BLOCK 8
PUBLIC POLICY
BLOCK INTRODUCTION

Block 8 is on ‘Public Policy’. It has three units: Units 21 to 23. Unit 21 is on ‘Fiscal and Monetary Policies: Growth and Stabilisation’. Economic stability requires controlling imbalances between four factors of domestic economy (viz. inflation, volatility in outputs, unemployment and fiscal deficit). If this can be managed, it ensures one of the two important determinants of economic growth. But it is also important to minimise the ‘external imbalance’ (i.e. BoP imbalance) which is the other important determinant of economic growth. Both monetary and fiscal policy need to be implemented in a complementary manner for maintaining a healthy balance between the two. This helps in creating the required economic atmosphere conducive for an economy’s growth with stability. Against this background, the unit discusses issues governing the ‘instruments, rules and discretion’ for a policy framework so as to ensure an economic atmosphere needed for ‘stimulating and sustaining growth’.

Unit 22 is on ‘Public Policy for Distributive Justice’. An important role of the government is to ensure equitable economic welfare. This requires the designing of appropriate policies to reduce inequalities. While both the ‘equity and efficiency’ issues are important, the popular Ramsey tax rule considers only the ‘efficiency’ criteria. For accommodating the equity concerns, the unit discusses alternative measures like: Lorenz curve, Engel curve and consumption dominance curve.

Unit 23 is on ‘International Policy Coordination’. While making policies, individual countries do not usually take into account the effects of their policies on other countries. However, in the globalised economic scenario, there are many ‘spillover effects’ of a country’s policy on other countries. Such effects are of significant macroeconomic dimension encompassing the need for coordination in the areas of: exchange of information, acceptance of mutually consistent policies, joint actions, etc. Against this background, the unit discusses the gains of policy coordination and the problems of the same. In the latter, the conditions under which such problems can be averted is explained.
UNIT 21  FISCAL AND MONETARY POLICIES: GROWTH AND STABILISATION

Structure
21.0  Objectives
21.1  Introduction
21.2  Fiscal Policy
   21.2.1  Instruments of Fiscal Policy
   21.2.2  Macroeconomic Impact
21.3  Monetary Policy
   21.3.1  Instruments of Monetary Policy
   21.3.2  Alternative Strategies
   21.3.3  Macroeconomic Impact
21.4  Stabilisation
   21.4.1  Active Versus Passive Policy Interventions
   21.4.2  Rules Versus Discretion
   21.4.3  Automatic Stabilisers
   21.4.4  Monetary Policy Rules
21.5  Economic Growth
21.6  Let Us Sum Up
21.7  Key Words
21.8  Some Useful Books
21.9  Answers or Hints to Check Your Progress Exercises

21.0  OBJECTIVES

After reading this unit, you will be able to:

- state the processes through which macroeconomic policy attempts to achieve economic growth with stability;
- describe the instruments of fiscal policy vis-à-vis their effectiveness for macroeconomic impact;
- explain the broad approach to ‘monetary policy’ used to control money supply in an economy;
- delineate the ‘alternative strategies’ available to ensure the required money supply in an economy;
- highlight the macroeconomic impact of monetary policy measures on an economy;
- present arguments, for and against, for government intervention to rectify the macroeconomic instabilities;
• discuss the efficacy of ‘alternative approaches’ in stabilising an economy from macroeconomic shocks; and

• write a note on ‘summary assessment of macroeconomic policies’ on the ‘economic growth’ of an economy in general.

21.1 INTRODUCTION

Macroeconomic policy aims at lowering the risks and uncertainty in economic decision making in order to ensure a stable and growth conducive environment. Further, the distributional aspect (to ensure economic parity across groups and generations) also comes within the domain of its policy intervention. It thus attempts to provide a framework within which the factor markets (labour and capital) and product markets operate. Macroeconomic policies include ‘fiscal policy’ (taxes, government spending and borrowing) and ‘monetary policy’ (exchange rate determinants, monetary and credit rules). The level and nature of economic activity in an economy is influenced by these policies through their impact on: (i) the decision-making process of economic agents and (ii) the macroeconomic environment they provide.

Economic growth is the quantitative expansion of aggregate output produced in a period. Quality of growth, on the other hand, is concerned with both the composition of growth across sectors as well as with the distribution of gains from growth across all sections of society. Growth can be decomposed into expansion of employment and average productivity per person (the two of which thereby become the determinants of growth). The fiscal and monetary policies impact the degree and nature of growth of the economy by influencing both these determinants of growth.

An economy exhibiting pronounced business cycles, very high or variable inflation, recurring financial crisis, frequent recessions, acute balance of payment situations would be considered ‘economically unstable’. Such an economic atmosphere engenders an atmosphere of risk, uncertainty and low confidence in the investment climate of the economy. Stabilisation implies containing both internal and external imbalances in the economy. External imbalance refer to balance of payment imbalances (a component of which is external trade imbalance). Internal imbalance refers to: (i) rising inflation, (ii) volatile outputs, (iii) increasing unemployment and (iv) increasing fiscal deficits. Stabilisation aims at correcting or containing all these four factors of internal imbalance.

21.2 FISCAL POLICY

The policy through which the government makes adjustments to its planned spending, and determines the quantum of tax and non-tax revenues raised, is known as fiscal policy. According to the Keynesian School, adjustment of taxes and/or government spending tends to alter the aggregate demand and influence the incentives faced by the firms and individuals to undertake different kinds of economic activities. Fiscal policy is an effective instrument to stabilise the economy over the course of a business cycle. It is used to influence macroeconomic variables like aggregate demand, savings and investment and income distribution. There are three broad fiscal policy stances viz.

• **Neutral Fiscal Policy**: employed in the case of stable economic conditions.

• **Expansionary Fiscal Policy**: employed during a downturn or recessionary
conditions (when a fiscal stimulus package which includes enhanced government spending or lowered tax rates or a combination is adopted).

- **Contractionary Fiscal Policy:** employed when the economy is overheated or when there is boom. It may involve increased taxes and lowered spending.

The gap between government spending and revenue (i.e. fiscal deficit) is taken as an indicator of the fiscal policy stance. Opinion on fiscal deficit has ranged from its stimulating effect in combating economic slowdown to its debilitating effect in giving rise to unsustainability of public debt. However, more specific ultimate objectives of fiscal policy are concerned with (low) inflation, (low) unemployment and (high) growth.

### 21.2.1 Instruments of Fiscal Policy

To fulfil the twin objectives of low unemployment and price stability, the fiscal policy authority adopts the following instruments:

- **Public Expenditure:** This is used to stimulate or regulate an economy when it faces situations like recession or boom. Any variation in public expenditure will have an important bearing on the level of consumption, investment or total income. Public expenditure constitutes an important share in total expenditure of an economy and is mainly composed of expenditure on public works, relief expenditures, subsidies, transfer payments, salaries and social security benefits. Usually, an expansionary fiscal policy action is used in case of recessionary situation. On the contrary, fiscal constraints are employed during boom to avoid the consequences of hyper-inflationary tendencies.

- **Taxation Policy:** The tax structure of an economy occupies an important place as a fiscal policy tool. Taxes determine the size of disposable income in the hands of economic agents and thereby the corresponding inflationary and deflationary gaps. Tax policy has to be easy during depression while during inflation or boom periods, it must curtail the spending ability of consumers and investors.

- **Public Debt:** A properly managed public borrowing programme and debt repayment serves as a powerful instrument in combating the macroeconomic instabilities like inflation or deflation. Government borrowing takes place through: (i) commercial banks, (ii) non-bank financial intermediaries, (iii) the central bank or by the printing of new money. Borrowing from general public against the sale of bonds and securities help to reduce the consumption and private investment spending and control inflation. If banks have excess reserves, borrowing from the banking system enables the government to undertake investment projects stimulating the economy out of depression. Withdrawals from the treasury add to easing depression, but account for a negligible fraction of government borrowings. Debt monetisation (in the form of printing money) adds liquidity in the system but is inflationary in its effect. A proper mix of public debt alternatives is therefore necessary to ensure desirable economic outcomes.

- **Budget:** Budget document (financial plan of the government – usually for a year) serves as an important policy tool to handle the economic fluctuations. Discretionary changes in expenditures and/or tax rates through managed/balanced budget are used to stimulate the economy when in a recession and to achieve price stability during the boom periods. A counter
cyclical budgetary policy may also be adopted by unbalanced budgeting. During the depression an unbalanced budget implies deficit financing whereas during economic overheating episodes, it would be surplus budget implying lower government expenditures and higher taxes.

21.2.2 Macroeconomic Impact

The fiscal policy is adopted to achieve the following impact on the economy:

- **Price Stability**: Taxes and spending help the government in stabilising the fluctuation in prices and by placing a check on higher inflationary pressures.

- **Employment Generation**: Fiscal policy, through its contribution to infrastructural development, generates employment opportunities particularly in developing countries where private sector investment is relatively low.

- **Resource Mobilisation**: Fiscal policy enables the mobilisation of resources needed for public spending through taxes, public and private savings through issuance of bonds and securities.

- **Resource Allocation**: Fiscal policy can be an instrument in allocation of funds mobilised through fiscal instruments (e.g. for social infrastructure, human and physical development).

- **Income Redistribution**: By applying the instruments of taxes and transfers, fiscal policy performs the redistributive role. Taxes collected from rich and spent on the development of poorer sections help reduce economic inequalities.

- **Balanced Regional Development**: To ensure a balanced regional development in a federal structure like India, fiscal transfers (statutory and discretionary) are provided to the less developed regions.

- **Balance of Payments**: Fiscal policy actions like ‘input tax credits’ or subsidised capital to industries help promote exports. It thereby helps to increase the forex reserves and maintain a stable external position.

- **Capital Formation and Economic Growth**: Government tax rebates and increased spending boost private investment. Increased total investments in the economy broaden the capital base (capital deepening and capital widening) and promote economic growth.

Check Your Progress 1 [answer within the given space in about 50-100 words]

1) In what way macroeconomic policies impact economic growth?

......................................................................................................................
......................................................................................................................
......................................................................................................................
......................................................................................................................
......................................................................................................................
......................................................................................................................
2) What does the term ‘stabilisation’ basically imply?

..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................

3) What are the three broad fiscal policy stances?

..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................

4) State the four main instruments of fiscal policy.

..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................

5) In what respects an economy experiences impact on account of fiscal policy pursued?

..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................
..................................................................................................................................................

---

21.3 MONETARY POLICY

Monetary policy is the process by which the monetary authority of an economy, usually a central bank, regulates either the cost of borrowing (typically of very short-term borrowing) or the money supply. Conventionally, monetary policy aims at targeting the: (i) desired level of output (and thereby the rate of growth) in the economy, (ii) maintenance of a stable price level and (iii) management of exchange rate (or the balance of payments). It thus aims at controlling fluctuations in aggregate demand. While fiscal policy involves a trade-off between output stabilisation and distortions from tax and spending changes, monetary policy involves a trade-off between price and output stability. The stance of a monetary policy to avert the macroeconomic instabilities therefore includes the following:

- **Easy Monetary Policy**: A policy stance favouring low interest rates, increased liquidity and easy access to credit aimed at stimulating the real economic activity. Such a policy action is executed during the recessionary
Public Policy
economic episodes wherein investment and employment are below normal levels.

- **Tight Monetary Policy:** A restrictive policy stance intended to restrict the level of effective demand by inducing higher interest rates, constraining the money supply or credit access. This type of policy action is usually executed during boom periods in order to cool down the economy from overheating.

