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ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

Course: Public Finance and Fiscal Policy (808)

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Assignment No. 2 (Units 6–9)

Total Marks: 100 Pass Marks: 40

SOLVED ASSIGNMENT GUIDE

(For Study & Reference)

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Note: This guide is prepared for study and reference purposes only. Students are advised to read the relevant units of the course book carefully and to write their assignments in their own words. Copying this guide word for word is discouraged; use it to understand the concepts, the structure of a good answer and the way arguments are developed, and then prepare your own original assignment.

Question 1: Formula Flexibility Policy (20 Marks)

Question as printed: Discuss the formula flexibility policy in detail. (20)

Introduction

Fiscal policy can fight a recession or a boom in two broad ways: by waiting for the government of the day to notice the problem, debate a remedy and legislate it — discretionary policy — or

by building the remedy into the fiscal system in advance so that it operates automatically. Formula flexibility belongs to the second family, but with a distinctive twist. Under formula flexibility, the changes in tax rates or in government expenditure that are to occur at each stage of the business cycle are decided upon in advance and written into a formula, and the executive is authorised to apply them as soon as objective indicators show that the economy has reached the stage specified in the formula. The idea was developed in the post-war discussion of built-in stabilisers, notably in the work connected with the United States Committee for Economic Development, as an answer to the long and variable lags that had made purely discretionary counter-cyclical policy unreliable. This answer explains the problem formula flexibility was designed to solve, describes how the policy works, illustrates the design of a formula, and weighs its merits and limitations against pure discretion and against ordinary built-in flexibility.

The Problem: Lags in Discretionary Fiscal Policy

Discretionary fiscal action suffers from three lags. The recognition lag is the time taken for statistics to reveal that the economy has turned; national income data arrive late and are revised. The decision or legislative lag is usually the longest: a change in tax rates or a new spending programme must be drafted, debated and passed, often amid political disagreement between parties that read the same figures differently. The execution or impact lag follows, while the approved measures are put into effect and multiply through the economy. Together the lags may stretch from several months to well over a year. A remedy designed for a recession may therefore take effect only after recovery has begun, so that it pours demand into an already expanding economy and worsens the inflation it was never aimed at; symmetrically, anti-inflation measures passed slowly may bite only after the boom has broken. The history of

stop–go policies in many countries illustrates the danger: fiscal policy applied at the wrong time is not merely useless but destabilising. Formula flexibility attacks the decision lag directly, by taking the decision once, in advance, in calm conditions, and delegating only its execution.

How Formula Flexibility Works

The mechanics of the policy can be set out in steps. First, the legislature, advised by economists, agrees on a set of counter-cyclical fiscal responses graded by the severity of the situation: for example, a modest income-tax surcharge or rebate for a mild downturn, a larger one plus accelerated public works for a serious recession, and the withdrawal of these stimuli, or their reversal into restraint, when expansion threatens inflation. Second, these responses are tied by formula to an objective, promptly available indicator of economic conditions — most commonly the rate of unemployment, or a measured gap between actual and potential national income — so that the trigger is a statistic, not an opinion. Third, the executive (the finance ministry or president, depending on the constitution) is authorised to put the prescribed step into force when the indicator crosses the prescribed threshold, without fresh legislation. Fourth, the steps are reversed automatically as the indicator improves, so stimulus is withdrawn by the same rule that created it. The policy is thus flexible — the fiscal stance changes with the cycle — but the flexibility follows a pre-announced formula rather than fresh political judgement.

Design of a Formula: An Illustration

Table 1 illustrates a simple formula of the kind discussed in the textbook literature, keyed to the unemployment rate. Its essential features are worth noting: the steps are graduated, so the

response is proportionate to the problem; they are symmetrical in intention, tightening in a boom as well as loosening in a slump, although in practice legislatures are readier to enact the expansionary half; and they rely mainly on tax changes, because tax rates can be varied quickly and reversibly, whereas public works take time to design and cannot be switched off mid-project without waste. A formula may also specify timing safeguards — for instance, that a step operates only if the indicator stays beyond the threshold for two consecutive quarters — to avoid reacting to statistical noise. Some proposals added a further safeguard: the executive's action lapses unless ratified by the legislature within a fixed period, preserving democratic control while still gaining speed.

Table 1: An illustrative formula flexibility schedule keyed to unemployment

Indicator (unemployment rate)	Prescribed automatic action	Direction
Below 4 per cent and falling, with rising prices	Temporary surcharge on income tax; postpone new public works starts	Restraint
4–5 per cent, stable	No change; normal budget settings continue	Neutral
5–6 per cent for two quarters	Income tax rebate / rate reduction of a stated percentage; release shelf of approved public works	Mild stimulus
Above 6 per cent and rising	Larger tax reduction plus accelerated expenditure on approved projects	Strong stimulus
Falling back below 5 per cent	Steps withdrawn in reverse order by the same rule	Withdrawal

Merits of Formula Flexibility

The policy has real advantages. (1) Speed: by eliminating the legislative lag, the fiscal response can begin within weeks of the trigger being reached, while the downturn is still developing. (2)

Predictability and confidence: households and firms know in advance what the government will do at each stage, which steadies expectations and may itself dampen the cycle, since part of cyclical instability comes from waves of pessimism. (3) Depoliticisation of timing: the decision to stimulate is no longer a fresh partisan battle each time, and the temptation to time tax cuts for elections rather than for the cycle is reduced — though not eliminated, since politicians still write the formula. (4) Automatic reversal: because withdrawal is also formula-bound, the policy answers the common criticism of counter-cyclical spending, that emergency programmes never end; here the rule itself switches them off. (5) It preserves a role for judgement where judgement is best exercised — in the design of the formula, debated at leisure — while removing it from where it is worst exercised, in hurried mid-crisis legislation.

