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**Name:**

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**Semester:** Autumn 2026

**ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD**

**Course: Introduction to Macro Economics (802) • Level: MSC Economics**

**Semester: Autumn 2026**

**Assignment No. 1 (Units 1–5)**

**Total Marks: 100 • Pass Marks: 50**

**SOLVED ASSIGNMENT GUIDE**

**(For Study & Reference)**

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Note: This guide is prepared for study and reference purposes. Students are advised to read the relevant units of the course book, understand the concepts, and then write the assignment in their own words.

## Question 1: Definition, Scope and Importance of Macroeconomics; Microeconomics versus Macroeconomics (20 Marks)

*Define Macroeconomics. Explain its scope and importance. Distinguish clearly between microeconomics and macroeconomics with suitable examples.*

### Introduction

Economics is conventionally divided into two great branches: microeconomics, which studies the behaviour of individual units, and macroeconomics, which studies the economy as a whole. The word macro comes from the Greek word makros, meaning large, and this branch is therefore concerned with large aggregates — the total output of a country, the total level of

employment, the general price level and the total volume of trade with other countries — rather than with the fortunes of a single firm, a single industry or a single household. Although economists such as Ragnar Frisch used the terms micro and macro as early as the 1930s, macroeconomics as a systematic and separate subject really came into its own with the publication of John Maynard Keynes's General Theory of Employment, Interest and Money in 1936, written against the background of the Great Depression, when millions of workers were unemployed at the same time in country after country and the older, individual-centred analysis could not explain why. This answer defines macroeconomics, explains its scope and its importance for governments, businesses and ordinary citizens, and finally distinguishes it clearly from microeconomics with suitable examples.

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## Definition of Macroeconomics

Macroeconomics may be defined as the branch of economics which studies the behaviour of the economy as a whole, dealing with aggregates and averages such as national income, total employment, total saving, total investment, the general price level and economic growth. Kenneth Boulding defined it as the study, not of individual incomes, but of national income; not of individual prices, but of the price level; not of individual output, but of national output. In a similar spirit, Gardner Ackley described macroeconomics as being concerned with the overall dimensions of economic life — the total size, shape and functioning of the elephant rather than the art of its parts. Shapiro put it simply by saying that macroeconomics deals with the functioning of the economy as a whole. These definitions share a common point: the unit of study is the entire economy, and the questions asked are questions about totals and about the forces that move those totals up or down.

A student should notice two features of these definitions. First, macroeconomics does not ignore individuals; it aggregates them. The consumption of millions of households is added into aggregate consumption, and the spending plans of thousands of firms are added into aggregate investment. Second, the behaviour of the whole is not always a simple enlarged copy of the behaviour of a part — a lesson Keynes called attention to and which later writers named the fallacy of composition. What is true for one household, for example that spending less and saving more makes it richer, may not be true for all households together, because if everyone cuts spending at once, incomes fall and total saving may actually decline. This possibility is one of the main reasons a separate macroeconomics is needed at all.

## Scope of Macroeconomics

The scope of macroeconomics — the range of subjects it covers — is wide, and it can be organised under the following heads. Each head corresponds to one of the great questions a society asks about its collective economic life, and together they cover Units 1 to 5 of this course and much of what follows in Units 6 to 9.

- Theory of national income: how the total income and output of a country are measured, what determines their size, and how income is distributed among wages, rent, interest and profit.
- Theory of employment: what determines the total volume of employment and why involuntary unemployment exists; this includes the classical theory and Keynes's theory of effective demand, both examined later in this assignment.

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- Theory of money and the general price level: the functions and supply of money, the role of the central bank, and the causes and control of inflation and deflation.
- Theory of economic growth and development: why some economies grow quickly and raise living standards while others stagnate, and what policies promote long-run growth, capital formation and technical progress.
- Theory of international trade and finance at the aggregate level: the balance of payments, exchange rates, exports and imports as totals, and a country's economic relations with the rest of the world.
- Theory of public finance and economic policy: taxation, government spending, public debt, fiscal policy and monetary policy as instruments for stabilising the economy at full employment without inflation.
- Theory of business cycles: the alternating periods of boom and slump through which modern economies move, their causes, and the policies used to moderate them.

Within this scope, macroeconomics studies both static and dynamic problems: how an equilibrium level of national income is determined at a moment of time, and how income, population, capital and technology change over time. It also studies both closed-economy models, in which foreign trade is ignored for simplicity, and open-economy models, in which exports, imports and capital flows are included — as in the four-sector circular flow examined in Question 3.

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## Importance of Macroeconomics

The importance of macroeconomics is practical as well as theoretical. First, it is indispensable for the formulation of government policy. Decisions about the budget, about interest rates and about exchange rates cannot be made sensibly without knowing how total demand, total output and the price level respond; a finance ministry that thought only in microeconomic terms would have no framework for fighting a recession or an inflation. Second, it helps in understanding and tackling the central problems of unemployment, inflation and poverty, which are by their nature economy-wide: no single firm can end a general depression, because the cause lies in a deficiency of total demand rather than in any one market.

Third, macroeconomics is essential for measuring national performance. National income statistics, produced on macroeconomic principles, allow a country such as Pakistan to know whether its economy grew, by how much, in which sectors, and whether growth kept pace with population. Fourth, it guides business decisions: firms deciding whether to build new factories look at forecasts of total demand, interest rates and inflation, all macroeconomic variables. Fifth, it explains international interdependence — how a recession in a large trading partner, or a rise in world oil prices, transmits itself into domestic employment and prices. Sixth, it has advanced economic theory itself, by revealing paradoxes such as the paradox of thrift and by showing why markets that work well individually may still need collective management of demand. For a developing country, finally, macroeconomics matters because growth, price stability and a sustainable balance of payments are the conditions under which poverty can actually be reduced; unstable macroeconomics falls hardest on the poor, who cannot protect their savings against inflation.

## Distinction Between Microeconomics and Macroeconomics

The two branches differ in unit of study, subject matter, method, assumptions and typical questions. Microeconomics, from the Greek mikros meaning small, studies individual units: a consumer maximising satisfaction, a firm maximising profit, an industry reaching equilibrium, or the price of a single commodity such as wheat or sugar. Its central problem is the allocation of given resources among competing uses, and its central instrument is price theory. Macroeconomics studies aggregates for the whole economy, its central problem is the determination of the level of income and employment, and its central instruments are the theories of income, money and growth. The table below summarises the distinction, after which suitable examples are given.

