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ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

Course: Advanced Macroeconomics (806)

Level: MSc Economics • Credit Hours: 03

Semester: Autumn 2026

Assignment No. 1 (Units 1–5) • Total Marks: 100 • Passing Marks: 40

SOLVED ASSIGNMENT GUIDE

(For Study & Reference)

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

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Question 1: Money and Output in the Classical Supply Case: The IS–LM Analysis (20 Marks)

Discuss with the help of the IS–LM model, why money does not affect output in the classical supply case.

Introduction

One of the oldest questions in macroeconomics is whether money matters for real variables such as output and employment, or whether it only determines nominal variables such as the price level. The classical economists answered that money is a “veil”: in the long run it changes prices, wages and other nominal magnitudes in the same proportion, but leaves real output, employment and the real rate of interest exactly where they were. This proposition is called the neutrality of money, and the division of the economy into a real sector and a monetary sector is known as the classical dichotomy. The IS–LM model is usually associated with Keynesian analysis, but when it is combined with the classical aggregate supply curve — a vertical line at the full-employment level of output — it reproduces the classical result in a very clear diagrammatic form. This answer first recalls the structure of the IS–LM model and of the

classical supply side, and then traces, step by step, what happens when the central bank increases the money supply. The conclusion is that the increase in money raises the price level in the same proportion, the LM curve returns to its original position, and output remains fixed at its full-employment level.

The IS–LM Framework in Brief

The IS curve shows all combinations of the interest rate (r) and income (Y) at which the goods market is in equilibrium, that is, planned saving equals planned investment, or equivalently aggregate demand equals output. It slopes downwards because a lower interest rate stimulates investment and, through the multiplier, raises equilibrium income. Its position depends on fiscal policy and on autonomous spending. The LM curve shows all combinations of r and Y at which the money market is in equilibrium: the demand for real money balances, L = kY − hr, which rises with income and falls with the interest rate, equals the supply of real balances, M/P. The LM curve slopes upwards because higher income raises the transactions demand for money, and with a given money supply the interest rate must rise to keep the speculative demand down. Its position depends on the nominal money supply M and on the price level P: an increase in M, or a fall in P, raises real balances M/P and shifts the LM curve to the right. The intersection of IS and LM gives the level of aggregate demand consistent with simultaneous equilibrium in both markets at a given price level; varying P traces out the aggregate demand (AD) curve.

The Classical Aggregate Supply Curve

The classical supply case rests on three building blocks. First, output is produced with a short-run production function $Y = F(N, \bar{K})$ in which capital is fixed and labour (N) shows diminishing

marginal productivity. Second, firms hire labour up to the point where the real wage equals the marginal product of labour, which gives a downward-sloping demand curve for labour. Third, the supply of labour depends on the real wage, and — crucially — money wages and prices are completely flexible and workers suffer from no money illusion, so the labour market always clears at the full-employment level N_f. Because employment is always N_f, output is always Y_f = F(N_f, K̄), whatever the price level may be. Aggregate supply is therefore a vertical line at Y_f in (P, Y) space. Prices do all the adjusting, quantities are determined entirely by real factors — the capital stock, technology, and the supply of and demand for labour. This vertical AS curve is the supply side that we now combine with the IS–LM apparatus.

A Monetary Expansion: Step-by-Step Adjustment

Suppose the economy starts in equilibrium at point A in Figure 1(a), with output Y_f, interest rate r_1 and price level P_1. The central bank now doubles — or more generally raises — the nominal money supply from M_1 to M_2. At the unchanged price level P_1, real balances M/P increase, so the LM curve shifts to the right, from LM(M/P_1) to LM′. The new temporary intersection with the IS curve is at point B: the interest rate falls and income rises above Y_f, because cheaper credit stimulates investment and consumption. But this point cannot be a genuine equilibrium in the classical supply case, because firms cannot actually produce more than Y_f: employment is already at its full-employment level and the capital stock is fixed. What point B really shows is an excess demand for goods at the existing price level, equal to the horizontal distance between B and the vertical AS line in Figure 1(b).

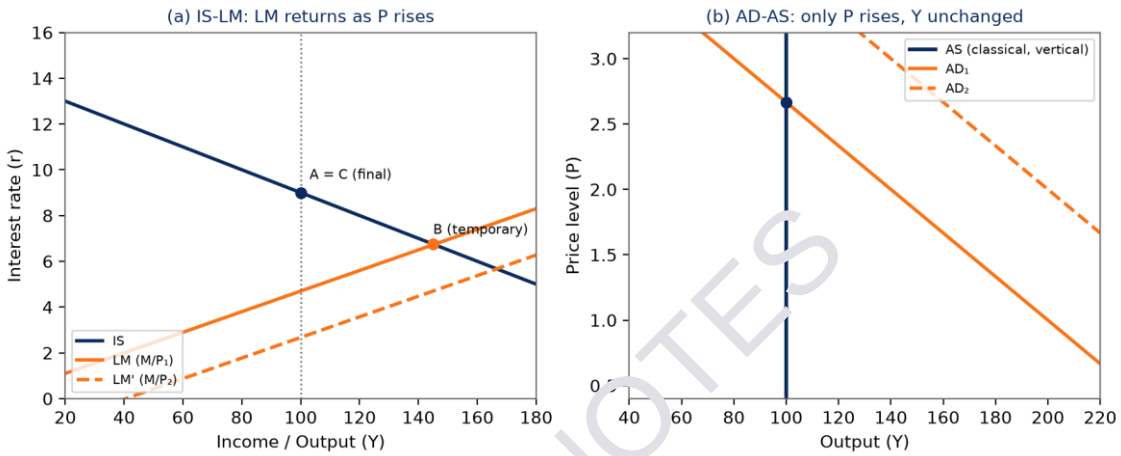


Figure 1: Monetary expansion with classical (vertical) aggregate supply — the LM curve shifts right, but rising prices shift it back; output returns to Y_f and only the price level rises.