Limitations and Criticisms

Against these merits stand serious difficulties, which explain why no country has adopted the pure scheme. (1) Forecasting and indicator problems: a formula is only as good as its trigger; unemployment lags the cycle, statistics are revised, and a structural rise in unemployment (from, say, an energy shock) looks identical in the figures to a cyclical rise, yet demands the opposite fiscal response — stimulus applied to a supply shock feeds inflation. (2) Rigidity: no formula drafted today can foresee all future combinations of inflation, recession, external shocks and financial crisis; a rule that fits the last cycle may misfit the next, and amending the formula reintroduces the legislative lag it was meant to abolish. (3) Constitutional and democratic objections: taxation is the core power of the legislature, and delegating rate changes to the executive, even within limits, raises genuine questions of accountability. (4) Asymmetry: formulas are politically easier to trigger downward (tax cuts in slumps) than

upward (tax increases in booms), so the scheme can degenerate into a ratchet of deficits. (5) Interaction with monetary policy and debt: automatic tax changes alter borrowing requirements and may conflict with the central bank's stance unless the two are coordinated. For these reasons practice has settled on a middle position: strong built-in stabilisers (progressive taxes and unemployment benefits that move automatically), standing executive powers of limited scope, and expedited legislative procedures, rather than a complete formula — but formula flexibility remains the clearest statement of the principle that the timing of fiscal action should be decided before the emergency, not during it.

Formula Flexibility, Built-in Flexibility and Discretion Compared

It helps to place the three approaches side by side. Built-in (automatic) flexibility needs no decision at all: tax receipts fall and benefit payments rise automatically in a slump because the law already links them to incomes; its weakness is that its strength is fixed by the size of government and the progressivity of the tax system and cannot be adjusted to the severity of the shock. Discretionary policy is fully adjustable but slow and politically exposed. Formula flexibility stands between them: like discretion, its strength is chosen deliberately and can be graded; like built-in flexibility, it operates without fresh decisions once triggered. Its proper interpretation is therefore not as a replacement for the other two but as a bridge — a way of pre-committing discretion so that it behaves with the speed of an automatic stabiliser. Modern devices such as pre-legislated tax rebate triggers, rainy-day budget rules and automatic benefit extensions embody exactly this bridge principle, even where the grand name of formula flexibility is not used.

Conclusion

To conclude, formula flexibility is the policy of deciding counter-cyclical tax and expenditure changes in advance, tying them by formula to objective indicators, and authorising the executive to apply and withdraw them automatically as the indicators move. It directly answers the most damaging weakness of discretionary fiscal policy — the legislative lag — and adds predictability, proportionate response and automatic reversal. Its weaknesses are equally real: dependence on imperfect indicators, rigidity in the face of unforeseen shocks, democratic objections to delegating tax power, and a tendency to operate asymmetrically. The balanced judgement is that the pure scheme is impractical, but its central insight — pre-commitment to a graded, trigger-based fiscal response — has permanently influenced how stabilisation policy is designed.

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Question 2: Fiscal Policy and Its Effect on the Work Effort of Individuals (20 Marks)

Question as printed: What is fiscal policy? How does fiscal policy affect the work effort of individuals? (20)

Introduction

Fiscal policy is the deliberate use of government expenditure, taxation and borrowing to influence the level and composition of economic activity. Among its many effects, one of the most debated is its influence on how hard and how long individuals choose to work. Taxes drive a wedge between what an employer pays and what a worker keeps; transfers and public

services change the income a person enjoys without working; and both therefore alter the terms of the fundamental choice every individual makes between earning income and enjoying leisure. Whether higher taxation reduces work effort, leaves it unchanged, or even increases it turns out to depend on two opposing forces — the substitution effect and the income effect — whose balance differs across persons and circumstances. This answer defines fiscal policy and its instruments and objectives, explains the theoretical analysis of work effort through the income and substitution effects, and then discusses the channels through which expenditure, transfers and the structure of taxation affect effort in practice, including the special case of very high and very low incomes.

What Is Fiscal Policy?

Fiscal policy is the use of the budget — public expenditure, taxation, subsidies, transfers and public borrowing — to achieve economic objectives that the market unaided would not secure. Following Musgrave's classification, its objectives fall into three branches. The allocation branch uses expenditure and taxation to provide public goods, correct externalities and influence the composition of output. The distribution branch uses progressive taxation, transfers and social services to modify the pattern of income and wealth that the market generates. The stabilisation branch varies the overall budget balance — deficits in slumps, surpluses in booms — to maintain high employment and stable prices. Its instruments are correspondingly varied: rates and bases of direct and indirect taxes; current and capital expenditure; transfer payments such as pensions and income support; subsidies to particular activities; and the size of the fiscal deficit and the way it is financed. Fiscal policy operates alongside monetary policy and, unlike it,

can be aimed selectively at particular groups, regions and purposes — which is precisely why its incentive effects, including on work effort, require careful study.