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**Table 1: Microeconomics and macroeconomics compared**

| Basis | Microeconomics | Macroeconomics |
|---|---|---|
| Unit of study | An individual consumer, firm, industry or market | The economy as a whole; aggregates of all units |
| Main variables | Price of one good, output of one firm, wages in one industry | National income, general price level, total employment, total saving and investment |
| Central problem | Allocation of resources and distribution of income among individuals | Determination of the level of income, employment and growth; stabilisation |
| Method | Partial equilibrium: other things (ceteris paribus) held constant | General equilibrium: interdependence of all markets considered together |
| Key assumption | Often assumes full employment of resources in the economy as a whole | Studies why full employment may not occur and how it can be achieved |
| Policy focus | Price controls, taxes on particular goods, support for a particular industry | Fiscal policy, monetary policy, growth and anti-inflation policy for the whole economy |
| Example question | Why did the price of onions rise this month? | Why did the general price level in Pakistan rise this year? |

Suitable examples make the distinction concrete. When we ask how a textile mill in Faisalabad decides how many workers to hire at a given wage, or why the price of petrol at a particular pump changes, or how a student divides a fixed allowance between books and food, we are doing microeconomics. When we ask why Pakistan's gross domestic product grew by a certain percentage, why unemployment in the whole country rose after an energy crisis, why the State Bank raised its policy rate to control inflation, or how an increase in government development spending raises total income through the multiplier, we are doing macroeconomics. A useful rule of thumb is this: if replacing the name of one firm or one good with another would leave the question essentially unchanged in kind but only change its size, the question is probably macroeconomic when it is asked about all firms and all goods together.

The distinction, however, must not be exaggerated into a wall. The two branches are interdependent: macroeconomic aggregates are built up from microeconomic decisions, since total consumption is the sum of household choices and total investment the sum of firms' choices; and microeconomic decisions are made within a macroeconomic environment of income levels, interest rates and expectations that the individual takes as given. Modern economics therefore tries to provide microeconomic foundations for macroeconomic behaviour while retaining the macroeconomic insight that the whole can behave differently from any of its parts. Used together, the two branches give a complete picture of economic life.

### Conclusion

To conclude, macroeconomics is the study of the economy as a whole — of national income, total employment, the general price level, growth and the balance of payments — and its scope covers the theories of income, employment, money, growth, trade and stabilisation policy. Its importance lies in making government policy, national measurement and business planning possible in a world of economy-wide problems that no individual market can solve alone. It differs from microeconomics in unit, variables, method and questions, as the comparison and the examples above show, yet the two are complementary halves of one subject: microeconomics explains how the parts behave, and macroeconomics explains how the whole they compose behaves — and why the whole sometimes needs deliberate management.

## Question 2: National Income and Its Measurement — Income, Expenditure and Output Methods (20 Marks)

*Explain the concept of national income. Describe in detail the income, expenditure, and output methods of measuring national income.*

### Introduction

If macroeconomics studies the economy as a whole, its first practical task is measurement: we cannot say whether an economy is growing, whether its people are becoming better off, or whether a policy has worked, unless we can measure the total income and output of the country in a given period, usually one year. That measure is national income. It is the single most widely used statistic in economic life, quoted in budgets, in the reports of the Pakistan

Bureau of Statistics and the State Bank, and in every discussion of growth and living standards. This answer explains the concept of national income and its main related aggregates, and then describes in detail the three standard methods of measuring it — the income method, the expenditure method and the output (or product/value-added) method — showing with a worked illustration why, correctly applied, all three must give the same answer.

## The Concept of National Income

National income is the total monetary value of all final goods and services produced by the normal residents of a country during a period of one year, net of depreciation and indirect taxes, and including net factor income from abroad. In the older language of Alfred Marshall, it is the labour and capital of a country acting upon its natural resources, producing annually a certain net aggregate of commodities, material and immaterial, including services of all kinds. Simon Kuznets, the pioneer of national income accounting, defined it as the net output of commodities and services flowing during the year from the country's productive system into the hands of its ultimate consumers. Three points in these definitions deserve emphasis. First, national income is a flow, not a stock: it is measured per year, unlike national wealth, which is measured at a point in time. Second, only final goods and services count; intermediate goods are excluded to avoid double counting, a point explained fully under the output method. Third, it is a net concept: the wear and tear of machinery — depreciation or capital consumption — is deducted, because that part of gross output merely replaces worn-out capital and is not available for consumption or for adding to wealth.

Around the central concept stands a family of related aggregates which the student should know. Gross domestic product (GDP) is the value of final output produced within the territory of a country, whoever owns the factors of production. Gross national product (GNP), in modern terminology gross national income (GNI), adds net factor income from abroad — the earnings of residents working or investing overseas minus the earnings of foreigners within the country — to GDP. Net national product (NNP) deducts depreciation from GNP, and national income proper is NNP measured at factor cost, that is, after deducting indirect taxes and adding subsidies, because indirect taxes are not received by any factor of production while subsidies are an addition to factor earnings. From national income, personal income is derived by deducting undistributed corporate profits and social security contributions and adding transfer payments such as pensions and zakat or welfare payments, and disposable income is personal income minus direct personal taxes — the income households can actually spend or save. Per capita income, national income divided by population, is the usual rough indicator of the average standard of living.

## The Income Method

The income method measures national income by adding up all the incomes earned by the factors of production for rendering their productive services during the year. Its logic follows directly from the circular flow: every rupee of output produced generates a rupee of income for someone — the worker receives wages, the landlord rent, the lender interest and the entrepreneur profit. The main components to be added are: (1) compensation of employees, meaning wages and salaries in cash and kind plus employers' contributions to provident and pension funds; (2) rent, including the imputed rent of owner-occupied houses; (3) interest,

meaning net interest received by households and firms, excluding interest on public debt, which is treated as a transfer; (4) profits, divided into dividends, corporation tax and undistributed profits retained by companies; (5) mixed income of the self-employed, such as farmers, shopkeepers and professionals, whose earnings combine labour and capital income and cannot be separated; and (6) net factor income from abroad, added to convert a domestic total into a national total.