- **Accommodative Monetary Policy:** A monetary policy action wherein the supply of money is allowed to expand in line with the demand for it. If the demand for money rises due to sustained real growth in the economy, accommodatory monetary policy is preferable and any failure to increase the money supply would obstruct growth. If, on the contrary, the increased demand for money is due to temporary and unsustainable hike in economic growth, resorting to accommodative monetary policy would lead to inflation in prices and wages.

Thus, although, in the early years, the central monetary authority was charged with a large number of objectives, over time, literature on monetary policy highlights two important objectives viz. one to **protect the economy from shocks**, and two, to **ensure price stability**.

### 21.3.1 Instruments of Monetary Policy

To ensure a stable price level together with a sustainable growth path, the central banks adopt two kinds of instruments. These can be broadly classified as: (i) quantitative credit controls and (ii) qualitative credit controls. The former comprise of two instruments viz. (i) reserve ratios and (ii) policy rates. The latter comprise of several instruments like (i) margin requirements, (ii) moral suasion, (iii) credit rationing, etc.

**Reserve ratios** consist of cash reserve ratio (CRR), statutory liquidity ratio (SLR) and open market operations (OMO). CRR is the cash required to be kept with the RBI as a percentage of a bank’s total deposits. The bank can neither lend this portion to anyone nor can it earn interest or profits on it. CRR is used to vary money supply in economy. SLR represents the percentage of a bank’s total deposits that are required to be invested in government approved securities. SLR restricts funds available for lending. The bank earns interest on SLR funds. OMO refers to policy actions of buying and selling of government securities to regulate the short-term money supply. If additional liquidity is needed in the economy, RBI will buy the government securities and pump in funds. In case of excess liquidity, RBI sells the securities to suck out excess money circulating in the economy. In particular, OMO is applied to avoid temporary liquidity mismatches in the market caused by foreign capital flows.

**Policy rates** comprise of: (i) bank rate (BR), (ii) repo rate (RR) and reverse repo rate (RRR) and (iii) marginal standing facility rate (MSFR). Bank rate refers to the rate of interest at which a central bank lends long-term funds to commercial banks. RBI uses bank rate to regulate the money supply with the ‘liquidity adjustment facility’ (LAF) extended through the RR and the RRR. **Repo Rate** (being acronym as Repo for repurchase option) is a collateralised lending to banks to meet their short term liquidity needs. It is the rate at which banks are allowed to borrow money from RBI by selling securities to it with an agreement to repurchase the same at a predetermined rate and date. Repo operations inject liquidity into the system. On the other hand, **Reverse Repo Rate** involves the
borrowing of RBI from commercial banks against the securities. The interest rate paid by RBI in this case is called the reverse repo rate. The reverse repo transactions enable banks to park excess money with the RBI thereby absorbing excess liquidity. Another rate, called the Marginal Standing Facility (MSF) Rate refers to a new LAF window which allows banks to borrow overnight funds from the RBI in case of an emergency situation. This is extended against government securities when the inter-bank liquidity is not forthcoming.

Qualitative credit controls are selective tools applied to regulate the channelling of cash and credit to priority sectors like small-scale industries, consumer goods industries and agriculture. These include: (i) margin requirements, (ii) moral suasion, (iii) credit rationing, (iv) publicity and (v) direct action. Margin requirement is the difference between market value of the security and the amount of loan advanced against the security. The margin requirement is increased when flow of credit is to be restricted in the economy and vice versa. Moral suasion (also known as ‘moral persuasion’), refers to RBI’s convincing the commercial banks to follow its directives on the flow of credit. RBI persuades the banks to put a cap on credit supply during high inflation episodes and be liberal in lending during economic downturn. Credit Rationing is also a maximum cap placed on the loans and advances made by the commercial banks. The credit ceiling is applied in situations (or sectors) where credit needs to be checked especially where it is used for speculative investments. Publicity is a tool used by the central bank to disseminate its views on the current economic affairs and its likely directions to ensure stability. Direct Action are the power vesting with the RBI to undertake strict course of action against commercial banks which decline to follow the orders or directives from the central bank.

21.3.2 Alternative Strategies

The main purpose of monetary policy is to ensure a stable growth in aggregate demand. It entails avoiding aggregate demand either arising too fast resulting in inflation, or rising too slow resulting in high unemployment and lower economic growth. There are two broad indicators [viz. (i) the monetary targets and (ii) interest rate targets] that a central bank uses as intermediate targets to move towards the final or ultimate targets. Like in the case of fiscal policy, the final targets of monetary policy too are maintaining stability or growth in macroeconomic variables like unemployment rate, inflation rate and the growth rate of real income.

Monetary Targeting: To understand the use of the monetary targeting as an intermediate measure, it is assumed by the policymakers that other things remaining constant, an increase in money supply will reduce the level of unemployment (by increasing the level of economic activity) and might trigger inflation in the short run. On the contrary, slower growth in money supply leads to lower inflation and a higher short run unemployment. Past data and expert forecasts about the probable trajectory of economy would be employed to decide the monetary target. Once the target for the money growth rate is decided, the monetary policy operates consistently as if the chosen target for the money growth rate is the ultimate target of the monetary policy.

Interest Rate Targeting is a substitute for monetary targeting. The operative mechanism is that, once the central bank sets a target rate for the call money rate, the central bank will undertake ‘open market operations’ (OMOs) with a view to keep the actual interest rates at or close to the target rate. If the actual rate exceeds the target rate, securities are purchased through OMOs. This would increase the
liquidity and the actual rates would come down. Since the OMOs raises or lowers the bank reserves (and thereby the bank deposits and therefore the money supply), the interest rate targeting is an alternative to monetary targeting. A central bank can target either of the two, but not both. Note that it is convenient to track the short-term rates contemporaneously and hence these are controlled more effectively. The call rates can therefore be regarded as short-term operating target. Changes in money supply can be noticed with a lag of a week or two with some errors. Interest rate targeting focuses on the short-term interest rate (such as call money rate) as long-term interest rates can be contemporaneously observed but not easily controlled.

The choice between the monetary aggregate and interest rate targeting is guided by the conditions in an economy. For instance, monetary targeting is an ideal case for monetary policy in case the central bank faces an interest rate insensitive (i.e. vertical) LM curve. This strategy enables the fulfilment of both the intermediate and the final targets. On the contrary, in case of a non-vertical LM curve (interest rate sensitive), even though the monetary target is achieved, the ultimate target, such as full employment may be missed.

21.3.3 Macroeconomic Impact

Monetary policy (MP) is primarily concerned with the price and exchange rate stability, along with promotion of economic growth. Further, it also helps in the following.

- **Promotion of Savings and Investment**: By regulating the interest rates and inflationary tendencies by applying the expansionary or contractionary policy stances, MP can help to influence savings and investment.

- **Regulating Imports and Exports**: By extending priority loans at low interest rates, MP helps to induce export-promotion and import substitution thereby helping to enhance the external account position of the economy.

- **Managing Business Cycles**: The upswings (boom) and downswings (recession) of a business cycle may be regulated by applying tight policy action during boom and easy policy action during recession. It helps in averting the destabilising ramifications of business cycle fluctuations.

- **Regulation of Demand Conditions**: By influencing the availability of credit and its cost, monetary policy acts as an effective tool to control the demand conditions according to the economic circumstances.

- **Employment Generation**: By influencing the level of savings, investment and aggregate demand, MP impacts favourably on employment creation.

- **Infrastructural Development**: By facilitating subsidised or concessional funding to priority sectors like small-scale industries, agriculture other credit constrained sections, MP helps in infrastructural development.

- **Managing and Developing the Financial Sector**: The central bank manages the banking sector in order to ensure its smooth functioning and provision of financial services far and wide across the country.
Check Your Progress 2 [answer within the given space in about 50-100 words]

1) Distinguish between CRR and SLR.

2) Differentiate between RR and RRR.

3) What is meant by ‘priority sector’ lending?

4) When is ‘monetary targeting’ used as a tool? How does it help?

5) How is interest rate targeting an alternative to monetary targeting?

21.4 STABILISATION

On suitable policies to counteract macroeconomic instabilities, there have existed two extreme views viz. fine-tuning versus leave-it-alone policies. Adherents of the first view (called activists) consider the economy as potentially (and inherently)
unstable. They maintain that the economy is subject to frequent aggregate demand-supply shocks. Therefore, if the policymakers do not employ active stabilisation policies (monetary and fiscal), the shocks would result in undesirable and inefficient movements in output, inflation and unemployment. Policy intervention can and should be used to avert such shocks and stabilise the economy. The second view, with Milton Friedman as its pioneer, holds diametrically opposite position that the economy inherently tends to be stable. They point out that active economic policy interventions themselves could potentially cause erratic, substantial and inefficient fluctuations. They therefore advocate a hands-off macroeconomic policy.

21.4.1 Active Versus Passive Policy Interventions

Policymakers face the problem of long lags and difficulty in predicting the lengths of such lags. As a result, application of monetary and fiscal policy is affected. There are various stages in policy intervention and lags are associated with each stage. Broadly, these may be categorised into: inside lag and outside lag. Inside lag represents the period of lapse between occurrence of an economic shock to the economy and implementation of suitable policy action to correct that shock. This lag is further categorised into: recognition lag, decision lag and action lag. Recognition lag refers to the time elapsed between the occurrence of a shock and recognition by the policymakers that a policy intervention is required for its correction. It is relatively shorter when an expansionary policy action is warranted and longer when a contractionary policy action is desired. The decision lag represents the time elapsed between the recognition of the need for an action and the actual policy decision. The action lag denotes the time elapsed between the policy decision and its implementation. The decision and action lags are short for the monetary policy because the monetary authorities meet frequently and major policy actions can be initiated as soon as the decision is made. It is relatively longer for the fiscal policy due to complex procedure of policy making and implementation. For instance, the administration may have to prepare legislation which goes through reviews needing to be approved by the houses of parliament before the policy action can be initiated.

The outside lag represents the time between the initiation of a policy action and its effect on the economy. This lag arises due to lagged response of the macroeconomic variables like spending, income and employment. Note that the outside lag is a distributed one as the effect of a policy action on the economy is spread over time. Outside lags are usually longer for monetary policy compared to fiscal policy. The effectiveness of monetary policy actions (change in money supply or in interest rates) depends upon the behaviour of economic agents like investors. Many firms prepare the investment plans in advance. Thus, a change in monetary policy instrument is not considered to affect the economic activity until about two quarters after such change. Existence of such lags, the passivists argue, renders active policy interventions risky and in fact de-stabilising.

Assume that an economy operating at the full employment level faces an unanticipated aggregate demand shock that, at time $t_0$, reduces the output below its potential level. In the ‘do nothing’ scenario, the output will fall initially but soon recover to full employment again at time $t_e$. Suppose policymakers adopt an active policy. Due to lags, the shock is perceived at time $t_1$, decision to intervene is taken at time $t_2$, the expansionary policy is initiated at time $t_3$, and finally it may start having effect from time $t_4$ onwards. It is possible that economy is already recovering by the time expansionary policy is implemented. Thus, due to the
mismatch in timing and/or the ‘poor dosage’, economy might overshoot the level of full employment. To correct the divergence from the full employment level, contractionary policy action is now executed at $t_5$ and after some lag, the output starts falling down to the full employment level. It may continue falling even to lower levels. Thus, instead of stabilising the economy, policy intervention in presence of lags tends to be destabilising. The advocates of active policy, however, maintain that the presence of lags does not necessarily make the policy actions irrelevant altogether, particularly during conditions of acute and persistent economic downswings like that of 2008. But there are some problems of planning which are as follows.

