

Rent-financed demand and distribution in the Gulf Cooperation Council

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Abstract

This article develops a Kaleckian framework for private non-hydrocarbon activity in the Gulf Cooperation Council economies. It combines the domestic expenditure of public hydrocarbon receipts with banking-system accounting and a wage bill divided between national and migrant workers. An explicit transactions framework distinguishes hydrocarbon exports from oil-sector imports and domestic wages, and records government financing by banks, resident nonbanks and foreign creditors. The resulting monetary identity relates changes in deposits and currency to private credit, the domestic fiscal injection, private external payments and resident nonbank acquisitions of government securities. It identifies financing changes that preserve the monetary total conditional on fiscal and private-sector flows. A static demand closure shows how spending composition, remittances and the composition of wages affect private output, with a supplementary aggregate which records public-service value added. A high migrant wage-bill share can reverse the consumption channel of wage-led demand when workers spend less domestically out of income than profit recipients. That comparison depends on saving, foreign profit distributions and import content; the complete demand response also depends on investment. Fiscal indicators provide institutional context, a Saudi monetary-survey example illustrates counterpart accounting, and numerical scenarios examine the distribution mechanism. The policy argument concerns smoothing domestic fiscal demand subject to productive-capacity, sovereign balance-sheet and external constraints.

Keywords: Kaleckian models; fiscal policy; endogenous money; remittances; income distribution; Gulf Cooperation Council

JEL classification: E12, E51, E62, O53, F24

1 Introduction

Public spending funded by hydrocarbon receipts is an important source of demand in the Gulf Cooperation Council (GCC). The domestic consequences of those receipts depend on how much the state spends, the composition of expenditure, and the subsequent division of income between domestic expenditure, saving and payments abroad. Migrant employment makes that last division particularly relevant. A wage paid within the economy need not generate the same domestic expenditure as an equal amount of income received by another household or by a profit recipient.

Several quantitative and institutional characteristics of the GCC economies motivate the model. First, public finances remain closely connected to hydrocarbon receipts. Table 1 reports large non-hydrocarbon primary deficits in all six economies in 2024 alongside substantially different overall fiscal balances (IMF 2025a). Externally earned hydrocarbon revenue can improve the overall balance without changing domestic expenditure, while expenditure financed by those receipts can support non-oil demand even during an overall fiscal surplus. Assessing the fiscal stance therefore requires attention to domestic expenditure and revenue policy as well as the source of public receipts.

Table 1: Selected fiscal indicators for 2024

Country	Non-hydrocarbon primary balance ¹	Overall balance ²	Gross public debt ²
Bahrain	−17.0	−10.6	133
Kuwait	−82.3	23.8	3
Oman	−30.9	3.3	36
Qatar	−31.1	0.7	41
Saudi Arabia	−24.7	−2.5	26
United Arab Emirates	−14.1	6.4	35

¹ Percent of non-hydrocarbon GDP. ² Percent of GDP. Source: IMF (2025a), Table 4, p. 52. Central government except general government for the UAE; Bahrain's fiscal balance uses financing flows. Debt is gross: sovereign wealth fund assets, government deposits and other public financial assets have not been deducted. Section 3.1 explains the relation between these published indicators and the model's fiscal variable.

Second, migrant labour is central to the region's employment structure. ILO (2023) reports migrant shares of the workforce of approximately 76 percent in Saudi Arabia and 95 percent in Qatar. These reported employment shares illustrate labour-market segmentation; the model instead requires the migrant share of the private wage bill, which also depends on pay and sector coverage. Remittances can constitute a substantial external payment. Figure 1 shows

personal remittances paid relative to GDP; the UAE observation is approximately 10.6 percent in 2024. These features motivate the separation of national and migrant wage income and the explicit treatment of remittances.

Third, the GCC economies are highly open and import-dependent, so an increase in expenditure need not translate one-for-one into demand for domestic output. This provides the motivation for incorporating import content explicitly into the fiscal and distributional multipliers. The external monetary setting is also distinctive. Bahrain, Oman, Qatar, Saudi Arabia and the UAE maintain conventional pegs to the US dollar, while Kuwait maintains a peg to an undisclosed currency basket (Central Bank of Kuwait, n.d.). The exchange-rate arrangements limit the extent to which domestic monetary conditions can be considered independently of external conditions and foreign-exchange positions.