Care is needed about what to exclude. Transfer payments — old-age pensions, unemployment benefits, scholarships, gifts and interest on the national debt — must be excluded, because they are not payments for any current productive service; including them would count the same income twice, once when earned and again when transferred. Incomes from illegal activities are conventionally excluded, capital gains on the sale of old assets are excluded because no current production corresponds to them, and the sale proceeds of second-hand goods are excluded, although a dealer's commission on such a sale is included because it is payment for a current service. The income method works best where income-tax records and company accounts are comprehensive; in developing countries its weakness is the large informal and self-employed sector, whose incomes must be estimated, and the tendency of some earners to under-report income.

## The Expenditure Method

The expenditure method measures national income by adding up all final expenditure on goods and services produced during the year. Its logic is that output which is produced is also bought by someone, and the buyers fall into four groups, corresponding to the four sectors of the

economy. The components are: (1) private or household consumption expenditure (C) on durable goods, non-durable goods and services; (2) gross domestic investment (I), meaning spending by firms on new machinery, buildings and inventories, plus residential construction — from which depreciation must later be deducted to reach a net figure; (3) government expenditure (G) on goods and services, such as defence, education, health and administration, excluding transfer payments, which are not spending on currently produced output; and (4) net exports (X − M), exports of goods and services minus imports, because exports are domestic output bought by foreigners and must be added, while the import content of C, I and G must be removed since it represents foreign, not domestic, production. The sum C + I + G + (X − M) gives GDP at market prices, from which the adjustments for depreciation, indirect taxes and net factor income from abroad lead to national income at factor cost.

The precautions of the expenditure method mirror those of the other methods. Expenditure on intermediate goods must be excluded, purchases of second-hand goods excluded except for dealers' margins, purely financial transactions such as buying shares or bonds excluded because they are only transfers of ownership, and transfer payments by government excluded. Double counting is the standing danger: if a household's spending on bread is counted and the baker's spending on flour is also counted as final, the flour is counted twice. The method depends on reliable data about retail sales, construction and government accounts, and in economies with large subsistence production, where output never reaches a market, expenditure must be imputed rather than observed.

## The Output (Product or Value-Added) Method

The output method — also called the product, inventory or value-added method — measures national income by adding the value of final output produced in every sector of the economy: agriculture, mining, manufacturing, construction, transport, trade, banking, public administration and other services. Its central device for avoiding double counting is value added. Value added by a firm or sector is the value of its output minus the value of the intermediate goods it bought from others; it equals exactly the sum of the factor incomes the firm pays out. The classic illustration is the production of bread. The farmer grows wheat worth Rs 100 using, let us suppose, no purchased inputs, so his value added is Rs 100. The miller buys the wheat for Rs 100 and sells flour for Rs 170; his value added is Rs 70. The baker buys the flour for Rs 170 and sells bread to final consumers for Rs 250; his value added is Rs 80. The total value added, 100 + 70 + 80 = Rs 250, equals exactly the value of the final product, the bread. If instead we added the gross output of all three stages — 100 + 170 + 250 = Rs 520 — we would count the wheat three times and the flour twice, grossly exaggerating national income.

**Table 1: Value added in the production of bread (rupees)**

| Stage of production | Value of output | Cost of intermediate inputs | Value added (= factor incomes) |
|---|---|---|---|
| Farmer (wheat) | 100 | 0 | 100 |
| Miller (flour) | 170 | 100 | 70 |
| Baker (bread, final good) | 250 | 170 | 80 |
| Total | 520 (gross, double-counted) | — | 250 = value of final output |

In practice, statistical offices divide the economy into sectors, estimate the gross value of output in each from production statistics, deduct intermediate purchases and depreciation, and add the results, making an adjustment for net factor income from abroad and, where output is valued at market prices, deducting indirect taxes net of subsidies. Output that is not sold — crops consumed by the farm family itself, or the services of owner-occupied houses — is included at imputed values, because it is real production even though no money changes hands. The method's difficulties in a country like Pakistan are considerable: production records in small-scale agriculture and informal services are incomplete, the same establishment may produce several products, and price changes require careful deflation to separate real growth from mere inflation — statisticians handle this by measuring output at constant prices of a base year as well as at current prices.

## Why the Three Methods Must Agree

The three methods are not three different definitions of national income but three windows on the same circular flow, and in principle they must yield identical totals. Output produced creates an equal amount of factor income (output = income), and income received is either spent on the output or saved, while saving is matched by investment spending, so total expenditure on final output equals its value (income = expenditure). The bread example shows the identity at work in miniature: the value added of Rs 250 is paid out as wages, rent, interest and profit totalling Rs 250, and final consumers spend Rs 250 on the bread. National accountants exploit this identity as a check: in practice the three methods, built from different data sources, give slightly different answers, and the residual is published as a statistical

discrepancy. The identity also underlies macroeconomic theory — it is why, in the models of Questions 3 and 5, total leakages must equal total injections in equilibrium.

## Difficulties of Measurement in Developing Countries

A brief note on practical difficulties completes the answer, because they explain why national income figures for developing economies are estimates rather than exact counts. A large non-monetised subsistence sector produces output that never passes through a market; many producers keep no accounts and are illiterate, so data must be collected by sample surveys; occupational specialisation is incomplete, so one person may earn income from farming, transport and trade simultaneously, making sectoral classification difficult; prices differ from region to region and change quickly; and administrative and statistical machinery may be thin outside the cities. For these reasons, agencies combine all three methods — output data for agriculture and industry, income data for the organised sector, expenditure data for government and foreign trade — and revise their estimates as better information arrives.

## Conclusion

To conclude, national income is the net monetary value of all final goods and services produced by a country's normal residents in a year — a flow concept at the centre of a family of aggregates running from GDP through GNP and NNP to personal and disposable income. It can be measured in three equivalent ways: by adding all factor incomes earned in production, transfer payments excluded; by adding all final expenditure, C + I + G + (X − M); or by adding the value added at every stage of production, which avoids the double counting that gross output figures would involve. Each method watches the same circular flow from a different side, and

together they give governments and citizens the basic measure by which economic performance, growth and living standards are judged.