The Framework: The Choice Between Work and Leisure

The economic analysis begins from the fact that an individual divides his time between paid work, which yields income for consumption, and leisure, which yields direct satisfaction. He works up to the point where the satisfaction from the last rupee earned equals the satisfaction sacrificed from the leisure given up. Anything that changes either the reward to working or the income he has independently of the last hour worked will shift this balance. A tax on earnings changes both at once: it lowers the net wage, making leisure cheaper in terms of forgone consumption, and it makes the worker poorer, which by itself pushes him to work more to defend his standard of living. These are the substitution and income effects, and rigorous analysis of fiscal policy and work effort consists of tracing them tax by tax and person by person.

The Substitution Effect: Taxation Discourages Effort at the Margin

The substitution effect arises because a tax on wages reduces the price of leisure. Before tax, an hour of leisure costs the worker his gross wage — the consumption he gives up by not working that hour. After an income tax at, say, 30 per cent, an hour of leisure costs only 70 per cent of the gross wage, because the hour of work would have yielded only the after-tax wage anyway. Leisure has become relatively cheaper compared with consumption goods, so the individual substitutes towards leisure and away from work: he offers fewer hours, declines overtime, retires earlier, or chooses a less demanding occupation. The substitution effect therefore

always works against work effort when earnings are taxed, and it is governed by the marginal tax rate — the rate on the next rupee earned — not by the average rate. This is why economists worry about high marginal rates even where average burdens look moderate, and why benefit withdrawal can be so damaging: a person whose income support is withdrawn rupee-for-rupee as earnings rise faces an effective marginal tax rate near 100 per cent, the so-called poverty trap or unemployment trap, in which extra work brings almost no extra income and the substitution effect operates at maximum strength.

The Income Effect: Taxation Can Also Compel More Work

The income effect works in the opposite direction. A tax takes away part of the individual's income, leaving him poorer at every level of hours worked. If leisure is a normal good — something people consume more of as they grow richer — then being made poorer reduces the amount of leisure he can afford, and he works more hours to restore his consumption: the family breadwinner takes a second job, works the overtime he would rather refuse, or postpones retirement. A lump-sum tax has only this income effect, which is why it is the textbook example of a non-distorting tax. For a tax on earnings the two effects coexist: substitution pulls towards less work, income towards more work, and the net result is theoretically ambiguous. In practice the balance appears to differ by group: for prime-age men, whose participation is nearly universal, studies typically find small net effects, the two forces roughly cancelling; for married women, young people and older workers near retirement — groups with a genuine choice about whether and how much to work — the substitution effect tends to dominate, so higher marginal tax rates measurably reduce their labour supply.

Backward-bending labour supply at very high incomes, where the income effect overwhelms substitution, remains a theoretical possibility much discussed, though the evidence for it is thin.

Expenditure, Transfers and Other Fiscal Channels

Taxation is only half of fiscal policy; the expenditure side also moves work effort. (1) Unconditional transfers and generous out-of-work benefits raise income independent of work, producing a pure income effect that reduces the need to work; this is deliberate where society wishes to protect the sick, the elderly and carers, but it is why benefit design uses waiting periods, job-search conditions and gradual tapers. (2) In-work benefits and earned-income tax credits do the reverse for the participation decision: by topping up low earnings they make work pay relative to non-work, increasing labour supply at the extensive margin, even though the phase-out range adds to marginal rates for those already working. (3) Public services substitute for private earnings needs in some respects (free health care reduces the need to earn to buy insurance) while complementing work in others (childcare provision and transport infrastructure enable parents, especially mothers, to work at all). (4) Taxes on consumption rather than income change the calculation subtly: they reduce the purchasing power of wages without formally taxing earnings, generating similar but often smaller incentive effects, and they spare saving. (5) Finally, expectations matter: if workers believe today's taxes finance tomorrow's pensions that they will themselves receive, the perceived burden — and the disincentive — is smaller than the statutory rate suggests, which is one defence of contributory social insurance.

Implications for Policy Design

The analysis yields clear design lessons. Keep effective marginal tax rates moderate and, above all, avoid ranges in which taxes and benefit withdrawal combine to confiscate nearly all of an additional rupee, since that is where effort, participation and honest declaration collapse. Prefer broad bases with lower rates to narrow bases with high rates, because the substitution effect grows with the rate while revenue can be preserved by breadth. Distinguish participation incentives (governed by the comparison between income in and out of work) from hours incentives (governed by marginal rates), and design transfers to protect the first even where the second must be traded off. And remember the income effect's lesson: moderate taxes financing valued services do not automatically shrink the labour force, and sweeping claims that any tax rise destroys effort are as unfounded as claims that taxes never matter. The empirical consensus — modest disincentives for most workers, significant ones where marginal rates are extreme or participation is marginal — is exactly what the two-effect theory predicts.

