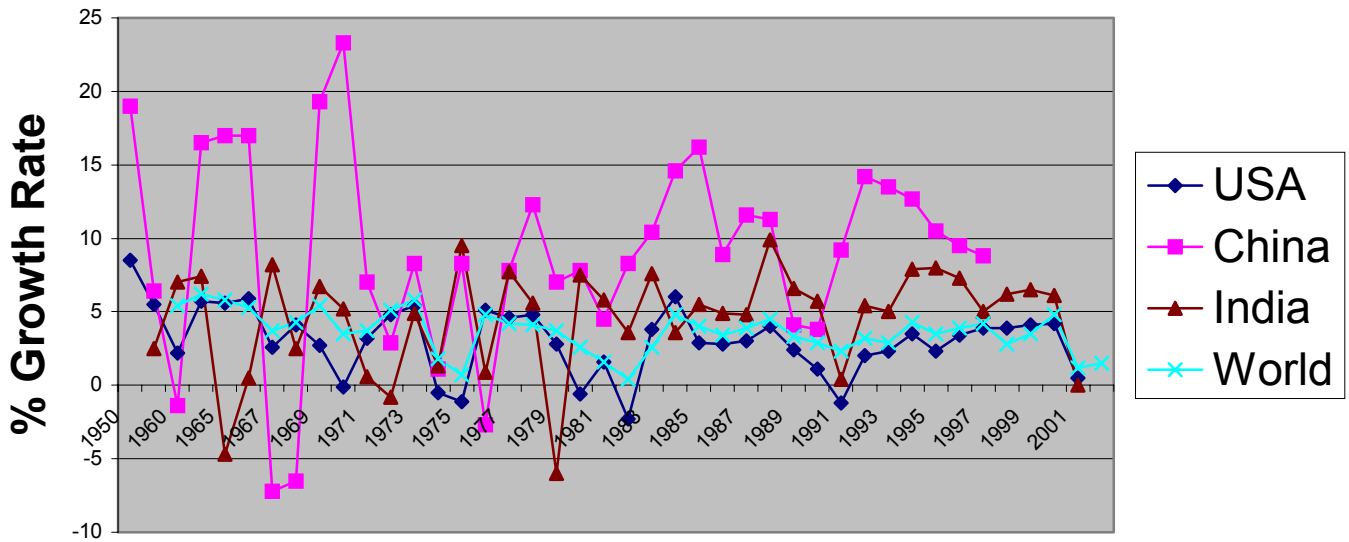


Figure 1.2: Unemployment Rate

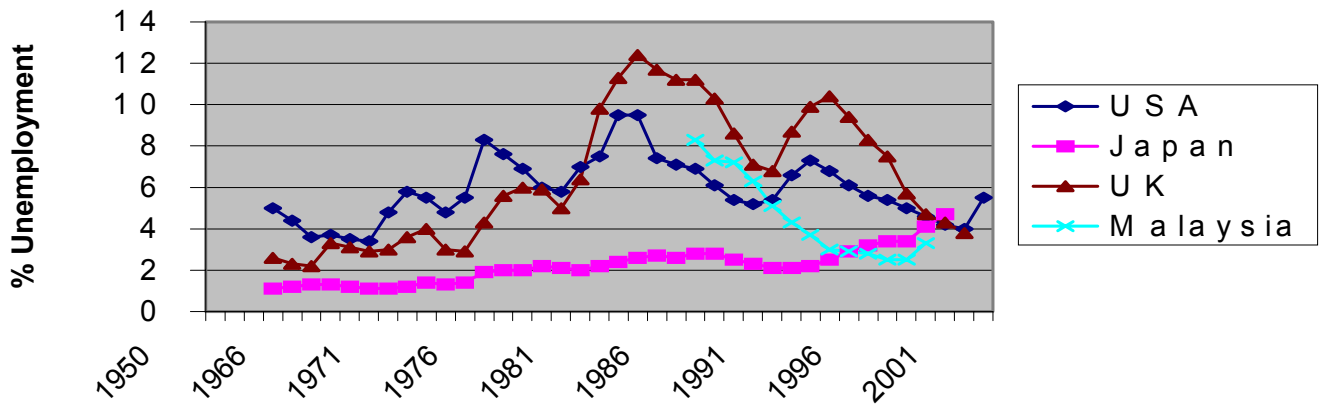


Figure 1.3: Inflation Rate

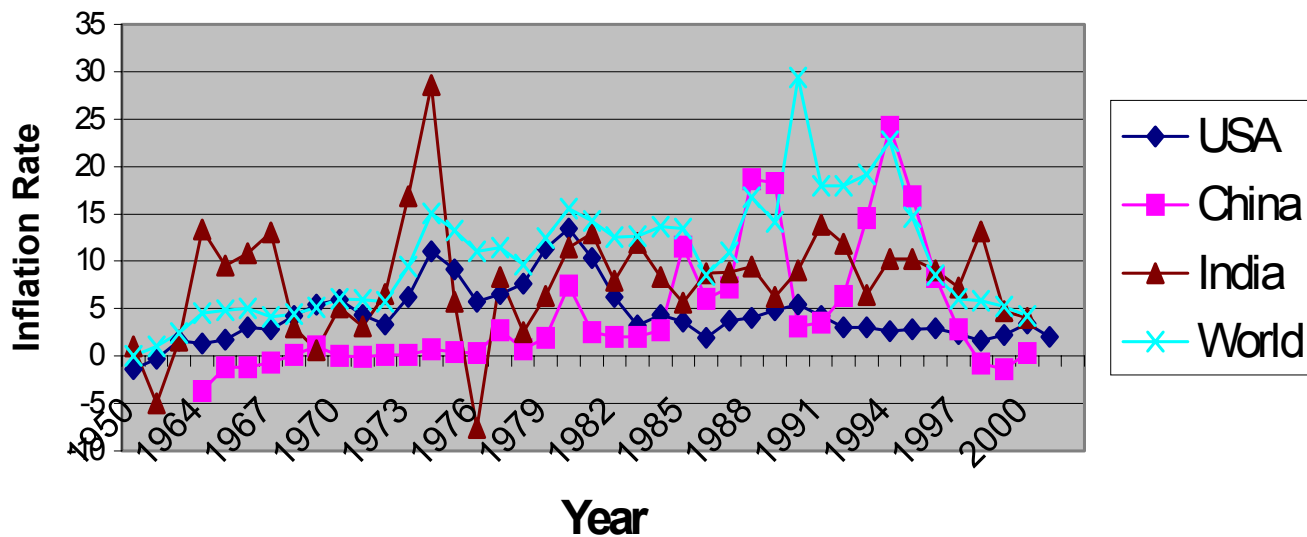