**Difficulties in Economic Forecasting:** There are several methods used in economic forecasting: from a simple leading indicator technique to macroeconometric time-series models. The macroeconometric models are employed to forecast unemployment, inflation and other endogenous variables treating the policy parameters as exogenous. However, the accuracy of the forecast depends on, how well the model is built. There are often large margins of error in prediction. Events like the great depression, the recession recovery of 1982, the Asian financial crisis of 1997 and the global meltdown in 2008 indicate that many such episodes are difficult to predict. Policymakers need to be cautious of such errors of prediction.

**Ignorance and Expectations:** A policy intervention based on an understanding gained from an econometric model using past data, ignores the effect the intervention itself will have on the behaviour of the economic agents. Rational economic agents form their expectations on the same knowledge of economy that is available to the policy maker and the economic agent. Thus, any announced policy action becomes largely ineffective. For instance, if expansionary stimulus is given, the economic agents will anticipate inflation and adjust their contracts accordingly, rendering policy ineffective.

**Time Inconsistency:** Economic policy is neither independent of nor devoid of consequences of political processes. However, there are many reasons for deficiencies in political discretion. Due to the shifting of power from one group to another, the political process remains erratic. Even if the policymakers are trustworthy, and discretionary policy action appears preferable to the fixed policy rule owing to its flexible nature, there still is the time inconsistency problem i.e. the problem of a policy maker reneging on the announced policy. For instance, given that low inflation and low unemployment are both major goals of economic policy, suppose the central bank announces that low inflation is the stated goal of monetary policy. But once the economic agents have formed their inflation expectations and set the wages and prices accordingly, the central bank at a later date might have an incentive to renege on the announcement and initiate an expansionary monetary policy to reduce unemployment. Thus, the presence of lags, ignorance and expectations, problems of economic forecasting and time inconsistency problem are some of the grounds on which arguments are made to caution against an activist policy. Many other ‘alternative approaches’ to stabilising the economy from macroeconomic shocks are also found in the literature. These are as follows.

### 21.4.2 Rules Versus Discretion

There is a debate on whether pre-determined rules-of-thumb based policy interventions, or, discretionary policy interventions should be the choice. The policy is Rules Based if the policymakers declare in advance how it responds to
various situations and demonstrate their credibility by implementing the announced policy, usually obtaining the desired results. A discretionary policy action would then be feasible if it is possible on the part of policymakers to size up the events as they occur and decide what policy action they consider relevant at the time. The debate over Rules versus discretion is different from the debate over active versus passive policy. A policy can be executed by following a rule and yet be either active or passive. For instance, a 3 percent constant growth in the money supply would constitute a passive policy rule. An active policy rule on the other hand might state that: Money Growth = 3% + (Unemployment Rate – 4%) which assumes that the natural rate of unemployment equals 4 percent.

21.4.3 Automatic Stabilisers

Automatic stabilisers are aimed at reducing the lags – especially inside lags – linked to the process of stabilisation through monetary and fiscal policy intervention. An automatic stabiliser refers to a process that automatically corrects the influence of a shock to the economy. An automatic stabiliser thus avoids inside lag. An important automatic stabiliser is the income tax. It leads to economic stabilisation through its dampening effect on the multipliers that a shock to the aggregate demand may effect. Another automatic stabiliser could be unemployment compensation like the system of unemployment-insurance and welfare systems which automatically raises the allowance in case of economic downturn.

21.4.4 Monetary Policy Rules

Though it is not unanimously agreed that the fixed policy rule is superior to the discretionary policy intervention, there are some arguments advanced in favour of rule-based conduct of monetary policy. The following brief account provides some insights about the three policy rules proposed.

Steady Growth of Money Supply: It is advocated by monetarists that a slow and steady growth in money supply would lead to economic stability ensuring a stable output, employment and prices. However, according to the critics, it is effective in stabilising the aggregate demand only if the velocity of circulation of money is stable. But the shifts in money demand, following an economic shock, makes the velocity of money unstable. Therefore, many economists favour that the money supply should be adjusted according to different shocks to the economy.

Nominal GDP Targeting: Many economists propose nominal GDP targeting as an alternative policy rule. Under this rule, central bank proposes a planned path for nominal GDP. It lowers the money growth in order to lower the aggregate demand (if nominal GDP is above the target) and infuse more money, if nominal GDP is lower. Many consider this to be a better stabilisation policy rule than the simple monetarist rule stated above.

Inflation Targeting: According to this rule, the central bank would announce an explicit target for inflation rate (usually a low one) and then change the money supply as per the deviations of actual inflation rate from the target rate. Inflation targeting also takes care of possible fluctuations in the velocity of money and therefore prevents economy from its adverse macroeconomic ramifications. In addition, inflation targeting is easy to explain to the general public and hence appears more effective. In India, RBI has been resorting to inflation targeting over last several years.
Check Your Progress 3 [answer within the given space in about 50-100 words]

1) On what grounds, caution is expressed on active policy intervention to correct macroeconomic instability?

2) State the alternative approaches to stabilize the economy apart from active or passive intervention.

3) What is an ‘automatic stabiliser’? Give examples.

4) What are the arguments made in favour of fixed policy rule viz-à-viz discretionary policy intervention?

21.5 ECONOMIC GROWTH

At a macroeconomic level, in developed economies, it has been observed over long periods that there is a fairly stable relation between capital and output. Thus, capital formation is regarded as an important determinant of growth. However, in developing economies factors such as institutions are seen as important and determinants of growth are considered to include productive investment, knowledge accumulation including R & D, development of human capital, prevalence of rule of law and state of governance, infrastructure, stable macroeconomic environment, etc. Thus, trade policy, industrial policy, conducive legal framework, etc. are considered important to provide a background for sustained economic growth. Productive investment itself plays a dual role – it
Public Policy

stimulates aggregate demand via expenditure multiplier effect and adds to productive capacity after a gestation period.

Thus, monetary and fiscal policies can induce growth process through macroeconomic stabilisation. Further, they influence growth, both on the demand side and the supply side. Aggregate demand stimulus, given existing productive capacity, will spur output. On supply side, policies impact growth through influencing return on investment (via interest rate), public investment in infrastructure and human resources, correcting structural imbalances, investing in certain public institutions, etc. Knowledge and technology are thus important drivers of growth. Policies encouraging investment in R & D by firms and encouraging savings to finance productive investment positively impact growth. Further, in the realm of fiscal policy, it is not only the aggregate government spending out but also the composition of such spending that impact growth. In particular, public expenditure on education and health is important in human capital formation. Fiscal policy influences the quality and the distributive nature of growth (since it can be used to stimulate specific sectors and distribution of incomes arising from productive activity). Use of fiscal policy for such objectives also impacts aggregate growth.

21.6 LET US SUM UP

Both monetary and fiscal policies (whether active or passive, rule based or discretionary) play important role in stabilisation as well as in aiding economic growth. However, monetary policies proper are essentially macroeconomic in nature and play greater role in macroeconomic stabilisation than fiscal policies. However, once stable macroeconomic environment is ensured, fiscal policies play a greater direct role in stimulating and sustaining growth. It is thus recognised that a degree of coordination and coherence in both these policies is warranted and that they therefore must be used in a complementary manner.

21.7 KEY WORDS

<table>
<thead>
<tr>
<th>Macroeconomic Policies</th>
<th>Are aimed at lowering the risks and uncertainty in economic decision making so as to ensure a stable and growth conducive environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Policy</td>
<td>Policies related to taxes and government spending used to influence macroeconomic variables like aggregate demand, savings &amp; investment and income distribution.</td>
</tr>
<tr>
<td>Monetary Policy</td>
<td>Is the process by which monetary authority of an economy regulates money supply. It aims at targeting: (i) desired level of growth rate and (ii) maintaining price and exchange rate stability.</td>
</tr>
<tr>
<td>Stabilisation</td>
<td>Policies initiated deliberately or built into processes as ‘automatic stabilisers’ to avoid economic shocks experienced by the economy from time to time.</td>
</tr>
</tbody>
</table>
Growth: Expansion of aggregate output produced during a period.

21.8 SOME USEFUL BOOKS


21.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) The two main determinants of growth are employment and average labour productivity. Macroeconomic policies viz. fiscal and monetary policy, by influencing the degree and nature of growth of both these determinants, impact and influence growth.

2) It implies the containment of both the internal and external balances in the economy.

3) Neutral, expansionary and contractionary.

4) Public expenditure, taxation, public debt and annual budget.

5) Price stability, employment generation, resource mobilisation, etc.

Check Your Progress 2

1) CRR is the amount of cash as a proportion and deposits with the bank required to be kept with the central bank. SLR is the percentage of bank’s deposits requires to be invested in government securities. While CRR does not earn any interest, SLR does.

2) RR or repo rate refers to the rate at which banks can borrow funds (against sale of securities) from RBI. There is an understanding of its repurchase. The repurchase is effected by incorporating RR as implicit interest. RRR is the rate paid by the RBI to the commercial banks on their surplus funds kept with RBI. It is to facilitate the parking with RBI of excess funds available with banks.

3) These are sectors like small scale sector, agriculture and consumer goods industries which are advanced low interest loans to give a boost to such sectors.

4) It is an intermediate or short term policy measure used to increase money supply in the economy. It is used to create employment by increasing the level of economic activity when unemployment is considered high in the economy.

5) Effected through OMOs which influences the interest rates, since it leads to altering the money supply in the direction desired, in effect it is the same as monetary targeting.
Check Your Progress 3

1) Difficulties in economic prediction, ignorance & expectations, etc.

2) Rules versus discretion, automatic stabilizers, etc.

3) They are something built into a policy for automatic correction. Examples are income tax, direct income transfer, unemployment allowance increase, etc.

4) Steady growth of money supply, nominal GDP targeting and inflation targeting.
UNIT 22  PUBLIC POLICY FOR DISTRIBUTIVE JUSTICE

Structure

22.0  Objectives

22.1  Introduction

22.2  Optimal Taxation Rule
   22.2.1  Deadweight Loss of Tax
   22.2.2  The Ramsay Tax Rule
   22.2.3  Marginal Efficiency Cost of Funds (MECFs)

22.3  Quantitative Measures of Assessing the Distributive Role
   22.3.1  Lorenz Curve
   22.3.2  Concentration Curve
   22.3.3  Engel Curve

22.4  Public Policy and Poverty
   22.4.1  Consumption Dominance Curve
   22.4.2  The Poverty Test

22.5  Let Us Sum Up

22.6  Key Words

22.7  Some Useful Books

22.8  Answers or Hints to Check Your Progress Exercises

22.0  OBJECTIVES

After reading this unit, you will be able to:

- state the implications of distributive role in public policy;
- distinguish between commodity tax and lump sum tax;
- outline the concept of deadweight loss of tax;
- decompose the social welfare function into its equity and efficiency parts;
- define ‘marginal efficiency of cost of funds’ indicating how public policy can ensure that greater weight is given to poorer households;
- discuss the relative advantages of the various quantitative measures for assessing the impact of the distributive role of a tax policy;
- delineate the two applications of Engel curve; and
- define a ‘consumption dominance’ curve of order ‘s’ and provide a necessary and sufficient condition for a tax reform to be s-order poverty improving.
22.1 INTRODUCTION

Besides intervening at times of market failure, government plays an important role in ensuring equitable economic welfare by designing appropriate policy to reduce inequalities. This is one of the justifications behind the provision of state education, state health schemes, social security programmes, pension schemes, etc. Design of good policies require understanding of factors responsible for failures to attain optimal outcome.