Conclusion

To conclude, fiscal policy is the government's use of expenditure, taxation and borrowing for allocation, distribution and stabilisation. Its effect on work effort runs through the choice between income and leisure: taxation of earnings creates a substitution effect that discourages work by cheapening leisure, and an income effect that can encourage work by making the taxpayer poorer, with the net outcome depending on marginal rates, the taxpayer's circumstances and the offsetting influence of transfers and public services. Sound fiscal design therefore concentrates on keeping effective marginal rates reasonable, removing poverty traps,

and using in-work support to make employment pay — harnessing fiscal policy's necessary revenue and welfare functions at the smallest possible cost to the willingness to work.

Question 3: Marginal Cost Pricing (20 Marks)

Question as printed: Explain the concept of marginal cost pricing in detail. (20)

Introduction

When the state provides a good or service through a public enterprise — electricity, water, railways, posts — it must decide what price to charge, and that decision is not merely financial: the price determines how much of the service society consumes, and therefore whether resources are allocated efficiently. Marginal cost pricing is the rule that price should equal the marginal cost of producing the last unit supplied. Proposed formally by Harold Hotelling in 1938 and developed by economists such as Lerner and Meade, it is the pricing rule that reproduces, inside a public enterprise, the efficiency condition that perfect competition achieves automatically. The rule is straightforward for industries with constant or rising costs, but it raises a famous difficulty where costs fall as output expands — the natural monopoly case — because there marginal cost lies below average cost and pricing at marginal cost produces a deficit. This answer states the concept and its efficiency rationale, works through the decreasing-cost case with a numerical example and diagram, examines the financing of the resulting deficit, and reviews the main modifications and criticisms — peak-load pricing, two-part tariffs and second-best pricing — that practice has developed.

The Concept and Its Efficiency Rationale

Price measures what a consumer is willing to pay for one more unit, that is, the marginal benefit the unit yields; marginal cost measures the value of the resources consumed in making that unit. If price exceeds marginal cost, consumers are denied units whose benefit to them exceeds the cost of the resources they use — output is too small and resources are under-allocated to the service. If price is below marginal cost, units are consumed whose benefit is less than their resource cost — output is too large. Only when price equals marginal cost is output exactly right: every unit worth more than it costs is produced, and no unit worth less than it costs is produced. In competitive markets this equality is enforced by profit maximisation, since each firm expands until marginal cost equals the market price. A public enterprise, however, can set any price it likes, including zero; marginal cost pricing is the instruction to set deliberately the price that competition would have produced. Two corollaries follow. A zero price (free provision) is efficient only when marginal cost is genuinely zero, as for an uncongested bridge or an additional viewer of a broadcast; otherwise free provision invites wasteful over-use. And where public provision replaces a private monopolist who would price above marginal cost, marginal cost pricing removes the monopolist's restriction of output and its associated deadweight loss.

The Decreasing-Cost Problem and the Deficit

Many public utilities — railways, electricity distribution, water supply — have heavy fixed costs and falling average costs over the relevant range of output: the more they produce, the cheaper each unit becomes, and marginal cost lies below average cost throughout. Figure 1 illustrates the standard case using the constructed cost and demand schedules of our worked

example, in which demand meets marginal cost at an output of 75 units and a price of Rs 33.75, while the average cost at that output is Rs 49.00. Pricing by the rule therefore means selling every unit at Rs 33.75 when it costs on average Rs 49.00 to supply: the enterprise loses Rs 15.25 on each unit, a total deficit of Rs 15.25 × 75 = Rs 1,143.75. This is not an accounting accident but the arithmetic of declining costs: total revenue at a price equal to marginal cost necessarily falls short of total cost whenever marginal cost is below average cost. The rule thus splits the pricing decision from the financing decision — a feature its supporters present as its chief virtue, since it forces society to decide openly how the unavoidable subsidy is to be raised, instead of hiding the subsidy inside an inefficiently high price.