## Question 3: The Circular Flow of Income in Two-Sector and Four-Sector Economies; Injections and Leakages (20 Marks)

*Explain the circular flow of income in a two-sector and four-sector economy. Highlight the importance of injections and leakages.*

### Introduction

Modern economies are systems of continuous exchange. Households do not produce most of what they consume, and firms do not consume most of what they produce; instead, a perpetual flow circulates between them -- goods and services flow one way, money flows the other, and around the loop incomes are generated, spent and generated again. The circular flow of income is the model economists use to picture this circulation. It shows at a glance how production, income and expenditure are connected, why the three methods of measuring national income must agree, and how saving, taxation and imports can drain the flow while investment, government spending and exports replenish it. This answer explains the flow first in a simple two-sector economy of households and firms, then in a realistic four-sector economy that adds government and the foreign sector, and finally highlights the importance of injections and leakages for the level of income and employment.

## The Two-Sector Economy

The two-sector model contains only households and firms, and for simplicity it assumes no government, no foreign trade and initially no saving. Households own all the factors of production — land, labour, capital and enterprise — and supply their services to firms through the factor market. Firms hire these services and pay for them: wages to labour, rent to land, interest to capital and profit to enterprise. These payments are costs to firms but they are the income of households, and together they constitute national income. Households then spend the whole of this income on the goods and services produced by firms, buying them through the product market. This consumption expenditure becomes the revenue of firms, out of which they again pay the factors, and the circle is complete and repeats itself period after period.

Two flows run simultaneously in opposite directions. The real flow consists of factor services moving from households to firms and finished goods and services moving from firms to households. The money flow consists of factor payments moving from firms to households and consumption spending moving from households back to firms. In this simple model the flow, once established, continues at an unchanging size: national income, national output and national expenditure are equal and constant, because everything earned is spent and there is no leakage from, or addition to, the stream. The economy is in a stationary equilibrium — not because nothing happens, but because the same volume of activity repeats each period.

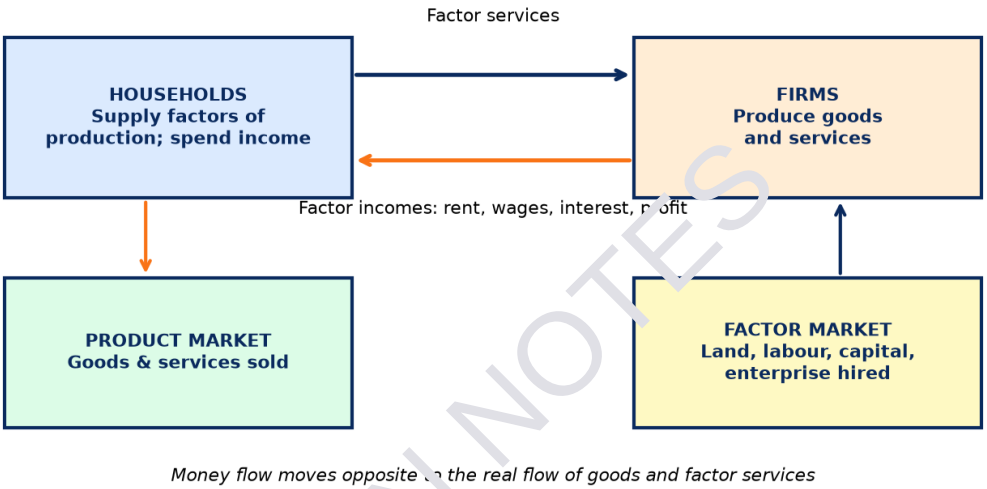



*Figure 1: The circular flow of income in a two-sector economy.*

Realism requires one modification even at this stage: households do not in fact spend all their income; they save part of it, and firms do not finance investment only from their own revenue; they borrow. Saving is a withdrawal from the flow, and investment is an injection into it, channelled through financial institutions such as banks, which collect the savings of households and lend them to firms. If planned investment exactly equals planned saving, the flow continues undisturbed at its existing level. If saving exceeds investment, spending falls short of output, unsold stocks accumulate, firms cut production and employment, and the circular flow shrinks to a lower level of income. If investment exceeds saving, demand exceeds current output, stocks are run down, firms expand, and the flow grows. Already in the two-sector model, therefore, the balance between leakages and injections decides whether income rises, falls or stays constant — the central theme of the last part of this answer.

## The Four-Sector Economy

The four-sector model adds the government sector and the foreign sector, producing a picture recognisable as a real economy such as Pakistan's. Households and firms behave as before, but three sets of new flows appear. First, government: households and firms pay taxes to the government — income tax, sales tax, excise and customs duties — and these taxes are a leakage from the household-firm flow. Government returns money to the flow in several ways: it buys goods and services from firms, it employs civil servants, soldiers, teachers and doctors and pays them wages, and it makes transfer payments such as pensions and income-support payments to households, which raise their disposable income without any corresponding current production. Second, the financial flows become richer: government may run a budget deficit, borrowing from the financial sector, or a surplus, repaying debt. Third, the foreign sector: households and firms spend part of their income on imports, and this spending leaks abroad; foreigners buy the country's exports, and this revenue flows in from outside as an injection; in addition, residents may receive remittances and factor incomes from abroad — of great importance to Pakistan in the form of workers' remittances — while payments for foreign services and profits of foreign firms flow out.

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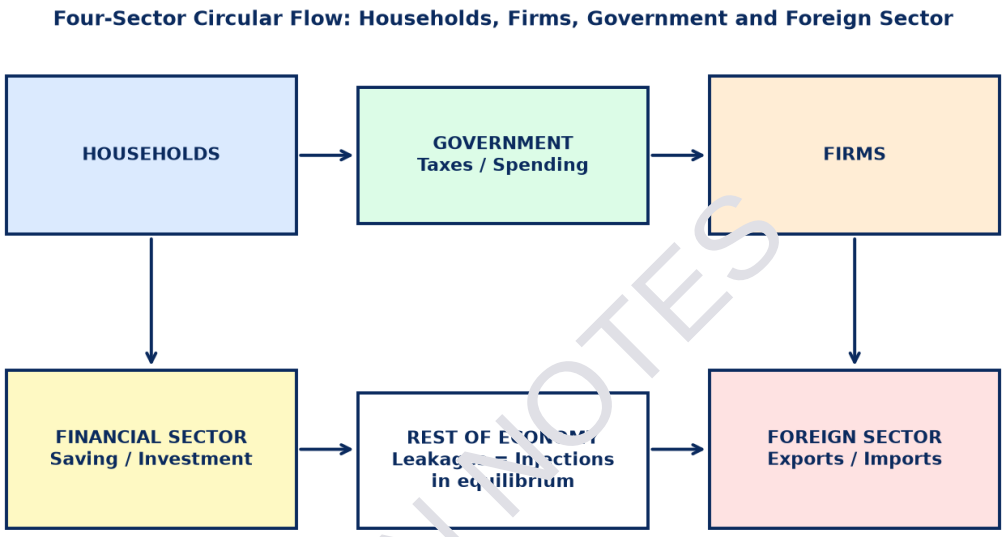