Excess demand bids up prices. As P rises, two things happen. First, in (P, Y) space the economy moves upwards along the vertical AS curve: aggregate demand falls back as we travel up along AD_2 in Figure 1(b) until demand again equals the fixed supply Y_f at the higher price level P_2. Second, and this is the mechanism inside the IS–LM diagram, the rise in P reduces real money balances M/P. The LM curve therefore shifts back to the left, step by step, as prices rise. The interest rate climbs back up, investment is squeezed back, and income falls back towards Y_f. The process stops only when the price level has risen in exactly the same proportion as the money supply, so that real balances M_2/P_2 equal the original M_1/P_1. At that moment the LM curve is back in its original position and the economy is at point C, which coincides with point A in real terms: the same output Y_f, the same real interest rate r_1, the same employment N_f — only the price level, and with it nominal wages, have risen in proportion to the increase in money.

Why Money Is Neutral Here: The Underlying Logic

The diagrammatic result reflects a deeper logic. In the classical system the real variables are determined in the real sector before money enters the picture: the labour market fixes employment and the real wage, the production function fixes output, and saving–investment equilibrium fixes the real interest rate. Money then determines only the absolute price level through the quantity equation MV = PY: with velocity V institutionally given and Y fixed at Y_f, P must vary in direct proportion to M. Money is neutral because every agent cares about real magnitudes: when all nominal values — prices, money wages, nominal money holdings — rise in the same proportion, nobody's real budget constraint, real wage or real wealth changes, so nobody changes any real decision. There is no money illusion, no nominal contract or fixed money wage to be eroded by inflation, and no debtor–creditor redistribution because the change is fully anticipated in nominal interest rates through the Fisher effect. Money therefore affects the unit of account, not the allocation of resources: it is, in the classical phrase, a veil over the real economy.

Assumptions Behind the Result and Its Limits

The neutrality result depends on strong assumptions, and the IS–LM exercise makes them visible. It requires complete flexibility of prices and money wages; if prices were sticky, the rise in real balances would persist and output would genuinely rise for some time, which is the Keynesian case of an upward-sloping AS curve. It requires that the labour supply respond to the real wage, with workers instantly correcting any money illusion. It also abstracts from the distributional and expectational complications of real economies: unanticipated inflation redistributes wealth between debtors and creditors, and persistent inflation imposes menu and

shoe-leather costs. Modern macroeconomics therefore treats neutrality as a long-run proposition: after prices and wages have fully adjusted — and provided expectations adjust too — the classical supply case describes where the economy settles, even if money is powerfully non-neutral during the adjustment. The IS–LM model with a vertical AS is thus best read as a model of that long-run resting point.

Conclusion

To conclude, when the IS–LM model is closed with the classical vertical aggregate supply curve, an increase in the money supply sets off a self-reversing process: real balances rise and the LM curve shifts right, but the resulting excess demand at full employment raises the price level, which erodes real balances and drags the LM curve back to its starting point. Equilibrium is restored with output, employment and the real interest rate unchanged, and the price level higher in exact proportion to the increase in money. Money does not affect output in the classical supply case because output is pinned down by real supply factors — labour, capital and technology at full employment — while money, through the price level, determines only nominal values. This is the classical dichotomy and the neutrality of money, displayed within the IS–LM framework.

Question 2: Crowding Out: Meaning, Conditions and the Fiscal–Monetary Policy Choice (20 Marks)

What is crowding out, and when would you expect it to occur? In case of substantial crowding out, which will be more successful — fiscal or monetary policy?

Introduction

Few concepts in macroeconomic policy are as practically important as crowding out. Governments that try to fight a recession by spending more or taxing less usually finance the resulting budget deficit by borrowing, and that borrowing takes place in the same financial markets from which private firms and households obtain funds. The fear is that public borrowing pushes up interest rates and thereby displaces — 'crowds out' — private investment and interest-sensitive consumption, so that the expansionary effect of the fiscal action is partly, wholly, or conceivably even more than wholly offset. This answer defines crowding out precisely, explains its mechanism with the IS–LM model, identifies the conditions under which it is small or large, and then answers the policy question: when crowding out is substantial, monetary policy is the more successful instrument, and the IS–LM geometry shows exactly why.

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What Is Crowding Out?