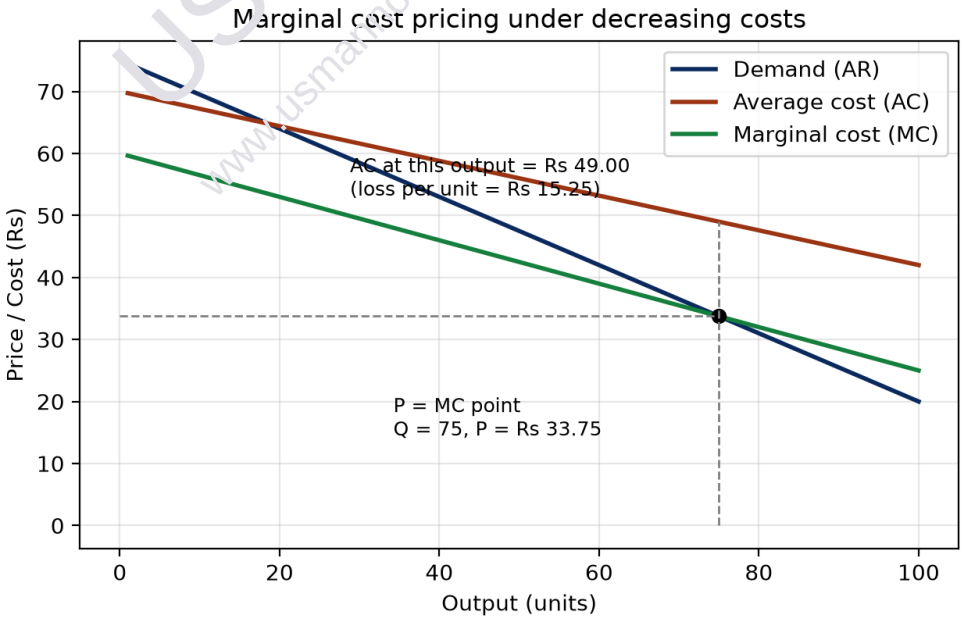


Figure 1: Marginal cost pricing under decreasing costs. Price is set where demand meets marginal cost; average cost there is higher, so a per-unit deficit arises.

Financing the Deficit

Hotelling's own answer was that the deficit should be met from general taxation, ideally from taxes that do not themselves distort choices — in his argument, taxes on land values and inheritances approximated this ideal. The reasoning is that the benefit of efficient pricing — the consumer surplus gained by expanding output to the point where price equals marginal cost — exceeds the loss, so society as a whole gains even after the subsidy is paid. The objection, pressed by Coase and others, is that real taxes are not lump-sum: raising Rs 1,143.75 through an income or sales tax creates its own deadweight loss, so the full comparison is between the efficiency gain from correct pricing in this market and the efficiency loss from distortionary taxation elsewhere. Where taxation is very costly, a price somewhat above marginal cost may be the better second-best outcome. A practical compromise widely adopted is to cover fixed costs from the subsidy or from fixed charges while keeping the usage price at marginal cost, which leads directly to the two-part tariff discussed below. What is not defensible is the once-common practice of covering the deficit by pricing far above marginal cost on captive consumers — for example, overcharging industrial electricity users to subsidise households — since that simply exports inefficiency to another market.

Modifications: Two-Part Tariffs, Peak-Load Pricing and Second-Best Rules

Practice has refined the rule in three main directions. (1) Two-part tariffs charge a fixed access fee plus a per-unit price equal to marginal cost: the telephone or electricity connection charge recovers fixed costs while each unit consumed is priced at its true resource cost, preserving efficient consumption decisions. The difficulty is equity and exclusion: a high fixed fee may drive poor or small consumers off the network altogether, which is itself inefficient when the

marginal cost of serving them is low. (2) Peak-load pricing recognises that marginal cost varies with time: electricity at the evening peak, when the last and most expensive generators run and capacity is strained, has a far higher marginal cost than off-peak power, and congestion on roads and railways follows the same pattern. Efficient prices therefore vary by period — high at the peak, low off-peak — which both rations scarce capacity and guides investment, since persistent peak revenue signals where capacity should expand. (3) Second-best (Ramsey) pricing applies when a regulated enterprise must break even without subsidy: prices are marked up above marginal cost in inverse proportion to the elasticity of demand for each product or consumer group, so the necessary revenue is raised with the least total reduction in consumption. Ramsey pricing sacrifices the pure rule deliberately and measurably, and comparing its markups with the pure marginal cost benchmark shows exactly what the break-even constraint costs. Multi-part and declining-block tariffs in real utility practice are mixtures of these devices.

Criticisms and Practical Difficulties

Several criticisms must be weighed. (1) Measurement: marginal cost in a real utility is not a single obvious number; it varies with time, place, load and the treatment of joint and common costs, and accountants' average-cost figures are far easier to obtain than economists' marginal costs — though modern metering has narrowed this gap. (2) Dynamic effects: a price fixed at today's marginal cost gives the enterprise no internal surplus for investment, making expansion dependent on budgetary grants and political favour. (3) Incentives: if deficits are automatically covered from the treasury, managers face a soft budget constraint and costs themselves may drift upward, destroying the very efficiency the rule seeks; cost discipline must therefore

accompany the pricing rule. (4) Distributional effects: marginal cost prices for necessities such as water benefit heavy users in absolute terms, and if the deficit is financed by taxes falling on the poor, the net incidence may be regressive — pricing policy cannot be separated from the tax system that finances it. (5) Second-best complications: where related markets remain monopolised or taxed, pricing at marginal cost in one market alone does not guarantee an overall improvement, a general warning of the theory of the second best. None of these points overturns the benchmark status of the rule; they define the adjustments a competent regulator must make around it.

Conclusion

In conclusion, marginal cost pricing sets price equal to the marginal cost of the last unit, thereby equating the marginal benefit of consumption with the marginal resource cost of production and securing the efficient level of output from a public enterprise. Its celebrated difficulty — the deficit that arises under decreasing costs, Rs 1,143.75 in our worked example — is a financing problem to be solved openly through general taxation, fixed charges or carefully designed second-best markups, not a reason to abandon efficient prices. Refined by two-part tariffs, peak-load pricing and Ramsey rules, and guarded by cost discipline, marginal cost pricing remains the central benchmark of public utility pricing theory and practice.