Finally, hydrocarbon receipts can be accumulated in sovereign foreign assets and drawn down subsequently to support expenditure. Korniyenko and Xin (2025) report that 13 GCC sovereign wealth funds collectively manage assets exceeding USD 4 trillion. This structure motivates the separation of gross hydrocarbon receipts from domestic public expenditure, sovereign foreign-asset accumulation and government financing. The model accordingly distinguishes public revenue from its domestic expenditure, separates national and migrant wage recipients, and records imports, remittances and financial transactions within a common set of accounts.

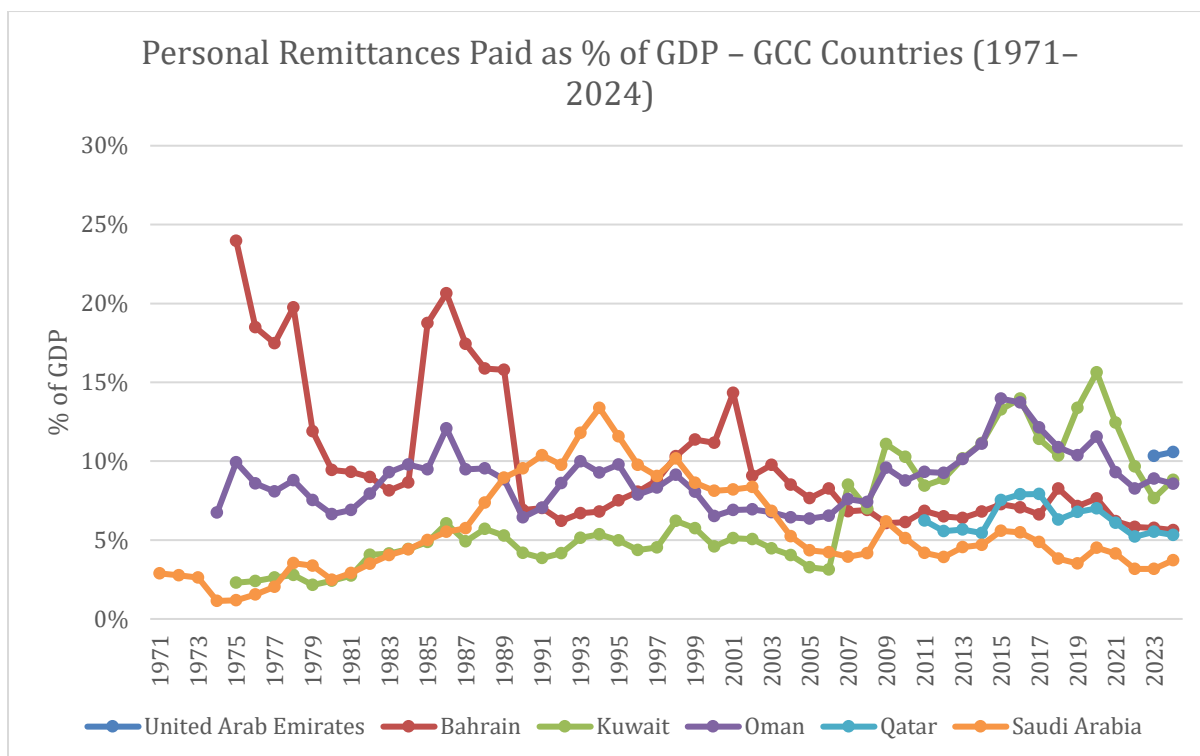


Figure 1 Personal remittances paid as a share of GDP in the GCC

Source: Authors' calculations using World Development Indicators. Series are personal remittances paid relative to GDP, 1971–2024. Missing observations are shown as gaps; country coverage differs.

This article asks how a Kaleckian account of demand and distribution changes when external public receipts support domestic spending and a substantial part of the wage bill is received by households who remit substantial amounts to other countries.