Iniquitous distribution may result even if market allocates resources efficiently. In other words, economic efficiency and inequality can coexist in an economy. In such a situation, economic welfare can be raised by redistributing resources from one group to another, thereby, reducing inequalities. Argument for public provisioning of education, health, social security benefits, etc. are made on this ground. This is the equity aspect of the policy design. Equity and efficiency thus continuously conflict with each other. An efficient outcome is often highly inequitable whereas an equitable outcome may lead to substantial distortions and disincentives. The optimal policy design tries to find out the right trade-off between the two. The determinants of the trade-off between the two are important factors of any policy design.

22.2 OPTIMAL TAXATION RULE

The government can raise revenue either through imposition of lump-sum tax or commodity tax or income tax. Commodity tax is the tax that is imposed on the purchase of goods and services. Shortcoming of such taxation is that it involves distortions into the economy by creating a gap between the price that producer’s receive and the price that the consumers pay. Implications of such taxation are welfare loss and inefficiency as compared to lump sum taxes which is non-distortionary. Commodity taxes affect consumers via their impact on ‘price’ paid by the consumers and it affects producers by raising their ‘cost’.

Suppose government wants to raise a given size of revenue by imposing only commodity taxes. The choice of tax rates that minimises welfare loss to the society is suggested by the well-known ‘Ramsey problem of efficient taxation’. The equity issues as well as efficiency issues need to be considered for better understanding of an optimal tax policy. The Ramsey rule helps us in understanding the choice of such an optimal tax policy. Before we move on to learn the Ramsey rule, let us understand the concept of ‘deadweight loss of tax’.

22.2.1 Deadweight Loss of Tax

An economic agent can change its consumption plan in response to commodity taxation i.e. one can change his commodity demand profile from high taxed good to low taxed good. This is the substitution effect of commodity taxation or tax induced distortion. The commodity tax raises government revenue but it also reduces consumer’s welfare. The deadweight loss of tax is the extent to which consumer welfare falls in relation to the increase in revenue of the government. This concept is illustrated in Fig. 22.1.
In the pre-tax situation, the price of the good is \( p \) and the quantity consumed is \( X_0 \) (Fig. 22.1). The consumer surplus is the triangle ‘apec’. When a specific tax at a rate of ‘\( t \)’ is imposed on the good, the price rises to \( q = p + t \) and quantity consumed falls to \( X_1 \). This fall in consumption reduces consumer surplus to ‘aqe’. The tax raises revenue equal to \( tX_1 \) which is indicated by the area ‘deqp’. The part of the original consumer surplus that is not turned into tax revenue is the deadweight loss (DWL) indicated by the triangle ‘edc’ in Fig. 22.1. The triangle edc = \( \frac{1}{2}tdX \) where \( dX=X_0-X_1 \). Now, since

\[
e^d = \frac{dX}{dp} \frac{p}{X_0}
\]  

(22.1)

it implies that: 

\[
dX = e^d \frac{X_0}{p} dp = e^d \frac{X_0}{p} t
\]  

(22.2)

where the elasticity is expressed in absolute term. Thus, the DWL can be approximated by using the expression:

\[
DWL = \frac{1}{2} e^d \frac{X_0}{p} t^2
\]  

(22.3)

Thus, the ‘deadweight loss’ is proportional to the square of the tax rate (t) and the elasticity of demand. With increase in tax rate, the deadweight loss increases rapidly. Higher the elasticity of demand, higher is the deadweight loss for a given tax change.

### 22.2.2 The Ramsay Tax Rule

The Ramsey rule is one of the oldest rule in optimal taxation theory. It considers only efficiency ignoring the equity principal of taxation. It is stated as:

\[
\sum_t t_i S_{ki} = \left[ 1 - \frac{\alpha}{\lambda} - \sum_t t_i \frac{\partial x_i}{\partial I} \right] x_k
\]

(22.4)

where \( S_{ki} \) measures the substitution effect of price change (the movement along the indifference curve), and the negative sign on RHS indicates ‘substitution effect’ running counter to change in price.
Consider first the no tax situation i.e. \( t_i = 0 \). Now the left hand side (LHS) of the Equation (22.4) aggregates the change in compensated demand for small change in \( t_i \). The standard interpretation of the Ramsey rule is that the change in compensated demand relative to the initial demand \((x_i)\) must be constant for all goods irrespective of the fact whether the good is pro-poor or pro-rich in nature. Thus, Ramsey rule does not involve equity and reflects only the efficiency criteria. This is mainly because of consideration of single consumer. If we consider two consumers, the utility function of each consumer is given by:

\[
U^h = U^h\left( x^h_0(q), x^h_1(q), x^h_2(q) \right)
\]  

(22.5)

where \( x^h_0 \) is the untaxed labour supply of the \( h \)th household, wage is set at one and \( q \) is the vector of prices. The government revenue constraint is given by:

\[
R = \sum_{i=1}^{2} t_i x_i^1(q) + \sum_{i=1}^{2} t_i x_i^2(q)
\]  

(22.6)

The government policy design is driven by the ‘social welfare function’ which is the sum of individual utilities. The social welfare function is given by:

\[
W = W\left( U^1, U^2 \right)
\]  

(22.7)

The government’s problem in choosing the tax rates can be summarised by the Lagrangean:

\[
\max_{\{t_i, \lambda\}} L = W\left( U^1\left( x^1_0(q), x^1_1(q), x^1_2(q) \right), U^2\left( x^2_0(q), x^2_1(q), x^2_2(q) \right) \right) + \lambda \sum_{i=1}^{2} t_i x_i(q) - R
\]  

(22.8)

The first-order condition for the choice of the tax on good \( k \) is:

\[
- \frac{\partial W}{\partial U^1} \alpha^1 x^1_k - \frac{\partial W}{\partial U^2} \alpha^2 x^2_k + \lambda \left[ \sum_{i=1}^{2} x^i_k + \sum_{i=1}^{2} t_i \frac{\partial x^i_h}{\partial q_k} \right] = 0
\]  

(22.9)

where \( \frac{\partial x^h_k}{\partial x^h_0} = \alpha^h \) is the marginal utility of income and \( \lambda \) is the utility cost of an unit government revenue.

The parameter \( \beta^h = \frac{\partial W}{\partial U^h} \frac{\partial U^h}{\partial x^h_0} = \frac{\partial W}{\partial U^h} \alpha^h \) is the product of the effect of \( h \)th consumer’s utility on social welfare and their marginal utility of income. Termed therefore also as ‘social marginal utility of income of consumer \( h \)’, Equation (22.9) can be rewritten as:

\[
\sum_{i=1}^{2} t_i S^i + \sum_{i=1}^{2} t_i S^2_i = \frac{1}{\lambda} \left[ \frac{\beta^1 x^1_k + \beta^2 x^2_k}{x^1_k + x^2_k} - 1 + \frac{\sum_{i=1}^{2} t_i \frac{\partial x^i_1}{\partial I} + \sum_{i=1}^{2} t_i \frac{\partial x^i_2}{\partial I}}{x^1_k + x^2_k} \right]
\]  

(22.10)

The LHS of (22.10) measures the proportionate change in ‘aggregate compensated
demand’ for good k due to the introduction of the tax system from an initial no tax situation. Since revenue raised should be positive (i.e. \( R > 0 \)), change in compensated demand is negative. The first part of RHS [in (22.10)] indicates that lower the change in compensated demand (\( \lambda \)), higher is \( \beta^1 \frac{x_k^1}{x_k^1 + x_k^2} + \beta^2 \frac{x_k^2}{x_k^1 + x_k^2} \).

If k is a pro-poor good and individual 1 is the poor individual, and social planner gives higher weight to poor individual in its social welfare function i.e. \( \beta^1 > \beta^2 \), then the term \( \beta^1 \frac{x_k^1}{x_k^1 + x_k^2} + \beta^2 \frac{x_k^2}{x_k^1 + x_k^2} \) will take higher value as the correlation between \( \beta^h \) and \( \frac{x_k^h}{x_k^1 + x_k^2} \) increases. Thus, the change in compensated demand is lower if the good k is mainly consumed by the poor household. This is the indication of equity consideration. The second term of RHS in (22.10) indicates that the change in compensated demand is lower if the demand is mainly governed by the income effect.

### 22.2.3 Marginal Efficiency Cost of Funds (MECFs)

As an application of Ramsay tax rule, we can consider the marginal tax reform by which is meant moving towards optimality by changing the tax rates marginally from the existing set of tax rates. It is easier to compute marginal tax reforms than the optimal taxes, as we evaluate only the effect of change and not the entire shift. Change in welfare due to change in tax on good k is given by:

\[
\frac{\partial W}{\partial t_k} = \sum_{h=1}^{2} \frac{\partial W}{\partial U^h} \frac{\partial U^h}{\partial q_k} \frac{\partial q_k}{\partial t_k} = \sum_{h=1}^{2} \frac{\partial W}{\partial U^h} (-\alpha^h x_k^h) = -\sum_{h=1}^{2} \beta^h x_k^h
\]  

(22.11)

The effect on revenue is given by:

\[
\frac{\partial R}{\partial t_k} = \sum_{h=1}^{2} \left[ x_k^h + \sum_{i=1}^{2} t_i \frac{\partial x_i^h}{\partial q_k} \right] = X_k + \sum_{i=1}^{2} t_i \frac{\partial X_i}{\partial q_k}
\]  

(22.12)

where \( X_i \) is the aggregate demand for good i. The ‘marginal efficiency cost of funds’ is defined as the change in social welfare due to the distortion of resource allocation relative to the extra revenue generated for a marginal increase in a tax. This can be written as

\[
MECF_k = -\frac{\partial W / \partial t_k}{\partial R / \partial t_k} = \frac{-\bar{x}_k}{\partial R / \partial t_k} = \frac{\bar{x}_k}{\partial R / \partial t_k}
\]  

(22.13)

where \( \bar{x}_k \) measures the change in welfare and the absence of ‘–’ sign to be taken in the ‘modulus’ sense. At the optimum, all goods must have the same marginal cost of funds i.e. if \( MCF_1 > MCF_2 \) then tax on good 1 must be reduced and tax on good 2 must be increased. To estimate MCF, we need to evaluate \( \beta^h \) i.e. the demand for commodity k, \( x_k \) and \( \frac{\partial x_k}{\partial t_k} \) which depends upon the estimated price elasticities.
(both own and cross). $\beta^h$ measures the concern for equity. One common form of utility function is: \[ U^h = k \left( \frac{M^h}{1-\varepsilon} \right)^{1-\varepsilon}, \varepsilon \neq 1 \] where the parameter $\varepsilon$ captures welfare judgements of the policy maker. For $\varepsilon > 0$ the utility function becomes concave. Since the degree of concavity of the utility function depends on the value of $\varepsilon$, as $\varepsilon$ increases the utility function becomes more concave indicating that the policy maker is giving relatively more weight to the poorer household. Since $\beta^h = k(M^h)^{-\varepsilon}$, one possibility is that value of $K$ can be fixed by setting $\beta^h$ to 1 for lowest income consumer.

Roy, Raychoudhuri and Sinha Roy (2010) estimated the marginal cost function (MCF) for different commodities using Indian National Sample Survey Organisation (NSSO) data of 1999-00. If all households were given equal weight then the MCF values will reflect just only the efficiency rule. Setting, $\beta^h = 1 \text{ for all } h$, MCF was calculated by using the expression $MCF_k = \frac{x_k}{\partial R/\partial t_k}$. The calculated values of MCFs by giving equal weight to all individuals for data revealed that at the time of VAT, policy makers choose tax rates on the basis of efficiency principle.

**Check Your Progress 1** [answer within the given space in about 50-100 words]

1) State the objective of ‘distributive role of public policy’?