Question 4: The Ideal Social Security System and Social Security Programmes in Pakistan (20 Marks)

Question as printed: What is meant by an ideal social security system? What are some major social security programmes in Pakistan? (20)

Introduction

Social security is the protection that society provides to its members against the economic risks that can destroy a family's livelihood: sickness, injury at work, maternity, unemployment, old age, disability and the death of the breadwinner. The International Labour Organization treats it as a basic human right, and Article 38 of the Constitution of Pakistan commits the state to providing basic necessities and social security to its citizens. Yet systems differ enormously in whom they cover, what they promise and how they are paid for, which raises the natural question of what an ideal system would look like. This answer first sets out the features of an ideal social security system — comprehensive coverage, adequacy, compulsory contributory financing with solidarity, sound administration and sustainability — and the principles behind them. It then surveys the major social security programmes actually operating in Pakistan, from the Employees' Old-Age Benefits Institution and provincial employees' social security institutions to the Benazir Income Support Programme, Zakat, Pakistan Bait-ul-Mal and health protection schemes, and closes by measuring the Pakistani reality against the ideal.

What an Ideal Social Security System Means

An ideal social security system is one that guarantees every member of society a minimum standard of living whenever earning capacity is interrupted or lost, without bankrupting the

economy that finances it or destroying the incentive to work and save. It is "ideal" not in the sense of unlimited generosity but in the sense of complete, well-designed protection: the right risks covered, for the whole population, at adequate levels, through institutions that are honest, simple and financially durable. No real country achieves the ideal in full — systems such as those of Scandinavia come closest — but the ideal serves as the standard against which actual systems, including Pakistan's, can be judged and reformed. Its features can be grouped under coverage, benefits, financing, administration and balance with incentives.

Features of the Ideal System

First, comprehensive coverage of risks: the system protects against the full standard list recognised in ILO Convention No. 102 — medical care, sickness benefit, unemployment benefit, old-age benefit, employment injury benefit, family benefit, maternity benefit, invalidity benefit and survivors' benefit — so that no common life risk leaves a family unprotected. Second, universality or near-universality of persons: protection extends beyond formal-sector employees to agricultural workers, the self-employed and informal workers, because need does not follow the boundary of the organised sector. Third, adequacy of benefits: payments are high enough to maintain a decent minimum — pensions related to previous earnings with a guaranteed floor — and are indexed to prices or wages so inflation does not silently confiscate them. Fourth, compulsory participation and risk pooling: membership is mandatory, so that the young and healthy cannot opt out and leave only high risks in the pool (the adverse selection that destroys voluntary insurance), and contributions are pooled so that the fortunate finance the unfortunate — the principle of solidarity. Fifth, sound and sustainable financing: benefits rest mainly on earmarked contributions from employers, employees and, where needed, the

state, accumulated and invested prudently, with actuarial reviews keeping promises within the economy's capacity across generations. Sixth, efficient, honest and simple administration: a unified or well-coordinated structure, low administrative cost, prompt payment, clear rules, protection against corruption, and legal rights of appeal for beneficiaries. Seventh, preservation of incentives and of the family: benefits replace a fraction, not the whole, of earnings, are linked where appropriate to contribution records and job search, and supplement rather than supplant family and community support. A system with these seven features converts social security from charity into a right, and from a fiscal burden into social infrastructure that also stabilises the economy, since benefits automatically sustain consumption in recessions.

Major Social Security Programmes in Pakistan: Contributory Schemes

Pakistan's system is a patchwork of contributory schemes for the formal sector, tax-financed assistance for the poor, and religiously grounded transfers. The Employees' Old-Age Benefits Institution (EOBI), established in 1976, is the largest contributory scheme: employers and employees in covered establishments contribute a percentage of wages, and insured workers receive an old-age pension, invalidity pension and survivors' pension, with an old-age grant where pension conditions are not met. The provincial Employees' Social Security Institutions — in Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan — provide medical care, cash sickness and maternity benefits, injury and disablement benefits and death grants to secured workers and their dependants, financed by employer contributions. The Workers Welfare Fund, financed by a levy on industrial profits, funds housing, education scholarships and marriage and death grants for industrial workers, while the Workers' Participation Fund distributes a share of company profits to workers. Government servants are covered separately and generously by

the civil service pension system, financed directly from the budget — a reminder that the most complete social security in Pakistan has historically been reserved for state employees.

Major Programmes: Social Assistance and Protection for the Poor

For the much larger population outside formal employment, Pakistan relies on tax- and donation-financed assistance, summarised in Table 1. The Benazir Income Support Programme (BISP), launched in 2008 and now the flagship of the social protection system, pays regular unconditional cash transfers (the Kafaalat component) to millions of poor households, targeted through a national socio-economic registry and proxy means testing, with payments made to women of the household; associated components support children's schooling and nutrition. The Ehsaas framework, introduced in 2019, umbrellaed BISP together with interest-free loans, scholarships, langar and shelter initiatives, and emergency cash assistance of the kind distributed during the COVID-19 crisis. Zakat, collected at source mainly from financial assets at 2.5 per cent and distributed through zakat councils, provides subsistence allowances, medical help and educational support to eligible mustahiqeen, while Pakistan Bait-ul-Mal finances individual medical treatment, education and rehabilitation assistance and runs shelter homes and women's empowerment centres. Health protection has expanded through the Sehat Sahulat Programme, which issues health cards covering hospital treatment for eligible families, an important step towards protection against the medical expenses that are a leading cause of descent into poverty. Micro-pensions, the Khushhali and other microfinance-linked products, and provincial schemes such as labour cards extend fragments of coverage further, but remain small relative to need.