The analysis concerns private non-hydrocarbon activities over a horizon in which the capital stock is given and output can adjust through utilisation of existing capacity. The relevant activities are assumed to have spare productive capacity and access to the labour and intermediate inputs needed for expansion at the prevailing wage and price structure. Labour may be available through unemployment or underemployment, additional hours or recruitment, subject to the time and skills required. The comparative statics apply while these constraints remain non-binding. Hydrocarbon output is treated as given over this horizon. Its production depends on extraction and processing capacity, reservoir management, specialised inputs and production decisions, including applicable production agreements. Public-service output is determined by government provision and employment decisions and is recorded separately from private output in Section 3.2.

The analysis makes two connected contributions. First, it sets out the monetary accounting needed to distinguish a domestic fiscal injection from the source of government financing.

Government borrowing from banks, nonbanks and abroad is recorded explicitly, alongside currency issue, central-bank lending to banks and banks' foreign assets. This establishes the circumstances in which financing changes merely rearrange monetary counterparts and the circumstances in which they change private money holdings. Second, it introduces national and migrant wage incomes into a Kaleckian demand closure. Remittances change the average domestic spending propensity out of wages and therefore the consumption component of the wage-led versus profit-led distinction.

Bank lending creates deposits, while reserve and foreign-exchange settlement generate further balance-sheet adjustments. The compensation principle describes how foreign-exchange operations can be offset by changes in central-bank domestic assets or liabilities (Lavoie 2021). Our accounting accommodates these adjustments through bank refinancing and public accounts. The question is how endogenous money, rent-financed public expenditure and external payments interact when income recipients have different domestic spending patterns.

The empirical material serves three purposes. Fiscal indicators describe the scale and diversity of the institutional setting. A monetary-survey example demonstrates a reproducible counterpart calculation. Parameter scenarios examine the distribution mechanism. Estimating financing effects or classifying country demand regimes would additionally require identification of the expenditure, credit and portfolio relationships generating the observed transactions.

Section 2 locates the framework in the relevant literature. Section 3 establishes its institutional and statistical boundaries. Section 4 derives the monetary and profit identities. Sections 5 and 6 develop the demand closure and distribution results. Section 7 discusses empirical interpretation, while Section 8 sets out policy implications and the requirements of a dynamic extension. Section 9 concludes.

2 Literature and contribution

Kalecki's profit equation relates aggregate profits to investment, consumption out of profits, the government deficit and external demand, net of saving out of wages (Kalecki 1971). Its demand-led interpretation combines that accounting relation with expenditure decisions: investment, consumption and public spending contribute to the determination of realised output and profits. Section 5 specifies the behavioural relationships used here, including a feedback from the profit share to investment.

The rentier-state literature focuses on the institutional concentration of external receipts and their political distribution (Beblawi 1987; Hertog 2010; Gray 2011). Work on Gulf capitalism and Saudi Arabia's accumulation regime also emphasises ownership, labour segmentation and the organisation of investment (Hanieh 2011; Faudot 2019). The present framework translates selected features of that setting into explicit expenditure and financing relationships; it does not replace those institutional accounts.

Endogenous money analysis distinguishes deposit creation through bank lending from the operations through which banks settle payments and obtain reserves (Moore 1988; Lavoie 2022). Under a peg, foreign-exchange transactions and public accounts also affect reserve positions. The compensation principle explains how changes in central-bank domestic assets or liabilities can offset foreign-exchange operations, including through changes in bank refinancing (Lavoie 2021). Domestic-currency reserve accommodation is distinct from the continuing settlement of net foreign-currency payments under the maintained peg. Tas and Togay (2012) investigate money endogeneity across GCC countries, while Alrasheedy (2020) examines Saudi Arabia. Building on this literature, the framework connects a rent-financed fiscal injection, external payments and alternative holders of government liabilities.