*Figure 2: The four-sector circular flow — government and foreign sectors added.*

In the four-sector economy, household income is therefore disposed of in four ways: consumption of domestic goods, saving, taxes, and spending on imports. National income equilibrium — a level of income at which the circular flow neither expands nor contracts — requires that total leakages from the flow equal total injections into it. In symbols: saving (S) + taxes (T) + imports (M) = investment (I) + government expenditure (G) + exports (X). This is not merely an accounting identity about the past; it is a condition about plans. If planned injections exceed planned leakages, demand for domestic output exceeds current production, and income rises until higher income generates enough extra saving, tax revenue and import spending to restore equality at a higher level. If planned leakages exceed planned injections, demand falls short, output and employment contract, and income falls until leakages shrink into equality with injections at a lower level. The four-sector flow thus contains a built-in adjustment process

that drives the economy toward equilibrium income — though, as Keynes stressed and Question 5 explains, that equilibrium can be at far less than full employment.

## Injections and Leakages: Meaning

A leakage (or withdrawal) is any part of income received by households that is not passed on as spending on domestically produced goods and services in the current period: saving, taxation and import spending are the three leakages of the four-sector model. An injection is any addition to the spending flow that does not originate in households' current income from firms: investment by firms, government expenditure and export revenue are the three injections. Two distinctions matter. First, leakages and injections are flows per period, like income itself. Second, they are largely decided by different people for different reasons — households decide saving, the government decides taxes, foreigners decide exports — which is precisely why they need not balance at any given level of income, and why income itself must move to bring them into equality.

## Importance of Injections and Leakages

The importance of the injection-leakage balance can be summarised in six points.

- They determine the level of national income: equilibrium income is found where planned injections equal planned leakages, and any change in either side moves income to a new level — often by a multiple of the initial change, through the multiplier process studied in Assignment 2.
- They explain booms and slumps: a surge of investment or exports, or a cut in taxes, raises injections relative to leakages and produces expansion; a wave of saving, tax increases or

import spending does the opposite and can produce recession, even though each individual action may be prudent.

- They reveal the paradox of thrift: if all households try to save more, the leakage rises, demand and income fall, and total actual saving may end up unchanged or lower — individual virtue producing a collective result no one intended.
- They are the working levers of economic policy: fiscal policy operates by changing the government injection (G) and the tax leakage (T); monetary policy works mainly by influencing investment (I); trade and exchange-rate policy aim at exports (X) and imports (M). The circular flow shows the policymaker exactly where each instrument enters the system.
- They connect the economy to the rest of the world: in an open economy, an export boom — or a rise in workers' remittances — injects purchasing power and raises income, while dependence on imported fuel and machinery means a rise in world prices enlarges the import leakage and drains income abroad, as Pakistan repeatedly experiences with oil prices.
- They guide measurement and diagnosis: because injections and leakages must balance in equilibrium, discrepancies in national accounts alert statisticians and economists to unintended inventory changes — firms accumulating unsold goods are, in effect, making unplanned investment, an early warning signal of recession.

A numerical illustration fixes the ideas. Suppose in a four-sector economy households save Rs 200 billion, pay taxes of Rs 300 billion and spend Rs 150 billion on imports: total leakages are Rs 650 billion. If firms invest Rs 280 billion, government spends Rs 250 billion and exports earn Rs

120 billion, total injections are also Rs 650 billion and income is in equilibrium. Now suppose government launches a development programme raising its spending by Rs 50 billion. Injections (Rs 700 billion) now exceed leakages, demand exceeds output, firms expand production and hire more workers, and income rises. As income rises, saving, tax revenue and imports all grow, until leakages have risen by the same Rs 50 billion and equality is restored — at a permanently higher level of income, magnified by the multiplier if the initial spending sets off successive rounds of consumption.

## Conclusion

To conclude, the circular flow portrays income circulating continuously between households and firms as factor payments and consumption spending, with real flows moving opposite to money flows. Adding government and the foreign sector introduces taxes, government spending, transfers, exports, imports and remittances, but the organising principle remains the same: the flow expands when injections exceed leakages, contracts when leakages exceed injections, and settles where the two are equal — S + T + M = I + G + X. Understanding injections and leakages is therefore not a decorative addition to the model; it is the mechanism that explains changes in income and employment and the channel through which all stabilisation policy works.

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# Question 4: The Classical Macroeconomic Model, Say's Law of Markets and Full Employment (20 Marks)

*Explain the main assumptions of the Classical Macroeconomic Model. Discuss Say's Law of Markets and its implications for full employment.*

## Introduction

Before Keynes, the dominant view of how a whole economy works was the classical model, developed from Adam Smith, David Ricardo, J. S. Mill and Jean-Baptiste Say through to A. C. Pigou and Alfred Marshall. Its central conclusion was reassuring: a free-market economy left to itself tends automatically toward full employment, because the prices that matter — the wage rate in the labour market, the interest rate in the capital market and prices in goods markets — are flexible and move to clear every market. General overproduction and lasting involuntary unemployment were, on this view, impossible; unemployment could only be temporary, frictional or voluntary. This answer sets out the main assumptions on which that conclusion rested and then discusses the model's most famous pillar, Say's Law of Markets, and its implications for full employment — together with the criticism that eventually overthrew it.

## Main Assumptions of the Classical Macroeconomic Model

The classical model is a system, and its full-employment conclusion follows from the assumptions acting together. The principal assumptions are the following.