Table 1: Major social security and social protection programmes in Pakistan

Programme	Type / financing	Main benefits	Who is covered
EOBI (1976)	Contributory (employer + employee)	Old-age, invalidity and survivors' pensions	Insured formal-sector workers
Provincial ESSIs	Contributory (employer)	Medical care; sickness, maternity, injury benefits	Secured workers and dependants
Workers Welfare Fund	Levy on industrial profits	Housing, scholarships, marriage and death grants	Industrial workers
Civil service pensions	Budget-financed	Retirement pension and family pension	Government employees
BISP / Kafaalat (2008)	Budget-financed cash transfer	Regular cash support; education and nutrition stipends	Poor households (paid to women)
Zakat system	2.5% levy on specified assets	Subsistence, medical and education assistance	Eligible mustahiqeen
Pakistan Bait-ul-Mal	Budget and donations	Medical, education and rehabilitation assistance	Destitute individuals and families
Sehat Sahulat Programme	Budget-financed insurance	Cashless hospital treatment up to a limit	Eligible low-income families

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Pakistan Measured Against the Ideal

Measured against the ideal features, Pakistan's system has genuine strengths — a large, increasingly well-targeted cash transfer flagship in BISP, a functioning contributory pension institution in EOBI, complete-on-paper provision for government employees and a Zakat tradition that mobilises private solidarity — but equally clear gaps. Coverage is the deepest weakness: with the great majority of workers in informal employment, most Pakistanis reach old age, illness or injury with no contributory protection at all, and there is no general unemployment insurance. Adequacy is limited: EOBI pensions and BISP transfers, though valuable, are modest relative to subsistence needs and have at times lagged inflation. Administration is fragmented among federal, provincial and religious bodies with overlapping

mandates, and registration, record-keeping and portability of benefits between jobs and provinces are weak. Financing faces the demographic arithmetic of all pension systems — a growing retired population supported by a narrow formal tax base — making actuarial reform and gradual extension of coverage to informal workers through subsidised micro-pensions and simplified contribution schemes the central policy challenge. The direction of reform implied by the ideal is therefore clear: unify registries, protect benefit values by indexation, extend contributory coverage downwards into the informal economy, and keep assistance targeted on those whom contributory schemes cannot yet reach.

Conclusion

To conclude, an ideal social security system covers all major life risks for the whole population, pays adequate and inflation-protected benefits, rests on compulsory pooled contributions tempered by solidarity, is honestly and simply administered and sustainably financed, and preserves work incentives. Pakistan operates several major programmes that each embody part of the ideal — EOBI and the provincial social security institutions for contributory protection, civil service pensions, the Workers Welfare Fund, BISP and Ehsaas for poverty-targeted transfers, Zakat and Pakistan Bait-ul-Mal for assistance, and the Sehat Sahulat Programme for health costs. Its central deficiency is not the absence of programmes but incomplete coverage of the informal majority and modest benefit levels. Closing that gap, programme by programme, is what moving from the existing patchwork towards the ideal system concretely means.

Question 5: Fiscal Policy and Economic Growth in the Neoclassical Framework (20 Marks)

Question as printed: Does fiscal policy foster economic growth in the neoclassical framework? (20)

Introduction

Whether government budgets can raise the long-run growth rate of an economy is one of the defining questions of macroeconomic policy, and the neoclassical framework — built on the Solow growth model — gives a famously restrained answer. In that framework the long-run growth rate of output per head is determined by the rate of technological progress, which the model treats as given from outside, while fiscal policy can change the level of the income path, and growth only temporarily during the transition to a new equilibrium. Later developments — above all endogenous growth theory — have challenged that restraint, arguing that taxation and public expenditure shape the very incentives to accumulate knowledge and capital on which growth depends. This answer sets out the neoclassical framework and its verdict precisely: how taxes, government consumption, public investment and deficits affect saving, capital accumulation and the steady state; why permanent growth effects are absent in the strict model; the qualifications introduced by productive public capital, human capital and distortionary taxation; and the balanced conclusion that emerges for policy in developing economies such as Pakistan.

The Neoclassical Framework in Brief

In the Solow model, output is produced from capital and labour with diminishing returns to capital: each additional unit of capital adds less output than the previous one. Saving finances investment, investment adds to the capital stock, and depreciation subtracts from it. The economy converges to a steady state in which investment just covers depreciation and the capital stock per worker is constant; thereafter output per head grows only at the rate of exogenous technological progress. Two implications drive everything that follows. First, a higher saving rate raises the level of income per head permanently but its growth rate only while the economy moves to the higher steady state — growth effects are transitional, level effects are permanent. Second, because of diminishing returns, no accumulation policy, public or private, can sustain growth forever by itself; long-run growth is, in the model's phrase, exogenous. Fiscal policy enters this machinery through four doors: taxes and transfers change private disposable income and hence saving; government consumption absorbs resources that might have been saved; public investment adds directly to the capital stock, including infrastructure capital; and deficit financing competes for the pool of saving and can raise interest rates. Each door must be examined in turn.