The distribution analysis builds on Bhaduri and Marglin (1990) and Blecker's (1989) open-economy formulation. Blecker (2025) provides a recent exposition of Kaleckian distribution and demand mechanisms. Blecker (2016) examines how the wage-led versus profit-led classification depends on the time horizon and the consumption, investment and external-trade relationships included. Here, the consumption response also depends on the division of wages between national and migrant workers and on remittances. Section 6.2 derives the migrant private-wage-bill share at which average consumption out of wages equals consumption out of profits. Above that threshold, where it exists, redistribution towards wages reduces the consumption component of demand. The complete response also depends on investment and any distribution-induced trade response.

The accounting follows the transactions-flow framework of Godley and Lavoie (2007). Each transaction has a counterpart, so every row sums to zero across sectors, including the rest of the world. For each sector, the balance of current and capital transactions is matched by its financial transactions, so its complete column also sums to zero. Current-account subtotals can be positive or negative. A dynamic stock-flow consistent model would additionally specify portfolio decisions, interest payments, asset revaluations and productive-capacity adjustment. Those relationships are needed to examine fiscal sustainability over time.

The fiscal discussion draws on functional finance and the analysis of oil-producing economies. Following Lerner (1943) and the Kaleckian emphasis on effective demand, fiscal policy is assessed by its contribution to output and employment. The budget balance is an instrument and outcome of that policy. For oil exporters, non-oil fiscal measures help separate domestic expenditure and revenue policy from movements in externally earned hydrocarbon receipts (Medas and Zakharova 2009). Expenditure decisions may themselves respond to those receipts, and demand effects depend on spending composition and revenue incidence. The present model identifies these demand mechanisms subject to productive-capacity, external and sovereign balance-sheet constraints; determining the fiscal stance required for full employment would also require an explicit employment relationship.

3 Institutional scope and descriptive evidence

3.1 Fiscal scale and statistical boundaries

The fiscal indicators in Table 1 illustrate the importance of hydrocarbon receipts and sovereign income in supporting domestic expenditure. Their interpretation requires attention to the institutional coverage and accounting definitions of the published series.

Table 1 reports balances for the public entities covered by the source. The theoretical public sector additionally consolidates the hydrocarbon producer and sovereign wealth funds. For example, a producer's payment to the treasury is revenue in treasury accounts but an internal transfer in the consolidated model. The latter records the producer's transactions with households and the rest of the world. Applying the model to data therefore requires a bridge between institutional boundaries, transaction definitions and recording conventions, including cash and accrual timing.

The model includes domestic taxes and other specified current receipts from firms and households. These withdrawals enter both the fiscal injection and the disposable-income equations. A country application would trace them through the relevant public accounts. The descriptive balances in Table 1 provide context for that exercise. Assessing a proposed spending path also requires the available assets, liabilities and financing conditions: a current surplus alone does not establish sustainability, while a deficit can be financed through borrowing or asset drawdowns subject to their availability.

3.2 Exchange arrangements and the production boundary

The model assumes a maintained nominal exchange-rate peg and settlement of net foreign-exchange flows through the banking system. Kuwait maintains a peg to an undisclosed currency basket, while the other GCC economies maintain US-dollar pegs (Central Bank of Kuwait, n.d.). The relationship between foreign and domestic policy interest rates is treated as a country-specific behavioural and institutional matter. The baseline leaves that relationship outside its demand equations.

The public sector consolidates the treasury, the hydrocarbon producer and sovereign wealth funds. Consolidation removes payments between those entities. Their transactions with households and other sectors remain recorded, including hydrocarbon exports, oil-sector imports and wages paid to resident national and migrant households. Private non-oil firms conduct the remaining market production and intermediate imported goods to domestic buyers. Nationality distinguishes the household groups in the model; residence determines their domestic-sector classification. Private non-hydrocarbon value added is denoted Y .

Total non-hydrocarbon value added also includes public services, denoted Y_s , so $Y_N = Y + Y_s$. Public wages affect Y through household consumption, while the services produced contribute separately through Y_s . Under a simplified wage-cost representation, $Y_s = W_{sn} + W_{sm}$, where these terms are compensation of national and migrant public-service workers. Nonmarket output is ordinarily valued using production costs; value added excludes intermediate consumption and includes consumption of fixed capital in a fuller gross measure (World Bank 2013). The wage-cost representation suppresses that component and other production-cost adjustments. The existing private-output multipliers therefore describe the induced component; Section 5.2 adds the direct public-service contribution.