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- Perfect competition in all markets: many buyers and sellers, homogeneous products, free entry and exit, and full knowledge, so that no single buyer or seller can influence prices and every price is set by supply and demand.
- Perfect flexibility of prices and money wages: wages and prices move freely upward and downward in response to excess supply or demand; there are no minimum wages, trade-union rigidities, long contracts or legal obstacles preventing adjustment.
- Laissez-faire: the government confines itself to defence, justice and a few public works; it does not manage demand, and its budget is small and normally balanced; taxes and spending do not disturb private decisions.
- Money is neutral — a veil over real transactions: money serves only as a medium of exchange; people hold no idle balances for their own sake, so changes in the quantity of money affect only the absolute price level, proportionately, through the quantity theory ($MV = PY$), leaving real output and employment unchanged. This separation of real and monetary variables is called the classical dichotomy.
- Saving and investment are brought into equality by the rate of interest: saving increases and investment decreases as the interest rate rises, and vice versa, so the flexible interest rate guarantees that all saving is invested and none leaks out of the spending stream.
- The economy operates in the long run and supply-side conditions dominate: output is determined by the available quantities of labour, capital and natural resources and by technology, summarised in an aggregate production function; demand adjusts to supply, not the other way round.

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- Rational, self-interested behaviour and no money illusion: workers and firms respond to real wages and real interest rates, not to nominal magnitudes as such.
- A closed economy (in the simplest version) with no involuntary unemployment in equilibrium: anyone willing to work at the going real wage can find a job; remaining unemployment is frictional — between jobs — or voluntary.

From these assumptions the classical system works as follows. Labour demand depends on the marginal productivity of labour and slopes downward; labour supply depends on the real wage and slopes upward. Their intersection fixes the real wage and the level of employment — necessarily full employment, because if unemployment existed, competition among the jobless would bid money wages down; lower wages would reduce costs and prices, but prices would fall in the same proportion, leaving the real wage at the level that clears the market with everyone employed. Given employment, the production function determines total output. The interest rate then distributes that output between consumption and investment by equating saving with investment, and the quantity of money determines the price level at which the output is sold. Every market clears, each through its own price, and the machine runs itself.

## Say's Law of Markets

The proposition that holds the goods market together in this system is Say's Law, stated by the French economist Jean-Baptiste Say in his Treatise on Political Economy (1803). In Say's own formulation, products are always bought with products: a product is no sooner created than it, from that instant, affords a market for other products to the full extent of its own value. In its popular short form: supply creates its own demand. The reasoning is straightforward.

Production is not undertaken for its own sake; a producer produces in order to earn income, and that income is the purchasing power with which he demands other goods. The act of producing goods worth, say, one million rupees simultaneously creates one million rupees of wages, rent, interest and profit in the hands of those who made them — exactly enough purchasing power to buy the output. Production and the power to purchase are two sides of the same act, so aggregate supply and aggregate demand are necessarily equal, and a general glut — overproduction of everything at once — is impossible. Particular goods can certainly be overproduced if producers misjudge tastes, but that merely means other goods are underproduced; relative prices change, resources move between industries, and the imbalance corrects itself.

Say's Law was originally directed against the fear, common after industrialisation, that machinery and rapidly growing output would outrun the market. Say, Ricardo and Mill replied that the market grows with production itself, since workers and owners paid to produce the extra output can buy it. James Mill added that annual consumption is co-extensive with annual production. For the law to hold in a money economy, however, two supporting mechanisms are required, and the classical economists supplied both. First, money must be only a veil: if people earn income and immediately spend it, saving aside, the equality of supply and demand is obvious. Second, the saving that does occur must not break the circle: saving is not hoarding but spending of another kind, because saved funds are lent through the capital market to investors who spend them on machines and buildings; the interest rate falls whenever saving threatens to exceed investment, until the two are equal again. With flexible wages additionally

guaranteeing that firms will want to hire all who offer themselves, the full-employment conclusion follows completely.

### Implications of Say's Law for Full Employment

The implications of Say's Law are far-reaching and were the orthodoxy against which Keynes rebelled.

- Full employment is the normal, automatic condition of a free economy: since supply creates its own demand, there can never be a general deficiency of demand, and therefore no unemployment caused by lack of spending; persistent mass unemployment is theoretically impossible.
- Unemployment, where observed, must be explained otherwise: it is frictional (workers between jobs or entering the labour force), structural (skills in declining industries) or voluntary (workers unwilling to accept the market real wage); or it is caused by interferences — trade unions resisting wage cuts, minimum-wage laws, or governments propping up prices — that prevent the flexible adjustment the model requires. Pigou accordingly prescribed wage flexibility, not public spending, as the cure.
- Government intervention in demand is unnecessary and harmful: since the economy self-adjusts to full employment, deficit spending can only distort allocation, raise interest rates and crowd out private investment; the proper policy is laissez-faire, sound money and a balanced budget.

- Saving is unambiguously virtuous: because all saving is automatically invested through the interest mechanism, thrift raises capital formation and growth and can never cause unemployment — the exact opposite of Keynes's paradox of thrift.
- Economic growth is a supply-side matter: output and employment grow by accumulating capital, improving technology and expanding the labour force, not by managing demand; money and demand management have no real role in the long run.
- Crises are temporary disequilibria: a slump reflects prices and wages not yet having adjusted; given time and flexibility, the economy returns to full employment by itself, as water finds its level.

## Criticism and the Keynesian Challenge

The Great Depression of 1929–33 put the model to a test it failed in public view: unemployment reached roughly a quarter of the labour force in the United States and remained high for a decade, in economies whose wages and prices did fall substantially. Keynes's critique identified the theoretical weaknesses. Money is not only a medium of exchange but also a store of value: people and firms may hold money idle for safety, especially in uncertainty, so income need not return promptly as spending, and Say's identity breaks. Saving and investment are made by different people for different motives — saving depends mainly on income, investment on expectations of profit — and the interest rate, which in Keynes's theory equilibrates the demand and supply of money rather than of saving and investment, cannot guarantee their equality at full employment. Wages are not perfectly flexible downward: unions, contracts, minimum wages and concern for morale resist cuts, and even successful wage cuts reduce workers' incomes and hence demand, while falling prices

increase the real burden of debt and encourage postponement of spending. Keynes therefore inverted Say's Law: in a monetary economy, demand creates its own supply, because output and employment expand only up to the point where entrepreneurs expect demand to justify them — the principle of effective demand examined in Question 5. Nevertheless, classical ideas retain value: in the long run, supply capacity, productivity and price flexibility do govern prosperity, and the classical warning that governments cannot spend without limit without inflation reasserted itself in the 1970s and in modern growth theory.