Crowding out is the reduction in private spending, especially private investment, that occurs when expansionary fiscal policy raises the interest rate. In Figure 2, the economy starts at E_1, the intersection of IS_1 and LM. An increase in government purchases (or a tax cut) shifts the IS curve rightwards to IS_2. If the interest rate stayed at r_1, income would rise by the full simple-multiplier amount to the level at E_3. But the rise in income increases the transactions demand for money; with the money supply unchanged, the interest rate is bid up, and the economy actually moves along the LM curve to E_2, where the interest rate is higher and income has risen by less. The shortfall between E_3 and E_2 is the amount of crowding out: the higher interest rate has choked off some investment (and some durable-goods consumption and net exports, in an open economy), partially offsetting the fiscal stimulus. The deficit also adds to public debt, so a

second, longer-run channel is sometimes mentioned: if households anticipate the future taxes implied by the debt (the Ricardian argument), they may save more even before interest rates move; and in the long run a persistently larger public debt absorbs national saving and reduces the capital stock — crowding out in the growth sense.

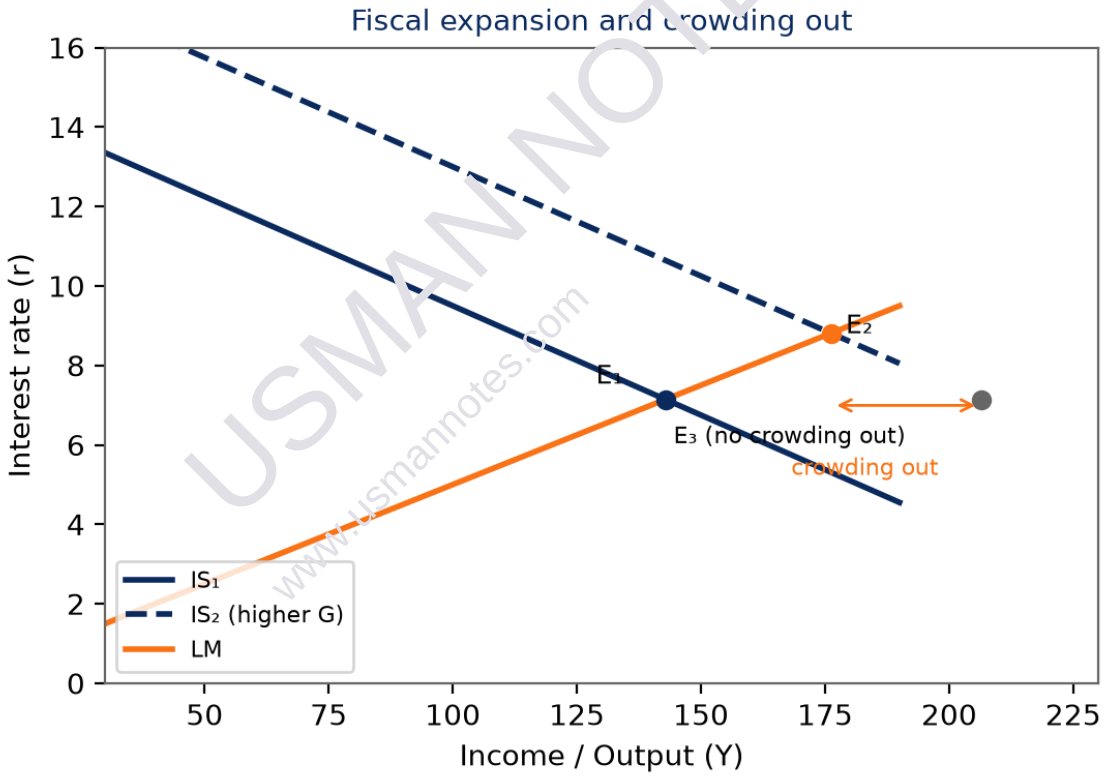


Figure 2: A fiscal expansion shifts IS to the right. Income would rise to E_3 at an unchanged interest rate; the rise in r moves the economy only to E_2. The gap is the crowding out of private investment.

When Would You Expect Crowding Out to Occur?

Crowding out is not an all-or-nothing phenomenon; its size depends on the slopes of the IS and LM curves, on how the deficit is financed, and on the state of the economy. The main conditions are as follows.

- Interest elasticity of the demand for money. If money demand is very interest-sensitive, the LM curve is nearly flat: a fiscal expansion raises income and money demand, but only a tiny

rise in the interest rate is needed to restore money-market equilibrium, so crowding out is small. In the limiting liquidity-trap case, where LM is horizontal, there is no crowding out at all. If money demand is interest-insensitive (the classical case of a vertical LM), the whole fiscal expansion is offset: crowding out is complete and fiscal policy cannot change income at all.

- Interest elasticity of investment. If investment responds strongly to the interest rate, the IS curve is flat and even a small rise in r displaces a large amount of investment, so crowding out is large. If investment is interest-insensitive (steep IS), the higher rate does little damage and most of the fiscal expansion survives.
- The state of the economy. Near full employment, real resources are scarce and extra public demand mostly bids up prices and interest rates, so crowding out is close to complete. In a deep slump with idle capacity and unemployed resources, extra demand calls forth extra output rather than higher rates, and crowding out is minimal; indeed there may be 'crowding in' if the expansion improves business confidence and expected sales (the accelerator effect).
- The method of financing. If the deficit is financed by selling bonds to the public, interest rates come under upward pressure. If it is financed by money creation (monetisation), the LM curve shifts right together with IS, the interest rate need not rise, and crowding out can be avoided — at the cost of inflationary risk. Tax financing avoids new borrowing altogether but withdraws demand directly.
- Openness and the exchange-rate regime. Under fixed exchange rates with mobile capital, fiscal expansion appreciates pressure is offset by reserve inflows that expand the money

supply, limiting crowding out. Under floating rates with high capital mobility, fiscal expansion appreciates the currency and crowds out net exports — an external form of crowding out that can be complete.