4 Transactions and accounting results

4.1 Sectors definitions and conventions

The sectors are government, central bank, commercial banks, non-oil firms, national households, migrant households and the rest of the world. Appendix A presents their transactions in two panels, and Appendix C defines the notation and units. Firms' current and capital transactions are displayed in separate columns. The government column combines current transactions, public investment and financing; its complete budget is equation (2). Quantities are valued in domestic currency at current prices, and financial changes denote transactions excluding revaluations and write-offs. The demand closure holds prices fixed. To

isolate expenditure and distribution channels, the baseline suppresses domestic interest transfers, public debt service and bank operating profits, while retaining income on sovereign foreign assets. Debt-service redistribution and interest-rate transmission consequently require an extended income and portfolio specification.

Government purchases from firms are G_c , public investment is G_I , and wages paid to national and migrant households are W_{gn} and W_{gm} . The wage totals include public services and hydrocarbon production: $W_{gn} = W_{sn} + W_{on}$ and $W_{gm} = W_{sm} + W_{om}$, where subscripts s and o denote those activities. Transfers to national households are Tr ; they are distinct from compensation for services. Nonmarket services need not generate sales receipts. Domestic receipts from firms and households are T_f , T_n and T_m , representing taxes and specified net current withdrawals. Government expenditure is E_g and total domestic receipts are T :

$$E_g = G_c + G_I + W_{gn} + W_{gm} + Tr \quad (1)$$

$$T = T_f + T_n + T_m$$

$$D_g = E_g - T$$

$D_g = E_g - T$ measures the consolidated public sector's expenditure on the modelled domestic agents less its current receipts from them, before imports embodied in purchases are deducted. Section 3.1 explains its relation to published fiscal indicators. Gross hydrocarbon exports are X_o , oil-sector imports are M_o , and sovereign foreign assets A_f yield current income $r_f A_f$. Government securities held by domestic banks, resident nonbanks and foreign creditors are B_b , B_h and B_x . Resident nonbank holdings are assigned to national households. Government bank deposits are D_{gb} ; D_{gc} denotes central-bank government deposits net of central-bank claims on government.

The government budget relationship is

$$X_o + r_f A_f + T + \Delta B_b + \Delta B_h + \Delta B_x = E_g + M_o + \Delta A_f + \Delta D_{gc} + \Delta D_{gb} \quad (2)$$

Private bank deposits are D , currency outside banks is C_0 , and bank reserves are R_b . Central-bank refinancing of commercial banks is H , for example through collateralised advances or repurchase facilities. An advance increases a bank's reserve balance and its liability to the central bank. Central-bank foreign assets are FX , banks' net foreign assets are NFA_b , and bank loans to firms are L . The central-bank and bank accounting relationships are

$$\Delta R_b + \Delta C_0 = \Delta FX + \Delta H - \Delta D_{gc} \quad (3)$$

$$\Delta D = \Delta L + \Delta NFA_b + \Delta R_b + \Delta B_b - \Delta D_{gb} - \Delta H \quad (4)$$

H records a domestic-currency reserve-accommodation instrument. Changes in refinancing and public accounts permit the offsetting adjustments discussed in the compensation literature (Lavoie 2021). The terms of access and the price of refinancing belong to the operating framework. The model imposes no mechanical ceiling on domestic bank lending tied to existing foreign reserves. Continuing foreign-currency settlement at the peg depends separately on external receipts, financing and usable foreign assets.

Non-oil exports are X_n , imports intermediated by private firms are M , household remittances are R_m , and distributions of private profits abroad are Z . Net nonbank private capital inflows are K , excluding government foreign borrowing and banks' foreign transactions. The external account gives

$$\Delta FX + \Delta NFA_b = X_o + X_n - M_o - M - R_m - Z + r_f A_f - \Delta A_f + K + \Delta B_x \quad (5)$$

The external account records hydrocarbon imports within the consolidated public sector and other imports through private firms. Government foreign borrowing appears both as a public financing receipt and an external inflow. These counterpart entries are used in the consolidation below.