Figure 2.1: Growth Rates: India

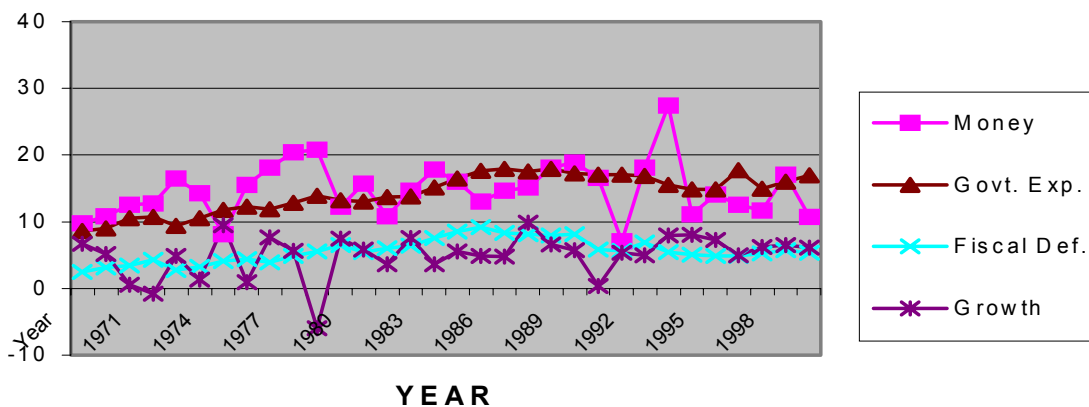


Figure 2.2 : Growth Rates: China

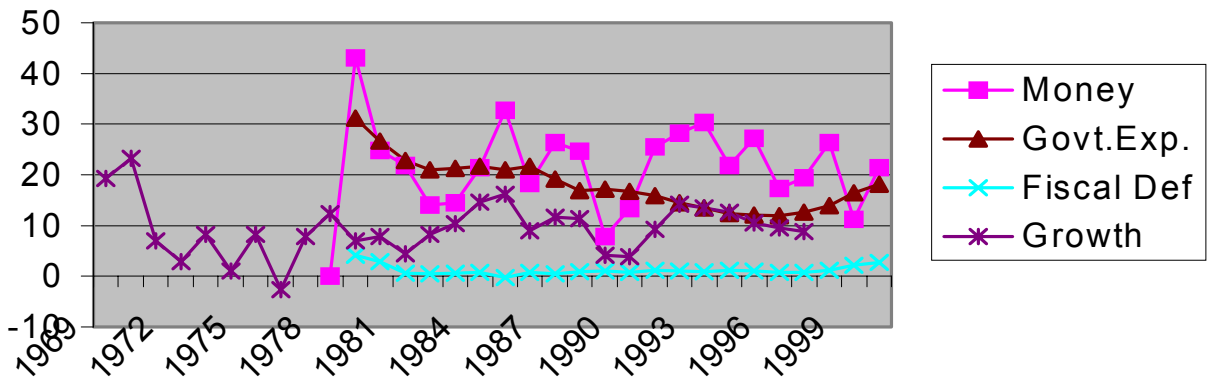


Figure 2.3: Growth Rates: USA