2) Define the term ‘deadweight loss of tax’.

3) Write the decomposed expression for the ‘social marginal utility of income of a consumer’. Specify the implications of its three terms.
22.3 QUANTITATIVE MEASURES OF ASSESSING THE DISTRIBUTIVE ROLE

Whether a distributive principle played any role in designing tax policy or not can be judged by using graphical measures like Lorenz Curve, Concentration Curve, Engel Curves and Consumption Dominance curves. In this context, as we are aware, Pareto efficiency is an economic state where resource allocation is optimum in the sense that welfare of one individual cannot be increased without reducing welfare of another individual. Pareto efficient equilibrium is not unique as there is no reason to believe that the equilibrium is equitable in any sense. This means whenever government feels that the Pareto optimal outcome is inequitable, it may intervene to move the economy from one Pareto efficient point to another. For this, social welfare functions allow us to judge the economic policies that redistribute welfare from one economic agent to another. A social welfare function thus enables us to consider the equity as well as efficiency issues. However, there are other tools that can also be applied for such economic policy analysis. Even if they do not meet the necessities of the ideal social welfare function, they are easier to apply in practice. Higher the inequality in an economy, higher is the importance of distributive role of public policy. Lorenz curves can be used as a tool for ranking different income distributions on welfare grounds.

22.3.1 Lorenz Curve

Lorenz curve is a helpful graphical device for presenting a summary representation of an income distribution. It is one of the most popular graphical tools for illustrating and comparing income/expenditure inequality. It provides complete information on the distribution of income/expenditure relative to the mean and therefore gives a more comprehensive description of the relative standards of living. It is helpful in creating orderings of distribution in terms of inequality. A Lorenz curve always starts at (0,0) and ends at (1,1). To draw a Lorenz curve one has to first sort the data set in an ascending order, then plot the cumulative proportion of income/expenditure along the y-axis. The income/expenditure shares are calculated by dividing the cumulative income/expenditure of a given share of population by the total income/expenditure. Thus:

\[
L \left( \frac{k}{P} \right) = \frac{\sum_{i=1}^{k} y_i}{Y} \tag{22.14}
\]

where both \( k \) (1,2,.....,n) and \( i \) (1,2,.....,k) are the positions of individuals in the
income distribution, \( P \) is the total number of individuals in the distribution and \( y_i \) is the income of the \( i^{th} \) individual in the distribution. \( \sum_{i=1}^{k} y_i \) is the cumulative income up to the \( k^{th} \) individual, its value ranging from 0, for \( k=0 \), and \( Y \), for \( k=n \). Therefore, \( L\left(\frac{k}{P}\right) = \frac{\sum_{i=1}^{k} y_i}{Y} \) ranges between 0 and 1. The 45° line in Fig. 22.2 is the line of equality. The area between the 45° line and the Lorenz curve measures expenditure inequality. Higher the distance between the two, higher is the inequality. An economic policy that moves the Lorenz curve towards the 45° line improves distribution of income or expenditure by reducing inequality.

![Lorenz Curve](image)

**Fig. 22.2: Lorenz Curve**

### 22.3.2 Concentration Curve

Concentration curves along with the Lorenz curve are used to evaluate public tax policy on distributive ground. By capturing both the horizontal and vertical equity concepts related to tax impacts on social welfare, the concentration curve can serve as an important normative and descriptive tool useful in evaluating the impact of tax and transfer policies. The concentration curve is defined as:

\[
T = \int Q T (p) d (q) \tag{22.15}
\]

It is the average tax across the population. Note that \( QT (p) \) is the \( p \)-quintile function of net taxes and \( T(q) \) is the expected net tax for the \( q^{th} \) quintile. Since population size is normalised to 1, \( QT(p) \) shows the proportion of total taxes paid by the \( p \) bottom proportion of the population. \( X \) and \( N \) signify the gross and net
incomes respectively. In general use, concentration curves are estimated by ordering a finite number of ‘n’ sample observations \((X_1; N_1), \ldots, (X_n; N_n)\) with increasing values of gross incomes such that \(X_1 \leq X_2 \leq \ldots \leq X_n\), with percentiles \(p_i = i/n\); where \(i = 1, \ldots, n\). Then the sample (or empirical) concentration curve for taxes \(T_i = X_i - N_i\) is defined as:

\[
C_f(p = i/n) = \frac{1}{n \mu_f} \sum_{j=1}^{i} T_j
\]

(22.15(a))

If the tax rate is constant, the ‘expenditure concentration curves’ are same as the ‘tax concentration curve’. Expenditure concentration curves can be used to analyse the progressivity or regressivity of a tax like VAT/GST on different commodities. It considers the distributive impact of tax change. The concentration curves plot post-tax income, expenditure, or tax payments against the proportion of the population ranked by pre-tax income. The concentration curve, like the Lorenz curve, passes through the origin. But unlike the Lorenz curve, it need not always be increasing. Its curvature depends on the income elasticity of the commodity for expenditure concentration curves. Expenditure concentration curves can be used to analyse the progressivity. If the concentration curve of one commodity is above the concentration curve of another commodity, then the first commodity dominates the second. However, if the concentration curves intersect, then it is not possible to show dominance. If the tax rate is constant, the ‘expenditure concentration curves’ are same as the ‘tax concentration curve’. For \(t_j = t\) for all \(j\) the tax concentration curve becomes the expenditure concentration curve in the following way:

\[
C_T(p = i/n) = \frac{1}{ntX} \sum_{j=1}^{i} tX_j = \frac{1}{nX} \sum_{j=1}^{i} X_j = C_X(p = i/n), \ t_j = t \quad \text{for all} \ j
\]

(22.15(b))

Although conclusions about welfare dominance relate to the total income distribution, if we are interested in the welfare of the poorest, we must focus on the impact of tax change on the poorest (i.e. bottom x-percent of the population). This can be done by examining the behaviour of Lorenz or concentration curves in the region to the left of the designated poverty ratio. For instance, where concentration curves for different taxes cross, with the crossing point occurring relatively high up in the population ranking, one tax may still be judged to be unambiguously preferred so long as it is favourable to the poorest x-percent of the population. If the concentration curve is above the Lorenz curve and below the 45-degree curve, the tax instrument is classified as regressive i.e. the impact of taxed consumption item concerned is concentrated more on the lower income classes. Similarly, for the progressive tax, if the concentration curve crosses the Lorenz curve, the share of the tax burden borne by the rich is higher than the share of their income. If an indirect tax is unambiguously progressive [i.e. its concentration curve lies wholly outside the concentration curve for expenditures (i.e. the Lorenz curve)], it implies that the poor pay proportionately less tax than their share of expenditure.
In designing tax policies, policy makers create different groups of commodities and impose different tax rates for different groups. For instance, Goods and Service Tax (GST) design in India is such that there are six groups of commodities with six different and progressively increasing tax rates (e.g. 0%, 3%, 5%, 12%, 18% and 28%). Engle curves can be used as tools of analysing such grouping of commodities.

### 22.3.3 Engel Curve

Engel curve describes how the household expenditure on a particular good or service depends on total household expenditure. Engel’s law states that the poorer a family is, the larger the budget share it spends on food items. The basic work is therefore to deduce the relationship between household’s total expenditure and kind of expenditure done on a particular good. With this, one can actually relate standard of consumption by looking at the commodities consumed. This analysis when compared with present tax structure helps in understanding whether commodities are taxed in a way so as to help the poorer households or not. Theoretically, there are two types of slopes for a Engle curve: (i) negatively sloped Engel curve indicating that the commodity is consumed more by poor class; and (ii) positively sloped Engel Curve indicating a commodity is mainly for rich class i.e. the consumption of commodity increases as budget increases.

In some cases, a concave sloped Engel Curve can describe two possibilities: one that either the particular good is a necessary commodity (being consumed by both richer as well as poor) but of varying quality depending upon price; second, if one considers a particular income level, a concave sloped curve may indicate that at some income level, the consumption increase reaches a saturation point and then starts declining. We can, therefore, state the following two application of Engel curve:
• First, Engel Curve will determine what type of commodity poor households consume. It does this by showing changing shares of expenditure with changing income/expenditure of the household. On this basis, we can group the commodities into necessary, luxury and common goods. Thus, by helping in the grouping of commodities into various classes, and comparing it with commodities consumed by different tax groups, it enables us to check whether commodity tax grouping is based on distributive justice or not.

• Second, we can first highlight the distribution part of a tax structure (using the concentration curve) pointing out whether a rise in tax for a particular commodity is progressive or regressive. A tax rise on such a commodity when classified as poor man’s commodity based on the slope of Engel Curve can then be used to change the tax structure in the desired direction.

Any fiscal measure when introduced creates some changes in the income distribution in the economy. A tax when imposed creates a process of transfer of income from people to the government and hence alters the existing pattern of distribution of income. From the very beginning of welfare oriented economic thought, thinkers and scholars have emphasised on the rightful distribution of burden imposed through taxation and proper allocation of benefits created through public spending. Thus, the major check on any tax reform should be to analyse the distributive efficiency. Tax policy can play a key role in making the post-tax income distribution less unequal. The tax instruments are not only important to raise revenue but are a crucial tool to support low income households by making tax structure more progressive. In this, the three curves we have discussed in this section are very useful as policy instruments. (Fig. 22.3).

22.4 PUBLIC POLICY AND POVERTY

Another graphical tool that can be used for analysing public policy on distributive ground is the consumption dominance curve. Using this, we can also specify a poverty test to know whether a tax reform is poverty improving (i.e. alleviating) or not.

22.4.1 Consumption Dominance Curve

The consumption dominance (CD) curve describes the ethically weighted cost of taxing any good (k). This it does by considering a a poverty index, whose first derivative with respect to tax on a commodity gives the measure of consumption dominance. Here, ‘consumption dominance’ is defined as the ‘change in poverty dominance for changes in prices’. Hence, assuming tax on commodity ‘k’ is increased, the CD curve of order ‘s’ for a commodity ‘k’ is defined as:

\[
CD^s_k (z) = \frac{\partial P^{s-1}(z)}{\partial t_k}, \quad s = 1, 2, 3, \quad (22.16)
\]

where \( P^{s-1} \) is the poverty index of order \( s-1 \). The consumption dominance curve of order \( s \) can be obtained by taking the first order derivative of poverty dominance curve of order \( s-1 \).

The most popular measure of poverty index is the Foster-Greer-Thorbecke (FGT) poverty index. This uses the concept of poverty gap, where income of a group is measured from a pre-determined poverty level (Z). Thus, if \( F(y) \) is the cumulative distribution of income ‘y’, FGT index is defined as:
where the parameter ‘s’ indicates the ethical order of dominance or the ‘aversion to poverty’, FGT^0(Z) gives the poverty headcount ratio and FGT^1(Z) gives the normalised poverty gap. Similarly, FGT^2(Z) gives the weighted normalised poverty gap. The vertical axis of the CD curves measures the ethically weighted cost of taxing ‘k’. Our interest is to identify whether the direction of tax reform is right in reducing poverty for a class of poverty indices and poverty lines. The consumption dominance curves are useful here since they are defined as the change in dominance for changes in prices. Assuming full shifting of taxes, we have the normalised CD curves defined as:

\[
\overline{CD}_k(z) = \frac{CD_k^s(z)}{x_k(p)}
\]

(22.18)

where \( x_k(p) \) is the average consumption of good \( k \) at post tax price vector \( p \) (which is also the average welfare cost of consumption of \( k \)). These curves can thus be interpreted as the weighted social cost of taxing ‘\( k \)’ as a proportion to the average welfare cost. If \( \overline{x}_k(y,p) \) is the consumption of ‘\( k \)’ relative to average consumption [i.e. \( \overline{x}_k(p) = x_k(y,p)/x_k(p) \)] then:

\[
\overline{CD}_k^s = \overline{x}_k(p)f(z) \quad \text{if } s=1
\]

(22.19)

\[
= sz^{-s} \int_0^\infty \overline{x}_k(p)(z-y)^s dF(y) \quad \text{if } s>1
\]

(22.20)

where \( f(Z) \) is the density of income at \( Z \). First order stochastic dominance curves relate the marginal tax change to the head count ratio for those who are at or around the poverty line. Second order stochastic dominance curves indicate the impact of marginal tax change on average poverty gap for those who are below the critical poverty line. Third order stochastic dominance curves measures the impact of marginal tax change on square of average poverty gap.