4.2 Money and the scope of financing invariance

Let $M_b = D + C_0$ denote money held by the domestic private sectors. Adding equations (3) and (4) yields

$$\Delta M_b = \Delta L + \Delta NFA + \Delta NCG \quad (6)$$

where $NFA = FX + NFA_b$ and $NCG = B_b - D_{gb} - D_{gc}$. Substitution from equations (2) and (5) gives the reserve relationship

$$\Delta R_b = D_g - (M + R_m + Z - X_n - K) - \Delta B_b - \Delta B_h + \Delta D_{gb} - \Delta NFA_b + \Delta H - \Delta C_0 \quad (7)$$

It follows that

$$\Delta M_b = \Delta L + D_g - (M + R_m + Z - X_n - K) - \Delta B_h \quad (8)$$

and, equivalently,

$$\Delta NFA + \Delta NCG = D_g - (M + R_m + Z - X_n - K) - \Delta B_h \quad (9)$$

Proposition 1. Conditional on the fiscal injection, private credit, private external transactions and resident nonbank government-security acquisition, the financing and asset-management operations that cancel in equation (8) change the composition of monetary counterparts without

changing their sum. Resident nonbank acquisition of government securities remains in that sum with a negative sign.

The proposition is conditional on the stated transactions. Foreign government borrowing cancels because it is simultaneously a financing receipt and an external inflow. Bank financing and government deposit changes also cancel on consolidation. Currency withdrawals redistribute private money between deposits and cash, while central-bank refinancing changes bank reserves. This is compatible with compensation in the reserve accounts. The behaviour governing lending, spending, refinancing and portfolio allocation determines which combinations of transactions occur.

A simple example identifies the nonbank exception. With government spending of 100, no taxes and no other transactions, bank acquisition of government securities is associated with a 100 increase in private money after spending. If a household instead buys the securities using existing money, that purchase withdraws 100 before government spending restores it. Private money is then unchanged. The conditional invariance therefore cannot be extended to arbitrary changes in the holders of government liabilities.

Oil prices and interest rates can affect the fiscal injection, credit, capital flows, expenditure and portfolio choices that enter equation (8). Their causal effects therefore require behavioural equations in addition to the monetary identity.

4.3 Private profits

Firms' after-tax profits, before distribution to domestic or foreign recipients, are

$$\Pi = C_n + C_m + G_c + G_I + I + X_n - M - W_n - W_m - T_f \quad (10)$$

Here W_n and W_m are private wages, and I is private investment. National and migrant household budgets imply

$$C_n = W_n + W_{gn} + Tr + \Pi_d - T_n - S_n \quad (11)$$

$$C_m = W_m + W_{gm} - R_m - T_m - S_m$$

Domestic distributed profits are Π_d . National saving can be separated into saving from wages and transfers and saving from distributed profits. If C_{Π} is consumption financed from domestic profit distributions and S_W is domestic saving out of household wage and transfer income, substitution gives

$$\Pi = I + C_{\Pi} + D_g + (X_n - M) - R_m - S_W \quad (12)$$

Proposition 2. For the stated sector divisions, the domestic fiscal injection enters the private profit identity in the position occupied by the government deficit in the familiar Kaleckian formulation. Household remittances reduce profits through the domestic expenditure they displace, holding the other terms fixed.

Section 5 closes the profit identity with expenditure and investment relationships. Purchases, wages and transfers enter current private incomes; unspent export receipts and financial-asset acquisitions have different current-income consequences. The identity records these distinctions while the closure determines the demand outcome.

Foreign profit distributions require a distinction between profit generation and profit allocation. By definition $\Pi = \Pi_d + \Pi_u + Z$, where Π_u is retained profit. A distribution abroad is not a production cost deducted before Π is measured. It therefore appears explicitly in the monetary external-flow term, but affects equation (12) through the domestic consumption financed from profits and the financing of investment. Deducting it mechanically a second time from after-tax profits would mix these concepts.