- Expectations. If financial markets expect deficits to be persistent or inflationary, long-term interest rates may jump immediately, making crowding out fast and large even before much borrowing has occurred.

Substantial Crowding Out: Fiscal or Monetary Policy?

Suppose now that crowding out is substantial: money demand is interest-insensitive (a steep or vertical LM curve) and investment is interest-elastic (a flat IS curve). In this configuration fiscal policy is weak precisely because of the mechanism above: extra government spending mostly raises the interest rate and displaces private investment, leaving aggregate demand and income little changed, while the composition of output shifts from private investment towards public spending and the budget deficit and public debt grow. Monetary policy, by contrast, works directly on the interest rate. An increase in the money supply shifts the LM curve to the right, lowers the interest rate along the IS curve, and — because investment is interest-elastic in this case — produces a large rise in investment and income. There is no offsetting private-spending loss; on the contrary, the policy operates by encouraging the very component of demand that fiscal policy was displacing. Hence, when crowding out is substantial, monetary policy is clearly the more successful of the two. The symmetry of the IS–LM model is worth noting: in the opposite world — a liquidity trap with flat LM and interest-insensitive investment — crowding out vanishes, monetary policy pushes on a string, and fiscal policy becomes the powerful

instrument. The right policy therefore depends on which configuration the economy is in, but under the conditions stated in the question the answer is unambiguous: monetary policy.

Conclusion

Crowding out is the displacement of private, interest-sensitive spending that occurs when deficit-financed fiscal expansion raises the interest rate through an increased demand for money and for loanable funds. It is expected to be large when money demand is interest-inelastic, investment is interest-elastic, the economy is near full employment, the deficit is bond-financed, or the exchange rate appreciates under floating rates; it is small or absent in a liquidity trap or a deep slump. Where crowding out is substantial, fiscal expansion largely substitutes public for private spending and adds to the public debt without adding much to income, whereas monetary expansion lowers interest rates and directly stimulates investment. Monetary policy is therefore the more successful instrument in precisely the circumstances in which crowding out is severe.

Question 3: Deriving the Upward-Sloping Aggregate Supply Curve: An Alternative Method and Its Properties (20 Marks)

Derive the positively sloped aggregate supply curve with an alternative method, and give its properties.

Introduction

The aggregate supply (AS) curve relates the price level to the quantity of output that firms are willing and able to produce. Its slope is one of the great dividing lines in macroeconomics: a vertical AS gives classical conclusions, a horizontal AS gives extreme Keynesian conclusions, and

the intermediate, positively sloped AS is the workhorse of short-run analysis. The standard textbook derivation works through the labour market: with the money wage fixed (or slow to adjust) in the short run, a higher price level lowers the real wage, firms move down their labour demand curve, employment rises, and output increases along the production function. That derivation is correct but it leans heavily on one specific friction. This answer presents an alternative derivation — the imperfect-information, or misperceptions, model associated with Milton Friedman and Robert Lucas — which obtains the same upward-sloping curve from rational behaviour with incomplete information rather than from wage rigidity. It then states the properties of the resulting curve.

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The Setting: Producers Who See Their Own Price First

Imagine the economy as a collection of many producers, each supplying a distinct good in a distinct market (Lucas's 'islands'). Each producer observes immediately and exactly the nominal price of his own product, but observes the general price level P only with a lag. When his own price rises, he cannot tell at once whether it has risen relative to other prices — in which case he should expand production, because his output has become more profitable relative to his costs — or whether all prices, including his costs, have risen together in a general inflation, in which case expanding output would be pointless. Being rational, he splits the observed price change into a relative part and a general part according to the relative variability of the two kinds of shocks: if aggregate price movements have recently been volatile, he attributes most of any price change to inflation and responds little; if his own market is usually the volatile one, he attributes most of it to a relative improvement and responds strongly.

The Derivation: The Lucas Supply Function

From this signal-extraction problem comes the celebrated Lucas 'surprise' supply function:

$$Y = Y_n + \alpha(P - P^e), \quad \alpha > 0,$$

where Y_n is the natural level of output (the output produced when prices are correctly perceived), P is the actual price level and P^e is the expected price level formed before production decisions are taken. Aggregate output deviates from its natural level only when the actual price level differs from the expected price level. If $P = P^e$, producers correctly read every price change as purely nominal, no one changes production, and $Y = Y_n$. If $P > P^e$, producers on average mistake part of the general price increase for an improvement in their relative prices; each expands output somewhat, employment rises above its natural level, and aggregate output exceeds Y_n. If $P < P^e$, the mirror-image mistake contracts output below Y_n. Rearranged, the equation describes a positively sloped curve in (P, Y) space: $P = P^e + (1/\alpha)(Y - Y_n)$. Its slope is $1/\alpha$, and the curve passes through the point (Y_n, P^e). Exactly the same equation emerges from the expectations-augmented Phillips curve combined with Okun's law — price surprises move unemployment away from its natural rate, and Okun's law translates the unemployment gap into an output gap — which is why the misperceptions derivation and the Phillips-curve derivation are best seen as two windows on the same short-run supply relation. Figure 3 draws the curve and shows its most important feature: it is drawn for a given expected price level, and it shifts when expectations change.