Channels Through Which Fiscal Policy Affects the Neoclassical Economy

Government consumption expenditure — salaries, administration, unproductive outlays — reduces the resources available for accumulation: whether financed by taxation, which lowers private disposable income and saving, or by borrowing, which absorbs loanable funds and tends to raise interest rates and crowd out private investment, it lowers the national saving rate and hence the steady-state capital stock and income level. Distortionary taxation adds a second

drag: taxes on capital income reduce the after-tax return to saving and investment, discouraging accumulation at any given interest rate, and taxes on labour income affect labour supply, shrinking the effective workforce — though, as the analysis of debt neutrality associated with Barro reminds us, forward-looking households may partly offset public dissaving by saving more in anticipation of future taxes, the Ricardian equivalence argument that limits, without wholly eliminating, the crowding out from deficits. Public investment works in the opposite direction when it is genuinely productive: roads, power, ports and irrigation raise the productivity of private capital, and in extensions of the neoclassical model in which public capital enters the production function (the Barro model of productive government services is the standard reference), a properly sized public sector raises the level of output and can raise transitional growth for long periods — while an oversized one reverses the gain, because financing it requires distortionary taxes whose drag eventually exceeds the productivity benefit, giving an inverted-U relationship between government size and growth. Transfers and subsidies mainly redistribute purchasing power; their growth effect depends on whether recipients save or consume the proceeds and on the incentive effects discussed in connection with work effort.

The Strict Verdict: Levels Yes, Permanent Growth No

Within the strict framework, then, the answer to the question is: fiscal policy does not foster long-run economic growth as such — it fosters higher income levels, and faster growth for what may be a long transition, but the economy's permanent growth rate remains pinned to technological progress, which fiscal variables do not touch. A numerical intuition makes this concrete. Suppose a fiscal reform — say, replacing an unproductive subsidy with infrastructure

investment and broadening the tax base — raises the national saving and investment rate from 15 to 20 per cent of income. In the Solow arithmetic the steady-state capital stock and output per head rise substantially, and while the economy travels to them, measured growth may run a full percentage point or more above its long-run rate for two or three decades — an entire generation of visibly faster progress, which no policymaker would call unimportant. Yet at the end of the transition growth settles back to the rate of technical progress. Conversely, persistent large deficits that crowd out private investment lower the income level permanently, and a country can spend decades below the path it might have occupied: the framework's warning is about the cost of bad fiscal policy as much as the limits of good fiscal policy. The golden rule completes the picture: there is a saving rate that maximises steady-state consumption, and fiscal policy that pushes accumulation beyond it makes even the long run worse off in consumption terms, so "more investment" is not an unconditional fiscal virtue.

Qualifications: Where the Neoclassical Answer Softens

Three qualifications move the framework closer to real economies without abandoning it. First, public expenditure on education and health accumulates human capital, which behaves partly like physical capital (with diminishing returns, best handled in the augmented Solow model of Mankiw, Romer and Weil) and partly like technology itself; fiscal support to schooling therefore explains a large share of cross-country income differences within an essentially neoclassical account. Second, the transition is long: because capital adjusts slowly, "transitional" growth effects of fiscal reform last decades, so for any practical planning horizon the distinction between level and growth effects is less sharp than the theorem suggests. Third, endogenous growth theory — Romer on knowledge spillovers, Lucas on human capital externalities, Barro

on productive public services — shows that once knowledge and skills are treated as accumulable with non-diminishing social returns, fiscal policy recovers permanent growth effects: subsidies to research and education, patent policy and infrastructure can raise the growth rate itself, while high distortionary taxation can lower it permanently. The neoclassical framework thus survives as the discipline within which these claims are tested — it forces any claim that a fiscal measure "raises growth" to specify whether it raises the level, the transition path or, exceptionally and with evidence, the underlying rate of technical progress. Developing-country experience, including Pakistan's stop–go history of deficit-financed consumption, low public investment efficiency and narrow tax bases, reads consistently with the framework: the costs of crowding out and the gains from shifting expenditure towards productive infrastructure and education appear as level and long-transition effects rather than as changes in a stable underlying growth rate.

Conclusion

To conclude, within the neoclassical framework fiscal policy does not determine the long-run growth rate, which rests on technological progress; but it powerfully determines the level of income, the speed of growth during long transitions, and — through public investment in infrastructure and human capital — the productivity on which everything else depends. Prudent fiscal policy in this framework means financing government consumption without chronic crowding out, taxing with the least distortion, protecting and efficiently executing productive public investment, and treating deficits as a claim on future resources rather than a free source of demand. Endogenous growth research softens the strict verdict by showing how education, research and infrastructure spending can touch the growth rate itself. The balanced

answer to the question is therefore: not permanently, in the strict model — but substantially, for decades at a time, in the world the model is used to advise.

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