## Conclusion

To conclude, the classical macroeconomic model rests on perfect competition, flexible prices and wages, laissez-faire, neutral money, an interest rate that equates saving and investment, and supply-determined output. On these foundations Say's Law — supply creates its own demand — implies that general overproduction is impossible, that full employment is the economy's automatic resting point, that unemployment must be frictional, voluntary or caused by rigidities, and that government demand management is unnecessary. The model is internally consistent and remains a benchmark for long-run, supply-side analysis; but its assumptions — above all the veil theory of money and perfectly flexible wages — proved too fragile for the monetary, uncertain short run, and Keynes's alternative, built on effective demand, replaced it as the working theory of employment.

## Question 5: Keynes's Theory of Employment and the Principle of Effective Demand (20 Marks)

*Explain Keynes' theory of employment. How does effective demand determine the level of income and employment in an economy?*

### Introduction

John Maynard Keynes published The General Theory of Employment, Interest and Money in 1936, in the middle of the Great Depression, with the deliberate aim of replacing the classical theory examined in Question 4. Where the classics held that a market economy automatically tends to full employment, Keynes argued that it can settle — and stay — at an equilibrium with large-scale involuntary unemployment, because the level of employment is determined not by wage bargaining in the labour market but by the total effective demand for goods and services. If entrepreneurs expect to sell only a limited amount, they will employ only the workers needed to produce that amount, however many more are willing to work at the going wage. This answer explains Keynes's theory of employment, sets out the principle of effective demand with its two component functions, the aggregate demand price and the aggregate supply price, and shows step by step how effective demand determines the level of income and employment — and how it can be raised.

### Keynes's Theory of Employment: The Basic Idea

Keynes begins from a short-period framework: the stock of capital, technology, the size and skill of the labour force and the organisation of industry are taken as given. In the short period, therefore, total output can change only by changing the amount of labour employed with the

given equipment, and output and employment move together. Entrepreneurs, who decide how much to produce, base their decisions on expected proceeds — the sales revenue they expect to receive. They will expand production and hire more workers only if they expect the extra output to sell at a profit. Employment is thus demand-determined: it depends on the spending that entrepreneurs expect, and expected spending depends in turn on households' consumption and firms' investment. Unlike the classical chain, which runs from wages to employment, Keynes's chain runs: effective demand determines output; output determines employment; employment generates income; and income, through the propensity to consume, feeds back into demand. The economy's resting point is where expected proceeds just justify the current level of production, and there is no mechanism in that resting point guaranteeing that it coincides with full employment.

## Aggregate Demand Price and Aggregate Supply Price

Keynes formalised the principle with two schedules defined for every possible level of employment. The aggregate supply price (Z) is the total proceeds — costs plus the minimum profit — that entrepreneurs must expect to receive from selling the output produced by a given number of workers, if it is to be just worth employing that number. As employment rises, the aggregate supply price rises, because more output costs more to produce. The aggregate demand price (D) is the total proceeds that entrepreneurs do expect to receive from the output of employing a given number of workers — in other words, the total spending, consumption plus investment, that they anticipate at that level of employment. As employment and income rise, expected demand also rises, but by less than income, because households consume only a fraction of each increase in income — Keynes's fundamental psychological law, developed in

Assignment 2 — so the aggregate demand schedule rises more slowly than the aggregate supply schedule.

Effective demand is the value of the aggregate demand price at the point where the aggregate demand schedule intersects the aggregate supply schedule — where what entrepreneurs expect to receive exactly equals what they must receive to make that level of employment worthwhile. That intersection fixes the actual level of employment and, through the production function, the level of output and national income. If at some level of employment expected demand exceeded the required supply price, entrepreneurs would compete for more workers and expand output, because production would be more profitable than expected. If expected demand fell short of the supply price, entrepreneurs would make losses, cut production and lay workers off. Only at the intersection is there neither pressure to expand nor pressure to contract: the economy is in equilibrium — but it is an equilibrium of a very different kind from the classical one, because nothing in the argument requires the intersection to occur at full employment. If the aggregate demand schedule lies low — because consumption is weak or investment is discouraged by pessimistic expectations — the intersection occurs early, and the remaining workers, though willing to work at the current wage, are not hired. This is involuntary unemployment in Keynes's precise sense, and its existence refutes the classical claim that unemployment must be voluntary or frictional.