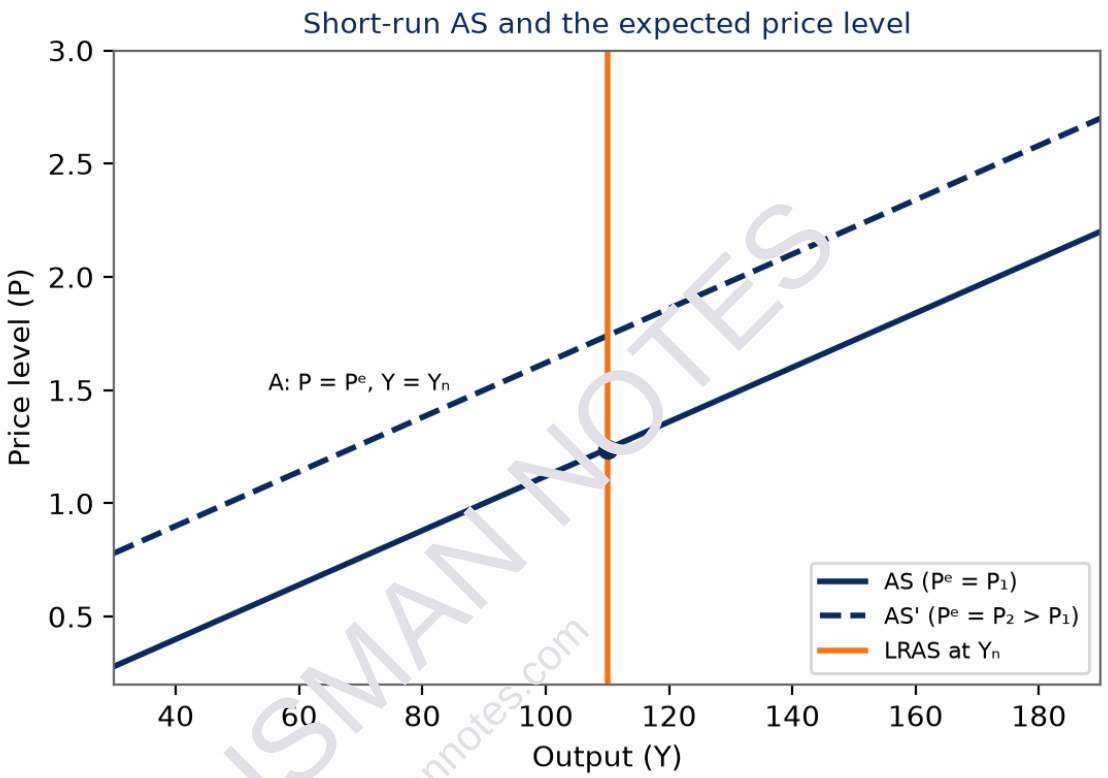


Figure 3: The short-run aggregate supply curve slopes upward and passes through (Y_n, P^e). A rise in the expected price level from P^e_1 to P^e_2 shifts the whole curve upwards; the long-run AS (LRAS) is vertical at Y_n.

Properties of the Positively Sloped AS Curve

- Positive slope in the short run. Output rises with the price level because a price level above the expected one generates favourable perceived relative prices (in this derivation) — equivalently, because only unanticipated price changes alter real behaviour.
- It is expectation-specific. The curve is drawn for a given P^e and passes through (Y_n, P^e). Every change in the expected price level shifts the curve: higher expected prices shift AS upwards (or leftwards), lower expected prices shift it downwards.
- It becomes vertical in the long run. Given time, expectations catch up with reality ($P^e = P$), all surprises vanish, and output returns to Y_n at any price level: the long-run AS is the

vertical line at the natural level of output determined by labour, capital and technology. The positively sloped curve is thus inherently a short-run object.

- Its slope depends on price variability and information. The parameter α is larger — and the curve flatter — the more stable the general price level has been relative to market-specific prices, because producers then read price changes as relative. In high-inflation economies α is small and the AS curve is steep: nominal shocks are quickly recognised as inflation and real responses are weak. This explains why the output effects of demand policy differ across countries and eras.
- Only unanticipated policy moves output along it. A movement along a given AS curve requires $P \neq P^e$. Fully anticipated monetary or fiscal expansions raise P and P^e together, shifting the curve up as fast as demand expands, so output stays at Y_n — the policy-ineffectiveness implication that made this derivation famous.
- Supply shocks shift it independently. Changes in costs or productive capacity — oil prices, harvests, taxes on production, technology — shift both the short-run AS and the natural level Y_n itself, a feature the curve shares with every AS specification.
- It is consistent with a stable underlying structure. Unlike ad-hoc wage rigidity, the curve is derived from optimising behaviour under a specified information constraint, so its parameters are tied to the variance structure of shocks; this also warns that the curve may shift when the policy regime changes (the Lucas critique).