### 22.4.2 The Poverty Test

Normalised consumption dominance curves adjusted to MECF are used to examine the impact of tax change on poverty. The overall poverty cost of raising revenue by one unit by increasing tax on commodity ‘\( k \)’ is defined as:

\[
\lambda_k^s(y,p) = E^k \overline{CD}_k^s = \frac{\partial P^s(z)/\partial t_k}{\partial R/\partial t_k}
\]

(22.21)

Thus, the ultimate impact of tax change on poverty is the product of distributive cost and the efficiency cost. Higher the value of \( \overline{CD}_k^s \), greater the distributive cost of increasing tax on commodity ‘\( k \)’. Again, higher value of \( E^k \) indicates lower revenue effectiveness of tax change. In other words, larger the value of \( E^k \) higher is the economic efficiency cost of raising fund by increasing tax on commodity ‘\( k \)’. 
A necessary and sufficient condition for a tax reform to be s-order poverty improving while maintaining the revenue neutrality of government budget is given by:

\[
\lambda_i^s(y) - \lambda_j^s(y) \geq 0 \quad \forall y \in [0, z]
\]  

(22.22)

The poverty test is limited to the range of potential poverty line \( \forall y \in [0, z] \). Here \( Z \) is the maximum poverty considered. Suppose tax on commodity \( 'l' \) is reduced and that on commodity \( 'j' \) is increased, both marginally, so that the consumption pattern of households is assumed not to experience any drastic change. Such a marginal tax reform will reduce poverty if the \( \overline{CD}_l \) multiplied by its MECF lies above the \( \overline{CD}_l \) multiplied by its MECF for every poverty line under \( Z \). The multiplied \( \overline{CD}_l \) values are really the poverty cost per marginal unit of tax raised by increasing tax on commodity \( j \). When the range is unbounded, and the normalised \( CD \) curves adjusted by its own MECF lies above that of another commodity, then the poverty improvement extends to global welfare improvement. The intersection of the two normalised consumption dominance curves adjusted by MECF gives the critical poverty line up to which increase in tax on one commodity and decrease in tax on another commodity (while maintaining the revenue neutrality of the government budget) is poverty reducing. At any \( Z = Z' \) (critical poverty line) the height of the normalised \( CD \) curve for commodity \( l \) adjusted by MECF measures how much poverty falls per rupee of welfare benefit if tax on \( l \) is reduced. Similarly height of the normalised \( CD \) curve of commodity \( j \) adjusted by MECF measures the increase in poverty due to increase in tax on \( j' \). The difference between the two measures the net fall in poverty per rupee of welfare benefit.

Check Your Progress 2 [answer within the given space in about 50-100 words]

1) State the expression for Lorenz curve. In what way is this useful?
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................

2) What does a concentration curve plot? Is it always an increasing function?
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................

3) On the basis of Lorenz and concentration curves, when is a tax considered regressive?
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................
   ..........................................................................................................

4) On the basis of Lorenz and concentration curves, when is a tax considered regressive?

22.5 LET US SUM UP

In the context of different tax measures affecting the poor and the rich differently, the unit discusses the role of the government in intervening to minimise the problem of post-tax income inequality on the poor. In this context, both the equity and efficiency issues are important to be considered. The popular Ramsey tax rule however considers only the efficiency criteria. For accommodating the concerns of equity, other quantitative measures like the Lorenz curve and the concentration curve are useful. Another useful measure is the Engel curve whose slope indicates whether a commodity is consumed more by the poor or the rich. This is therefore useful to alter a commodity tax in the desired direction based on a grouping of commodity consumption enabled by it. In this context, consumption dominance curve is another important policy tool helpful in analysing whether a tax imposed is justified on distributive grounds. The CD curve in fact introduces an ethical order into its construction by considering the weighted normalised poverty gap as a measure of poverty index.

22.6 KEY WORDS

Deadweight Loss of Tax : This is an indicator of loss of consumer welfare due to a commodity tax. It is proportional to the square of the tax rate and the elasticity of demand.

Lorenz Curve : A graphical presentation for a summary representation of an income distribution. The horizontal axis shows cumulative percent of population and vertical axis the cumulative percent share in income. Therefore, the diagonal 45° line called the line of perfect equality. Higher the distance between the curve and this line, higher is the inequality.
Engel Curve : Describes how the share of household expenditure on a particular good or service depends on the total household expenditure.

Consumption Dominance Curve : This is defined as the ‘change in poverty dominance for changes in price’. Using a measure of poverty index, it helps in identifying whether the direction of tax reform is right in reducing poverty.

The Poverty Test : The test provides a necessary and sufficient condition for a tax reform to be a specified order poverty improving.

22.7 SOME USEFUL BOOKS


22.8 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) Ideally, a tax policy should take into account both the factors of ‘equity’ and ‘efficiency’. However, a tax policy which is efficient is usually iniquitous. At such times, government needs to intervene to ensure equity. It can institute a policy by which the welfare is sought to be redistributed. The role of the government in such situations is what is described as ‘distributive role of public policy’. Reduction of tax on commodities consumed predominantly by the poor people are examples by which this redistributive role is seen to be played by the government.

2) Consumers can substitute goods consumed from a high taxed good to a low taxed good. This reduces revenue to the government as a result of the substitution effect while not doing so would have reduced the consumer welfare. The deadweight loss of tax is the extent to which the welfare loss is not converted into revenue for the government on account of such a substitution effect (22.2.1).
The LHS measures the ‘aggregate compensated demand’. The first term on the RHS indicates that if the change in compensated demand is lower, the demand is mainly governed by the income effect. The second term on the RHS indicates that to maintain the revenue level, there is need to have higher tax rates with its associated distortions.

4) MECFs is defined as the change in social welfare due to the distortion of resource allocation relative to the extra revenue generated for a marginal increase in a tax [Equation (22.13)].

Check Your Progress 2

1) Equation (22.14). It provides complete information on the distribution of income/expenditure relative to the mean and hence a more comprehensive description of the relative standards of living. It is helpful in creating orderings of distribution in terms of inequality.

2) The concentration curves plot post-tax income, expenditure, or tax payments against the proportion of the population ranked by pre-tax income. Its curvature depends on the income elasticity of the commodity.

3) If the concentration curve is above the Lorenz curve and below the 45-degree curve, the tax instrument is classified as regressive.

4) It helps us to group the commodities into common use, necessary use and luxury use. This grouping of commodities, when compared with the consumption basket of poor households, helps in determining whether a commodity tax is rendering distributive justice or not. Another way in which it helps is to change the direction of tax once we ascertain (using concentration curve) whether a particular commodity tax is progressive or regressive in nature.
UNIT 23 INTERNATIONAL POLICY COORDINATION

Structure

23.0 Objectives

23.1 Introduction

23.2 Historical Review

23.3 Spillover Effects
   23.3.1 Fiscal and Monetary Policy
   23.3.2 Fixed and Flexible Exchange Rate Systems

23.4 Policy Coordination Gains
   23.4.1 Recessionary Bias
   23.4.2 Expansionary Bias
   23.4.3 Coordination Methods

23.5 Problems of International Policy Coordination
   23.5.1 Sustainability
   23.5.2 Inflationary Bias
   23.5.3 Uncertainty
   23.5.4 Collusion Consequences

23.6 Anti-Trust and Climate Change

23.7 Let Us Sum Up

23.8 Key Words

23.9 Some Useful Books

23.10 Answers or Hints to Check Your Progress Exercises

23.0 OBJECTIVES

After reading this unit, you will be able to:

- present a historical review of major efforts made for international policy coordination;

- discuss the spillover effects of international policy coordination in the context of the fiscal and monetary policies;

- explain the consequences of spillover effects of ‘lack of international policy coordination’ in the contexts of fixed and flexible exchange regimes;

- discuss the gains from international ‘policy coordination’ in the two contexts of recessionary and expansionary bias;

- outline the two approaches to coordination ‘open method’ and ‘policy clustering’ followed under the EU model;

- describe the problems of international policy coordination; and

- write a note on ‘anti-trust’ and ‘climate change’.
23.1 INTRODUCTION

International policy coordination (or cooperation) is a form of cooperative relationship between the policy-makers and regulating authorities of two or more countries. The coordination could be in the areas of: (i) exchange of information, (ii) acceptance of mutually consistent policies, and (iii) joint actions. While making their own policies, individual governments do not take into account the effects of their policies on other countries. As a result, a country’s macroeconomic policies need market correction to cope with international externalities. The World Trade Organization (WTO) is an example of a body designed to facilitate international policy coordination in the areas of trade and related issues. The European Monetary Union (EMU) is another such example for a unified fiscal and monetary policy.

23.2 HISTORICAL REVIEW

The benefits of ‘international trade’ are: (i) comparative advantage; (ii) economies of scale; and (iii) increase in competition. The drawbacks of international trade are: (i) over-specialisation, (ii) inability to compete by local manufacturers and suppliers against cheaper and dumped products; and (iii) inter-relation of the economies which makes a country face the adverse consequences of actions in another country due to lack of international policy coordination. Many economists (e.g. Bagwell and Staiger, 1999 & 2002) have opined that trade externalities are the fundamental reason for having organisations like WTO.

The Bretton Woods System (1944) is one of the early attempts at international policy coordination. The System marked the shift from the Gold Standard to the fixed currency exchange rate system. Under this, all currencies were linked to the US Dollar. The major currencies were to be fully convertible to dollars at a fixed exchange rate with fluctuation permitted within a 1 percent band (parity). This was done to avoid the exchange rate instability of the 1920s. The Bretton Woods system however collapsed for certain reasons. Firstly, the US economy undergoing stagflation pursued inflationary monetary policy. Secondly, countries that were in surplus were unwilling to adjust the dollar balances by revaluing their individual currencies. However, the Bretton Woods agreement created two main organisations viz. the IMF & the World Bank whose role in development of countries and ensuring stability in the international system has been progressively increasing.

Likewise, the concept of a common European trade area was first mooted in the 1950s seeking to integrate Europe so as to promote economic, social, and political ties for greater economic growth and military security. In 1957, a common market was established by the Treaty of Rome. Following this, besides standardised policies, particularly in areas of trade and agriculture, the customs duties for trading within the zone was lifted (in 1968). Its first parliament was created in 1979. Later, the European Union (EU) common market was established by the Treaty of Maastricht in 1993. Still later, the Treaty of Lisbon (2009) augmented the powers of the European parliament giving it the legal authority to negotiate and sign international treaties. It also increased the powers over areas like judicial cooperation in criminal and civil matters, immigration, etc. The EU has a common currency for its transactions and allows free movement of goods for trade within the region. Following the global economic crisis, EU established a banking union to regulate banking activities and promote safer banking policies within the region.
23.3 SPILLOVER EFFECTS

Spillover effects refer to the impact that seemingly unrelated events in one nation can have on the economies of other nations. In a globally integrated economy, national economic policies of any single country generate international spillover effects. The stronger the countries position in the arena of international trade, the wider will be the effect. The understanding of transmission channels of spillovers has become essential not only from an academic perspective but also for policymaking. In the absence of international policy coordination, each individual country will ignore the externalities and pursue policies which maximise its own welfare. When all such countries act independently it would lead to an equilibrium which would not be Pareto efficient when the externalities are factored-in.