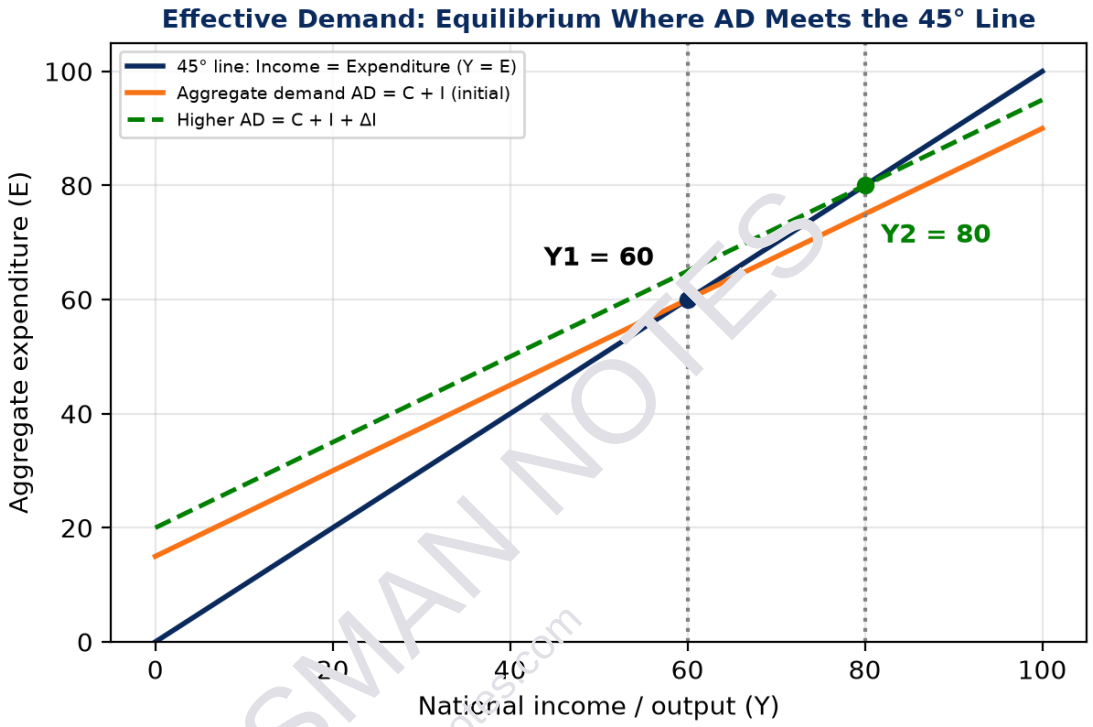



*Figure 1: Effective demand — equilibrium income where aggregate expenditure meets the 45° line. A rise in investment shifts AD upward and raises equilibrium income from Y1 to Y2.*

## The Components of Effective Demand: Consumption and Investment

In the income-expenditure presentation of the same theory, total demand at each level of income is the sum of consumption demand (C) and investment demand (I), to which government spending and net exports are added in the fuller model. Consumption is the larger and more stable component. It depends chiefly on current income, following the consumption function C = a + bY, where a is autonomous consumption — spending that continues even at zero income, financed from savings or borrowing — and b is the marginal propensity to consume, the fraction of each extra rupee of income that is spent. Because b is positive but less than one, consumption rises with income but leaves a widening gap as income grows: at high

incomes, households would not, by themselves, spend enough to buy a full-employment output. That gap must be filled by investment if full employment is to be reached and maintained.

Investment — spending on new capital goods — is therefore the strategic, decisive component, but also the volatile one. Keynes explained investment by the marginal efficiency of capital, the expected rate of return on a new asset over its life, compared with the rate of interest at which funds can be borrowed. Investment proceeds up to the point where the two are equal. The expected return, however, rests on long-term expectations about future demand, costs and confidence — what Keynes called the animal spirits of entrepreneurs. These expectations are inherently unstable: a wave of optimism can lift investment sharply, and a collapse of confidence can cut it suddenly, whatever the interest rate. Since investment is also multiplied in its effect on income — each round of investment spending becomes income that is partly re-spent — its fluctuations are amplified into booms and slumps. This is why Keynes's theory is simultaneously a theory of employment and a theory of the trade cycle: the level of effective demand, and with it employment, rises and falls mainly with investment.

## How Effective Demand Determines Income and Employment: Step by Step

The determination of income and employment can now be stated as a sequence. (1) Given expectations, the consumption function and investment demand together define total planned expenditure at each possible level of income. (2) Entrepreneurs collectively produce the output whose expected sale proceeds make production worthwhile; actual output adjusts toward the level at which planned expenditure equals the value of output — the intersection of the

aggregate demand and aggregate supply schedules, equivalently the crossing of the expenditure line with the 45° line in Figure 1. (3) That output, produced with given capital and technique, requires a definite number of workers; hence employment is determined as a consequence of output. (4) The income generated by producing that output validates, or fails to validate, the original expectations: if spending turns out as expected, the same output and employment repeat next period. (5) Any change in a component of demand — an investment boom, an export surge, a tax cut raising consumption, or a collapse of confidence — shifts total expenditure, and income and employment move to a new equilibrium, by more than the initial change because of the multiplier: a rise in investment of Rs 10 billion with a marginal propensity to consume of 0.8 ultimately raises income by Rs 50 billion, since the multiplier is 1/(1 − 0.8) = 5. In the diagram, the upward shift of the AD line moves equilibrium income from Y1 to the higher Y2.

Two features of this process deserve emphasis. First, saving and investment are brought into equality not by the interest rate, as the classics supposed, but by movements of income itself: if people try to save more than firms invest, spending falls, income falls, and saving shrinks until it equals investment — at a lower income and with fewer jobs, the paradox of thrift. Second, wage cuts are not a reliable remedy for unemployment in this theory. A general wage cut reduces costs, but it also reduces the incomes of workers, who are the main consumers; aggregate demand may fall rather than rise, prices fall with costs, real wages change little, and the increased real burden of debts and the expectation of further price falls can deepen the slump. Employment is recovered by raising demand, not by cheapening labour.

## Policy Implications and Criticism

The policy conclusion follows directly: if private effective demand settles below the full-employment level, the state can and should raise it — by increasing public investment and government spending, by cutting taxes to lift consumption, by lowering interest rates to encourage investment, and by supporting exports — until the aggregate demand schedule intersects aggregate supply at full employment. This was the theoretical charter for the demand-management policies adopted across the world after 1945, and for the counter-cyclical spending governments, including Pakistan's, still undertake in recessions. The theory also has limits that a balanced answer should note. It is a short-period theory that takes productive capacity as given; it says less about long-run growth, supply bottlenecks and inflation, and in economies where unemployment coexists with scarce capital, foreign-exchange shortages and supply rigidities — as in many developing countries — raising demand may produce inflation before it produces full employment, so demand policy must be combined with supply-side measures. Keynes's assumption of stable consumption behaviour and his treatment of expectations have also been refined by later theories. None of this removes the theory's central and permanent contribution: demonstrating rigorously that employment is determined by effective demand and that equilibrium without full employment is possible.

## Conclusion

To conclude, Keynes's theory makes the level of employment depend on effective demand — the point where the aggregate demand price entrepreneurs expect equals the aggregate supply price they require. Because consumption rises less than income and investment is governed by unstable expectations weighed against the interest rate, effective demand may intersect

aggregate supply well short of full employment, leaving involuntary unemployment in equilibrium. Changes in consumption, investment, government spending or net exports shift effective demand and move income and employment, magnified by the multiplier. The theory thereby reversed the classical order of causation — demand creates its own supply in the short run — and provided both the explanation of mass unemployment and the case for deliberate public action to cure it.

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