Conclusion

The imperfect-information derivation obtains the positively sloped aggregate supply curve without assuming any wage or price rigidity: because producers observe their own price before

the general price level, they respond to unperceived inflation as if it were a relative-price improvement, generating the Lucas supply function $Y = Y_n + \alpha(P - P^e)$. The resulting curve slopes upwards, passes through (Y_n, P^e), shifts with expected prices and supply shocks, has a slope that depends on the relative volatility of aggregate and idiosyncratic prices, and collapses to the vertical classical line once expectations fully adjust. It thereby provides microeconomic foundations for the short-run AS curve and a sharp policy lesson: only unanticipated demand changes move output, and even they do so only until expectations catch up.

Question 4: Voluntary and Involuntary Unemployment: A Distinction and a Policy Judgement (20 Marks)

Distinguish between voluntary and involuntary unemployment. Do you consider the former a social problem requiring public policy?

Introduction

Unemployment is not a single condition but a family of conditions with very different causes and very different claims on public policy. The oldest and most contested distinction inside the family is between voluntary unemployment — joblessness that persists because the worker, at the wage and conditions actually available, chooses not to work — and involuntary unemployment — joblessness of workers who are willing to work at the going wage, indeed even for somewhat less, but cannot find a job. The classical economists held that in a competitive labour market nearly all unemployment is voluntary or frictional; Keynes built The General Theory around the claim that involuntary unemployment exists on a mass scale in depressions. This answer draws the distinction carefully, compares the two types side by side,

and then addresses the normative question: whether voluntary unemployment should be regarded as a social problem that public policy ought to attack. The answer defended is a qualified one — voluntary unemployment as such is not a social problem requiring corrective policy, but the boundary between the two types is blurred by policy itself and by labour-market imperfections, and those boundary cases do justify carefully designed public action.

Voluntary Unemployment Defined

A person is voluntarily unemployed when jobs are available at the going real wage for his skill and location, but he prefers not to accept them at that wage. The refusal may rest on several grounds. The wage offered may be below his reservation wage — the minimum that makes work worthwhile once leisure, home production, study, or family care are valued. He may be holding out during a search for a better match, which is the choice element inside frictional unemployment. He may withdraw because the net gain from working is eaten away by the withdrawal of benefits and the payment of taxes and work expenses (the 'unemployment trap' created by the benefit system itself). Or he may simply prefer leisure, early retirement or education at current wages. The essential features are the existence of a genuine job opportunity and a genuine choice: the worker could work at the terms on which others like him are working, and decides not to. In the classical model, with a flexible real wage clearing the labour market, all unemployment beyond the frictional minimum is of this kind: it lies on the labour supply curve, at points where the wage is below what the jobless require.

Involuntary Unemployment Defined

Involuntary unemployment, in Keynes's precise definition, exists when workers are willing to work at the current money wage — and would remain willing even if a small rise in the price of

wage-goods slightly reduced the real wage — yet no employment is offered to them. Its root cause is a deficiency of aggregate demand: firms do not hire because they cannot sell additional output, not because labour is too expensive in any simple sense. Cutting money wages across the board need not cure it, because wages are also income; general wage cuts reduce consumption demand and may deepen the slump, while the real wage in a demand-deficient economy is determined by employment, not set by bargaining at the margin. Later theories added structural sources of genuinely involuntary joblessness even without a general demand deficiency: efficiency wages (firms pay above market-clearing wages to motivate effort and cut turnover, rationing jobs), insider–outsider arrangements (employed insiders set wages without regard to unemployed outsiders), implicit contracts and legal minimum wages. In all these cases the unemployed are off their supply curve in a meaningful sense: they would accept the going terms, but the jobs are rationed.

Table 1: Voluntary and involuntary unemployment compared

Feature	Voluntary unemployment	Involuntary unemployment
Job available at going wage?	Yes — but declined	No — jobs are rationed
Worker's position	On the labour supply curve; wage below reservation wage	Off the labour supply curve; willing at (even below) the going wage
Main cause	Choice: leisure, search, study, benefit/tax wedge	Deficient aggregate demand; wage/price rigidities; efficiency wages; insider power
Classical / Keynesian view	The main type in classical theory	Central to Keynes's theory of depressions
Effect of a wage cut	May draw some back into work	Need not help; may reduce demand further
Typical policy response	Benefit design, activation, information — limited role	Demand management plus structural reform

Is Voluntary Unemployment a Social Problem Requiring Public Policy?

The straightforward answer is: not in itself. A liberal society treats the choice between work and leisure, at a fairly offered wage, as the individual's own. A student who leaves a job to study, a parent who chooses home care over a low wage, or a worker who searches a few weeks longer for a better match is exercising preferences, not exhibiting a pathology, and search of this kind actually improves the allocation of labour. For the state to 'solve' such unemployment by compulsion would be both illiberal and inefficient: forcing people into jobs they value below the wage lowers welfare even as it lowers the measured unemployment rate. Nor is the fiscal cost argument decisive by itself: voluntarily unemployed persons who support themselves impose no burden that would justify coercion.