23.3.1 Fiscal and Monetary Policy

Consider a hypothetical scenario where the US engages in contractionary fiscal policies to counter its inflationary pressures i.e. it would increase taxes and reduce government spending. As a consequence, there would be an economic slowdown. As the spending of the US consumers slow down, the demand for imports also goes down. Let ‘X’ be a major item of import that US procures from the European Union (EU) [with US assumed to procure 50 percent of total amount of ‘X’ produced in EU]. With the demand for ‘X’ (and with it for other related items) falling, exports of EU fall, setting up a chain of events leading to slowing down of the EU economy. The stock prices in EU financial market would fall. It is thus clear that one country’s internal fiscal policy would affect its trading partners. Similarly, monetary policy of a country can also affect its trading partners. The following are the three ways in which monetary policy of one country can have spillover effects on another country.

Real Income Effects: A change in national income of one country affects its demand for imports from other countries. The impact of this spillover effect depends on its marginal propensity to import (MPM), i.e., change in imports caused by a change in income/disposable income (Fig. 23.1). An economy with a positive marginal propensity to consume is likely to have a positive marginal propensity to import. Thus, the effect of economic policies of countries whose imports constitute a significant part of their consumption pattern are higher on their trade partners compared to countries with low MPM.

Monetary Effects: Monetary effects occur when a country’s government or central bank intervenes in the foreign exchange market (by selling or buying foreign exchange) to influence the value of their exchange rates. An increase in money...
supply of a country, say A, may increase its imports. When the exchange rates are not perfectly flexible, this will lead to improvement in the balance of payments of a country B with whom A is having trading links. This leads to appreciation of the value of currency of country B (foreign currency) with respect to country A (domestic currency). In such a scenario, the government/central bank of country B may choose to intervene in its foreign exchange market by selling its own currency and buying country A’s currency. This would result in expansion of its own money supply.

**Relative Price Effects:** Relative price effects occur when the exchange rates are flexible i.e. when the currencies can appreciate or depreciate leading to change in relative prices of goods and services. Thus, imports may become cheaper or more expensive resulting in change in demand for imports or exports.

### 23.3.2 Fixed and Flexible Exchange Rate Systems

The impact of monetary and fiscal policy and its spillover effects on other countries depend on the type of exchange rate regime. Normally under fixed exchange regime, a country seeking to control its inflation or boost its economy out of recession may find monetary policy alone ineffective. In this case, it has to resort to fiscal policies. This can be illustrated through the AA-DD model (Fig. 23.2), where we assume country A aims at boosting its economy by increasing money supply. As the money supply increases, the AA curve shifts from AA\(^1\) to AA\(^2\) leading to depreciation in exchange rate from E\(^0\) to E\(^2\). However, since the exchange rate is fixed, country A has to maintain the exchange rate at E\(^0\) and hence it may have to sell foreign reserves to bring AA\(^2\) back to AA\(^1\). This renders the monetary policy to be ineffective. However, this would not be the issue in a flexible exchange rate regime.

![Fig. 23.2: Impact of Expansionary Monetary Policy under Fixed Exchange](image)

To understand the impact of spillover effects of the policy of one country on the other, we can use the Mundell Fleming Model. The model assumes perfect capital mobility and also that an increase in aggregate demand would lead to expansion in a country’s national income. It further assumes that the tax rates are same everywhere and investors do not face political risk. Normally, this model assumes small open economy but in this case we are adapting it to two country scenario where both the countries are of equal and significant size with both being in a
position to affect the other. In the first case of ‘fixed exchange rate’, let both country A & B be at equilibrium at point R₀ (Fig. 23.3) with Y₀ being the equilibrium national income (or output). At R₀, both the goods market and money market are simultaneously in equilibrium.

Suppose country A follows an expansionary monetary policy and increases its domestic money supply. This shifts the LM curve of country A to the right from LM₀ to LM₁. An increase in the money supply will cause the domestic interest rates to fall which in turn increases investment and aggregate demand. The national income increases to Y₁ and the rate of interest falls to R₁. Since we have assumed that both countries are of significant size and are in a position to impact one another, increase in money supply of A leads to increase in world money supply. As the world money supply increases, the world rate of interest will fall

![Graph showing the effect of fixed exchange rate on international policy coordination](image)

**Fig. 23.3: Spillover Effect under Fixed Exchange Rate**

but to an extent less than that in country A. Let us assume that the world rate of interest falls to R₂. Since R₂ is less than R₁, country A will face a deficit in its balance of payments. On the other hand, an increase in national income of country A will increase its demand for imports. It thus follows that country A’s entire import demand will be met by country B, causing country B’s IS curve to shift from IS₀ to IS₁. However, at this point of equilibrium (point B in country B’s
The rate of interest of country B is higher than the world rate of interest $R_2$. Therefore, unlike country A, country B will experience a balance of surplus. At this point, both the countries are not in a state of equilibrium of balance of payments. Country A will buy its domestic currency and sell foreign currency (i.e. country B’s) to prevent its currency from depreciating. This would reduce high powered money in the economy of country A resulting in monetary contraction and leftward shift of the LM curve. In country B, the domestic money supply increases and its LM curve shifts to the right. These adjustments continue until both the countries return to their long run equilibrium at point C. Under the flexible exchange rate context (Fig. 23.4) there is relative price effect i.e. country A has balance of payments deficit and country B has balance of payments surplus. However, since there is flexible exchange rate, currency of country A will depreciate and country B’s currency will appreciate. Hence, as the aggregate demand for country A’s goods increases, its IS curve will shift rightwards to $IS_1$. But the aggregate demand for country B falls and its IS curve shifts leftwards to $IS_1$. The adjustments continue till long run equilibrium C is reached. Here, unlike in the fixed exchange rate case, country A’s expansionary monetary policy reduces country B’s national income. This is an instance of negative effect of spillover where the welfare of country B is reduced.

![Spillover Effect under Flexible Exchange Rate](image.jpg)
Check Your Progress 1 [answer within the given space in about 50-100 words]

1) What is meant by international policy coordination? Give examples.

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

2) State the reasons why the Bretton Woods system collapsed.

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

3) What is meant by ‘spillover effect’? State the three ways by which the spillover effect can be experienced by a country?

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

4) State the consequence of the absence of international policy coordination.

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

5) Under what sets of assumptions, the Mundell Fleming Model is useful in understanding the spillover effects?

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
23.4 POLICY COORDINATION GAINS

Countries can experience both positive and negative spillover effects on account of integrated economies under the global economic system. Various other factors such as size of the economy vis-à-vis other economies, type of economy (open, closed, mixed), exchange rate policies followed, etc. also determine the extent and type of spillovers that an economy may experience. In such a situation, if each country sets its own policies keeping its independent goals in mind, then the final outcome in a global scenario would not be Pareto efficient. Each individual unilateral policy of a country (1\textsuperscript{st} economy) may have an effect on another country (2\textsuperscript{nd} economy) whose response in turn will affect the goals set by the 1\textsuperscript{st} economy. Say for instance, a country imposing high customs duty to protect its industries would effectively restrict free trade. In retaliation, the country that imported goods from and exported goods to the said country would increase its tariffs as well. Thus, exports would fall for both the countries. International policy coordination being a means of achieving welfare of all countries involved, the decision of any one country is ideally to be so made that it takes into consideration the spillover effects for other countries. We discuss in this section the gains of international policy coordination to cover particularly two situations viz. (i) recessionary bias, and (ii) expansionary bias.

23.4.1 Recessionary Bias

Recession Bias in case of two country scenario can be explained using Hamada diagram. The following assumptions are made: (i) there are only two countries; (ii) the exchange rate in both countries is fixed; and (iii) both countries have two policy objectives (optimal level of national income along with an optimal balance of payments surplus with both countries seeking to accumulate foreign currency reserves at least in the short run). The diagramatic explanation of recessionary bias is illustrated in Fig. 23.5.

![Fig. 23.5: Recessionary Bias](image)

The Fig. 23.5 plots the growth rate of the domestic money supply on the horizontal axis (X) and the foreign country’s growth rate of the money supply on the vertical axis (Y). A country can achieve surplus balance of payments if the
expansion of its money supply is slower than that of the other country. However, both cannot simultaneously achieve surplus balance of payments. Defining the bliss point of a country as the set of monetary growth rates which gives it the highest possible level of welfare, we observe that the bliss point of domestic country is at point B while that of foreign country is at point B1. As a country moves away from its bliss point, its level of welfare goes down. Domestic country’s bliss point B which lies above the 45° line indicates that it would be better for it if the money supply of the foreign country expands faster resulting in surplus balance of payment for it. The situation is reversed from the point of view of the foreign country.

In case there is no policy coordination, each country would try to maximise its welfare by ignoring the spillover effects. Thus, assuming the other country’s monetary policy as given, the indifference curve of each country is concentrated around its own bliss point. The reaction curve R of domestic country cuts across its indifference curves at points where the indifference curves are horizontal. At these points, domestic welfare is maximised with change in foreign country’s monetary policy. The reaction curve R1 of foreign country cuts its indifference curves where the indifference curves are vertical. The reaction functions of both the countries (domestic and foreign) being upward sloping, the point N in Fig. 23.5 is the point where both the reaction curves intersect yielding Nash Equilibrium. This is because at point N, both the countries simultaneously maximise their own welfare. Here, they have set matching growth rates for their individual money supply and the balance of payments of each country are in equilibrium. However, this Nash equilibrium is not Pareto efficient since at Pareto efficient outcome, the indifference curves of both the countries should be tangential to each other (i.e. the shaded area in Fig. 23.5). It is thus clear that when each country works independently, Nash equilibrium outcome cannot be realised. However, in case their monetary policies are coordinated, both countries can be better off. The contract curve which joins the two bliss points shows the set of outcomes where both countries can simultaneously be better off. Thus, with policy coordination Pareto inefficiency can be avoided and an outcome on this contract curve such as point C can be reached through coordination.

23.4.2 Expansionary Bias

In case of an expansionary bias, holding the same set of assumptions as in the case of recessionary bias, we analyse the situation in Fig. 23.6. Note that the bliss point B of the domestic country is below the 45° line and the bliss point B1 of the foreign country is above the 45° line. The reaction curve of the domestic country is R and that of the foreign country is R1. The Nash equilibrium is at the intersection of these two curves (i.e. at point N) which is Pareto inefficient. Any point within the shaded region in the diagram would make both the countries better off. The Pareto efficient outcome in this case would be point C on the contract curve which can be achieved through coordination. In case there is no coordination the countries at point N would be increasing their money supply at a high rate ignoring the spillover effects leading to expansionary bias.
23.4.3 Coordination Methods

The Open Method of Coordination (OMC) is a policy-making process (or regulatory instrument) of the European Union established in the year 2000. It is a method of soft governance involving the adoption of best practices so as to achieve convergence towards the goals of the policy areas which fall under the partial or full compliance of Member States. The steps involved in OMC include: (i) establishment of guidelines, (ii) setting up of quantitative and qualitative indicators and benchmarks and (iii) national and regional targets. Periodic evaluations and peer reviews also form a part of OMC.