Three qualifications, however, prevent the answer from being an unqualified 'no'. First, much apparently voluntary unemployment is manufactured by public policy itself: where means-tested benefits are withdrawn almost rupee-for-rupee as earnings rise, and taxes and travel and childcare costs are added, the effective marginal tax rate on taking a job can approach or exceed 100 per cent. Staying out of work is then the rational response to incentives the state created; the remedy is not pressure on the unemployed but better policy design — gentler benefit tapers, in-work credits and childcare support that 'make work pay'. Second, the choice may be less free than it looks: imperfect information about vacancies, discrimination, lack of transport, skills that have silently become obsolete, and local labour markets with a single dominant employer all convert nominal choice into constrained resignation; active labour-market policies — job matching, retraining, mobility help — address exactly these frictions, and

they respect choice rather than overriding it. Third, long spells that begin voluntarily can end involuntarily in substance: skills decay, confidence collapses and employers treat the spell itself as a bad signal (hysteresis), so early, light-touch intervention is justified on preventive grounds. What public policy should not do is reclassify voluntary unemployment as a disciplinary problem and meet it with punitive conditionality alone — that misreads its causes and can push people into poverty or unsuitable jobs without raising sustainable employment.

Conclusion

Voluntary unemployment is joblessness by choice at the going wage, with jobs available; involuntary unemployment is joblessness despite willingness to work at the going wage, because demand or labour-market institutions ration jobs. The distinction matters because the remedies differ completely: demand management for the involuntary kind, and for the most part restraint for the voluntary kind. Voluntary unemployment, as an exercise of free choice, is not in itself a social problem requiring corrective public policy. It becomes a legitimate policy concern only at its blurred edges — where benefit and tax systems trap people out of work, where information and mobility failures narrow real choice, and where long spells scar future employability. There, policy should widen genuine options and repair its own incentive traps, rather than compel or punish the jobless.

Question 5: Kuznets on the Short-Run and Long-Run Consumption Function (20 Marks)

Discuss Simon Kuznets' views regarding the short-run and long-run consumption function.

Introduction

Keynes's consumption function was the cornerstone of The General Theory: consumption rises with income, but by less than income, so the average propensity to consume (APC = C/Y) falls as income grows. Keynes treated this 'fundamental psychological law' as a stable feature of the economy, and it carried strong implications — rich economies would save an ever-rising share of income and face chronic demand deficiency unless investment or the state filled the gap. When Simon Kuznets assembled long-run national income data for the United States, however, the facts appeared to contradict the law flatly. His findings created the famous 'consumption puzzle' and forced a generation of theorists — Duesenberry, Modigliani, Friedman — to rebuild consumption theory. This answer sets out what Kuznets found, how he reconciled the conflicting short-run and long-run evidence, and the explanations he offered for the difference between the two functions.

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Kuznets' Evidence: Two Apparently Contradictory Facts

Kuznets' study, published in the 1940s using estimates he had constructed for the National Bureau of Economic Research, examined United States data from 1869 to 1938, arranged in overlapping ten-year averages to smooth out the business cycle. Over this long period real national income multiplied several times, yet the proportion of income consumed stayed remarkably constant: the APC fluctuated within a narrow band, roughly 0.84 to 0.89, with no downward trend. In other words, the long-run consumption function was proportional — a straight line through the origin, C = bY, with APC equal to the (constant) marginal propensity to consume. The short-run evidence, by contrast, confirmed Keynes. Cross-section budget studies of families at a point in time showed richer households saving a larger fraction of their income,

so APC clearly fell with income; and time-series data over individual business cycles showed the same: in boom years APC fell and in slump years it rose. Short-run and cross-section data thus gave a non-proportional function C = a + bY, with a > 0 and APC = a/Y + b declining as income rises, while the long-run data gave a proportional function with a constant APC. Both could not be the same stable function — this was the puzzle Kuznets handed to the profession.

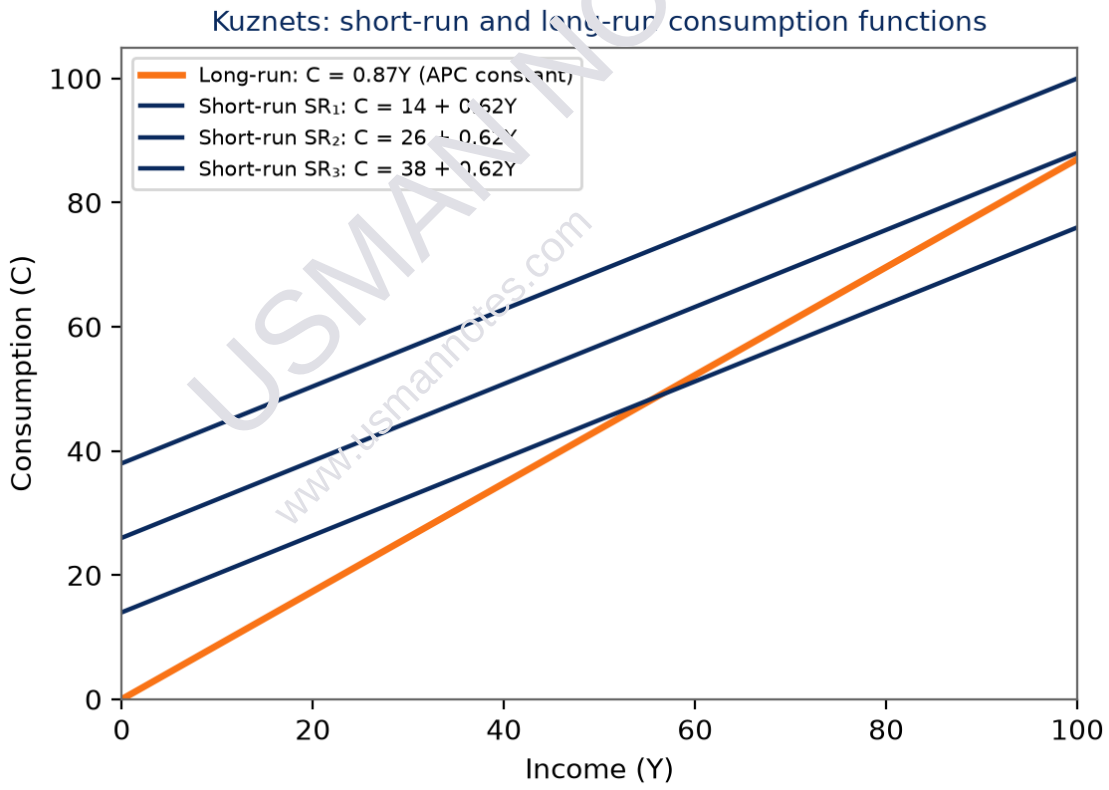


Figure 4: Kuznets' reconciliation. Each short-run consumption function (SR_1, SR_2, SR_3) has a positive intercept and a falling APC, but as incomes grow secularly the short-run function shifts upwards, so the economy moves along the proportional long-run ray on which APC is constant.

Kuznets' Reconciliation: Shifting Short-Run Functions

Kuznets' own resolution was that the short-run function is not stable over long periods: it shifts upward as the economy develops, so the economy never travels far along any single short-run curve. Within a cycle, income fluctuates around its trend and households treat much of the change as temporary: consumption adjusts incompletely, giving the flat short-run response and

the countercyclical APC. Over decades, however, the whole function drifts up — each generation's consumption standards are formed at higher levels — and the observed long-run points trace out the proportional ray shown in Figure 4, where successive short-run curves are successively tangent to the long-run line. The long-run constancy of the APC is therefore a property of the shifting sequence, not of any one function, and Keynes's psychological law survives only as a short-run statement.

The Shift Factors Kuznets Identified

Kuznets did not treat the upward drift as automatic; he identified concrete secular forces that raised consumption relative to income and offset the tendency of the APC to fall as incomes rose. First, urbanisation: the movement from farm to city replaced rural self-provisioning and in-kind consumption with monetised purchases and exposed households to the demonstration effect of urban living standards, raising measured consumption. Second, the changing composition of income recipients: the share of entrepreneurial and farm income — received by groups with high saving propensities — declined, while the share of employee compensation, whose recipients consume a larger fraction, rose. Third, the continuous appearance of new consumer goods — automobiles, radios, electrical appliances — repeatedly created new wants and new spending outlets, so wants expanded alongside income instead of being satiated. Fourth, demographic and social changes: smaller families, longer retirement in a growing social-security environment, and the spread of consumer credit and instalment buying all loosened the link between current income and saving. Fifth, the rising wealth and income security of households reduced precautionary saving motives. Kuznets also noted wartime and depression episodes as disturbances around, rather than breaks in, the secular pattern. Together these

forces explain why a society many times richer did not save a dramatically larger share of its income.

Influence and Critical Assessment

Kuznets' facts reshaped consumption theory. Duesenberry's relative income hypothesis formalised the shifting short-run function through habit formation and the demonstration effect: consumption depends on income relative to past peak income and to that of reference groups, producing exactly Kuznets's ratchet-like pattern. The life-cycle hypothesis of Modigliani and Brumberg and Friedman's permanent income hypothesis both delivered a proportional long-run function with a non-proportional short-run one, by distinguishing permanent or lifetime resources from transitory income — explanations that refine rather than refute Kuznets. His work was not beyond criticism: the overlapping-decade averaging may manufacture smoothness; his samples ended before the post-war consumer boom; and later data for some countries and periods show modest movements in the APC. Yet the central empirical claim — a roughly constant long-run APC in the face of greatly multiplied income — has proved robust for the United States over more than a century, and Kuznets' approach, letting long-run data discipline theory, remains a model of empirical macroeconomics.

Conclusion

Kuznets showed that the consumption function looks different at different horizons. In the short run — in family budgets and across the business cycle — the function is non-proportional, $C = a + bY$ with $a > 0$, and the average propensity to consume falls as income rises, just as Keynes supposed. In the long run, over 1869–1938, the United States consumed a nearly constant 84–89 per cent of a several-times-larger income: the long-run function is proportional,

C = bY, with APC constant. His reconciliation — a short-run function that shifts steadily upward under the pressure of urbanisation, new goods, changing income composition, credit and demography — dissolved the apparent contradiction, created the consumption puzzle that the next generation solved, and stands as one of the foundational empirical results of modern macroeconomics.

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