The EU Council first sets the goals which the resultant policy strives to achieve. Following this, the Member States, according to their own situation, develop and implement policies to match the goals set. The results of implementation are evaluated against the set benchmarks. The policy implementation of each Member State and the goals achieved by the resultant policies is subsequently compared. This results in the sharing of best practices among the Member States. The OMC thus involves peer pressure prompting the Member States to action and contributes to the dissemination of the best practices in the implementation of development policies in the individual countries of the union. In other words, it harmonises the system of policies or procedures being followed among the Member States. The economic crisis of 2008 exposed the weaknesses of the EU’s economic governance. This brought the soft intergovernmental methods, such as the Open Method of Coordination (OMC) under scrutiny with policy makers urging further improvement in the Open Method of Coordination (OMC).

Often, countries may adopt similar policies at same period of time creating clusters of policy reform. OECD defines cluster policies as policies to support clusters, generally understood to be geographic concentrations of inter-connected firms and related actors (e.g. specialised service providers, universities, etc.). There are several benefits to the clustering phenomena such as greater productivity and innovation. Such benefits are derived in part from thick labour markets, specialised suppliers and knowledge spillovers. The purpose of cluster policies is broadly to strengthen a particular regional or national economy. Policy clustering may occur as countries may respond similarly to similar domestic
situations of their own. The decisions in this case may be taken independently of the impact of such policies on other countries. It may also be the result of coordinated policy making of an international organisation on behalf of its member states (e.g. a particular emission norm may be decided for particular industries as a result of an ongoing climate change talk of say the UN or BRICS).

Check Your Progress 2 [answer within the given space in about 50-100 words]

1) What are the factors that determine the type and extent of spillover effects?

2) How is Hamada diagram useful? What are its assumptions?

3) How is ‘bliss point’ defined?

4) State the steps involved in the OMC method of EU. In its crux, how is the benefit of coordination achieved under the OMC method?

5) What is meant by a ‘policy cluster’? What are its benefits? What are some situations under which the benefits of policy cluster can accrue?
23.5 PROBLEMS OF INTERNATIONAL POLICY COORDINATION

There are many difficulties in the achievement of international policy coordination. These can be discussed under four heads as follows.

23.5.1 Sustainability

In coordinated equilibrium, as long as one party sticks to the agreement, the other can do even better by defaulting on it. The question, therefore, arises whether international policy coordination and its outcomes can actually be sustained. Recall that in the Hamada diagrams, except the Bliss points, other points of the contract curve do not intersect with each country’s reaction curve. Thus, for any point agreed upon by the countries for coordination, there exists an incentive for either of the countries to renege on the agreement. As this comes to knowledge, countries might refuse to enter into agreements for policy coordination. However, the threat of not agreeing to further cooperation with the defaulting country in the future, and the fact that coordinating would lead to better outcome in terms of welfare, helps sustain the coordinated equilibrium. Thus, an effective punishment strategy can be incorporated to maintain sustainability. The scenario where this method could be applied is illustrated in Fig. 23.7 assuming the same conditions as made for discussing the case of ‘recessionary bias’ in sub-section 23.4.1. We further need to assume that both the countries want to be in the position of the leader i.e. any outcome other than Nash equilibrium may lead to better results to the leader. The follower may be better off or worse off depending on the situation. However, the gains from reneging may not be equally distributed and hence both the countries would want to be in the leader position to maximise its welfare compared to the other country. Such an outcome is however unsustainable as the equilibrium would not be Pareto efficient.

![Fig. 23.7: Sustainability Problems](image)
23.5.2 **Inflationary Bias**

The inflationary bias in any country can sometimes worsen by monetary policy coordination. To illustrate this, Barro and Gordon (1983), gave a simple model of monetary policy to show that if the monetary policymaker lacks the ability to pre-commit, the inflation rate will be very high i.e. an inflationary bias could prevail. This could further result in a higher unemployment rate with the economy drifting to a socially inefficient state. In other words, the incentive for a government to deviate from its optimal monetary policy may increase under international policy coordination. However, if the adverse effect of such inflation is higher compared to benefits from co-ordination, a country may not decide against coordination. This can be figuratively illustrated (Fig. 23.8) by the short-run Phillips curve which becomes flatter under coordination so that point B is the Nash equilibrium. Without policy coordination, the Nash equilibrium would be at point A. The inflation rate $I_B$ being greater than $I_A$ in case of no coordination, if one country expands its money supply independently, then its exchange rate would depreciate. The cost of its imports would then increase resulting in inflation. But in case of coordinated monetary policy, the money supply of all the countries is simultaneously increased and hence the effect of depreciation would be moderate, alleviating inflation.

![Fig. 23.8: Inflationary Bias](image)

23.5.3 **Uncertainty**

With globalisation and interdependence of individual economies, the actions of one country affect the economic welfare in other countries. The various models assume that these externalities are taken into account in policy coordination. However, in case of uncertainty, information sharing plays an important role in the coordination process. Availability of timely data or information for forecasting is important to avoid coordination breakdown and avert impending economic crisis. The availability of information thus encourages economies to coordinate policies. Asymmetric information among the players or participants breeds distrust causing breakdown in coordination and negotiations.

23.5.4 **Collusion Consequences**

Policy coordination agreements are meant to ensure that countries under an agreement coordinate their policies to achieve collective welfare. However, in case of policy among cluster of countries, countries outside the cluster could independently evolve their own policies as a reaction to the coordinated policy for
the cluster countries. In other words, cluster policies may be beneficial to that particular cluster but may not be beneficial to countries outside that cluster. For instance, there may be no customs duty within a cluster, but for countries outside the cluster there might be a duty to pay for market access. This might give rise to dangers of collusion.

23.6 ANTI-TRUST AND CLIMATE CHANGE

Antitrust laws seek to promote fair competition in trade. It is also called competition law in many countries. Some of the common policy areas of these laws include: (i) prevention of collusion or cartels; (ii) prevention of market dominance of firms creating monopoly and abuse of monopoly power; and (iii) restriction of mergers and acquisitions of organisations that could substantially lessen competition.

International ‘antitrust coordination’ may take place in several ways. There may be a central international agency vested with the authority over governments so that the laws decided by the central agency are binding on the countries. Or, there may a multilateral agency issuing guidelines with enforcement power. Often, such coordination may be bilateral but might lead to the problem of reaction of other countries as discussed above.

In the absence of ‘international antitrust law’, international trade and cooperation requires firms to comply with the antitrust laws of the individual countries. This imposes huge regulatory or transaction costs on firms in each country. Also the firm or trader would need to satisfy multiple regulatory bodies in different countries adding to the transaction cost. The incidence of this would be borne either by the trader or by the end consumers by way of increased prices. International antitrust coordination for uniform law would do away with such costs.

Further, any regulatory body of an individual country will be looking into applications of both domestic as well as foreign companies with respect to its own laws. There may therefore be a case where the process is biased towards its own domestic producers to encourage local economy. Not only this would discourage competition, but consumers would also lose out on the availability of cheaper or better alternatives.

In view of the above, it is argued that international antitrust coordination in policy making undermines the domestic systems of individual countries. This is in the sense that policy making at international level would be undemocratic leaving the power in the hands of countries holding more economic clout in the world. The costs of adhering to a particular law or regulation (such as an environment norm) might be higher for a developing country as compared to a developed nation. International agreements and coordination thus comes at certain costs. What needs to be carefully decided is whether the benefits outweigh the costs.

Check Your Progress 3 [answer within the given space in about 50-100 words]

1) State the problems of ‘international policy coordination’.

.................................................................................................................................................................................................................................................................................................................
.................................................................................................................................................................................................................................................................................................................
.................................................................................................................................................................................................................................................................................................................
.................................................................................................................................................................................................................................................................................................................
2) How does an ‘incentive’ to renege on an international agreement accrue to a country?

3) In spite of the incentive to renege, which factor compels a country to remain within the agreed cooperation agreement?

4) What is the consequence of an ‘inflationary bias’?

5) In what way international ‘anti-trust law’ beneficial to coordinating counties?

23.7 LET US SUM UP

Beginning with a historical account of how international coordination practices began to take shape with the Bretton Woods institutions, the unit has dealt with the ‘spillover effects’ from a macroeconomic perspective. The gains of policy coordination are then spelt out. The two methods of coordination as practiced in
the EU are outlined. Problems of international coordination and the conditions under which such problems can be averted are then explained. A note on anti-trust laws is finally presented.

23.8 KEY WORDS

Spillover Effect : Refers to the impact from seemingly unrelated events in one nation as a consequence of an action taken by another nation.

Marginal Propensity to Import : Refers to the change in imports caused by a change in income.

Mundell Fleming Model : Helps in understanding the impact of spillover effects. Provides conditions under which equilibrium levels can be achieved in an economy when such status is disturbed due to ideal policy coordination deviations in practice.

Bliss Point : Refers to the set of monetary growth rates for an economy which gives it the highest possible level of welfare.

Nash Equilibrium : Named after late mathematician John Nash, Nash equilibrium refers to an optimal solution in game theory, where neither player gains from deviation from their chosen strategy, keeping the strategy of other players constant.

23.8 SOME USEFUL BOOKS


2) Ostry Jonathan D. and Ghosh Atish R (2013). Obstacles to International Policy Coordination, and How to Overcome Them, IMF Staff Discussion Note.


23.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) International policy coordination (or cooperation) is a form of cooperative relationship between the policy-makers and regulating authorities of two or more countries. WTO and EU are two examples of international policy coordination.
2) The US economy experienced stagflation and pursued expansionary monetary policy and countries which were in surplus did not agree to adjust their dollar balances by revaluing their individual currencies.

3) Spillover effects refer to the impact that seemingly unrelated events in one nation can have on the economies of other nations. The three ways are: monetary effects, real income effects and relative price effect.

4) Each country will ignore the externalities and pursue policies which maximise its own welfare. This leads to a situation where the equilibrium will be sub-Pareto optimal.

5) The model assumes: (i) perfect capital mobility; (ii) an increase in aggregate demand would lead to expansion in a country’s national income; (iii) the tax rates are uniform across countries; and (iv) investors do not face political risk.

Check Your Progress 2

1) Integration of economies, size of the economy, type of the economy, exchange rate policy followed, etc.

2) Hamada diagram is useful to explain ‘recessionary bias’ in a two country scenario. Its assumptions are: (i) the exchange rates in both countries are fixed and (ii) both the countries have the same policy objectives on optimum level of national income and balance of payment surplus.

3) It is defined as ‘the set of rates growth of money supply which gives a country the highest possible level of welfare’.

4) (i) Establishment of guidelines, (ii) setting up of quantitative and qualitative indicators and benchmarks and (iii) setting up of national and regional targets. In its crux, periodic reviews and peer pressure contributes to the success of the OMC method.

5) Policy cluster is defined as policies which goes to promote cluster of firms. Greater productivity and innovation are its benefits. Benefits of policy clusters accrue in cases like: thick labour markets, specialised suppliers and knowledge spillovers.

Check Your Progress 3

1) Sustainability, inflationary bias, uncertainty and collusion consequences.

2) This accrues due to the fact that, except for bliss points, other points on the contract curve do not intersect with each country’s reaction curve.

3) The threat of not agreeing to further cooperation with the defaulting country in the future, and the fact that coordination would lead to better outcome in terms of welfare.

4) Higher unemployment rate with the economy drifting to a socially inefficient state. This happens due to increased cost of imports which happens in case of deviation from agreed principles of coordination.

5) Called also as ‘competition law’, anti-trust laws help by reducing the otherwise high transaction cost that individual firms have to incur.