5 A static Kaleckian closure

5.1 Income and expenditure behaviour

All flow variables in this section are expressed per unit of the given private capital stock K_p and written in lower case. Capacity per unit of private capital is normalised to one, so $u = Y/K_p$ is utilisation of private non-oil capacity. The pre-direct-tax profit share is π , giving private wages $(1 - \pi)u$ and after-tax profits per unit of capital $\pi u - t_f$. This definition preserves the distinction between direct taxes and the functional distribution of value added.

Migrant workers receive a share λ of the private wage bill and remit a share ρ of those wages. Migrant government wages have a separate remittance share ρ_g , giving $r_m = \rho\lambda(1 - \pi)u + \rho_g w_{gm}$. National households consume a fraction c_n of disposable wage and transfer income; migrants consume c_m of income remaining after remittances and fixed domestic payments. A closure specifies behavioural equations and which variables are treated as given. Here domestic receipts t_n , t_m and t_f are fixed as output changes, excluding an automatic revenue response. A proportional-tax rule would add a feedback and alter the multipliers. Table 2 summarises the variables and assumptions; Appendix C gives the full notation.

Table 2 Variables and assumptions in the static demand closure

Role	Variables	Treatment
Determined in the closure	u, u^*, g , and total consumption $cu + a$	Goods-market equilibrium and the consumption and investment equations jointly determine private utilisation and expenditure.
Policy and other given inputs	$g_c, g_I, w_{gn}, w_{gm}, tr, t_n, t_m, t_f, x_n$	Fixed for each comparison except the variable whose partial effect is examined.
Distribution and expenditure parameters	$\pi, \lambda, \rho, \rho_g, f, s_d, c_n, c_m, m, m_I$	Shares and propensities held fixed except in the specified distribution or leakage exercise.
Investment parameters	$\gamma_0, \gamma_u, \gamma_\pi, \psi$	Autonomous private accumulation, utilisation and profit-share responses, and the response to public investment.
Capacity and derived coefficients	$K_p; c_\pi, c_w, c, a, \Omega$	Private capital is given. The remaining terms are functions of the specified inputs and parameters.

Let f be the share of after-tax profits distributed abroad and s_d the effective saving fraction of the remaining profits, including retention within firms. The domestic propensity to consume out of total after-tax profits is

$$c_\pi = (1 - f)(1 - s_d) \quad (13)$$

$$C_\Pi/K_p = c_\pi(\pi u - t_f)$$

The average domestic expenditure propensity out of private wages and the aggregate induced consumption coefficient are

$$c_w = (1 - \lambda)c_n + \lambda(1 - \rho)c_m \quad (14)$$

$$c = (1 - \pi)c_w + \pi c_\pi$$

Total consumption per unit of capital is $cu + a$, where the autonomous income term is

$$a = c_n(w_{gn} + tr - t_n) + c_m[(1 - \rho_g)w_{gm} - t_m] - c_\pi t_f \quad (15)$$

The shares and spending propensities lie between zero and one, with $0 < \pi < 1$ and $0 \leq m < 1$. Autonomous incomes and parameters are restricted so disposable incomes, consumption and after-tax profits are nonnegative in the equilibria considered. Consumption denotes expenditure through domestic firms, including imported content. Private accumulation follows

$$g = \gamma_0 + \psi g_I + \gamma_u u + \gamma_\pi \pi \quad (16)$$

where $g = I/K_p$, $g_I = G_I/K_p$, and ψ is a conditional crowding-in coefficient. Assume $\gamma_u \geq 0$, $\gamma_\pi \geq 0$ and $\psi \geq 0$ for the comparative statics. There is no interest-rate term in this baseline, so the closure is not used to explain the size of monetary-policy transmission.

Let m be the common import content of consumption, private investment and government purchases, and m_I the import content of public investment. The common coefficient is a benchmark that isolates the effects of saving and remittances. Section 6.3 relaxes it for the consumption comparison by allowing household-group import contents to differ. Exports are treated as domestic value added. Goods-market equilibrium is

$$u = (1 - m)(cu + a + g_c + g) + (1 - m_I)g_I + x_n \quad (17)$$

Solving the goods-market condition together with the expenditure equations gives u^* , the short-run equilibrium utilisation of private non-oil capacity for the specified parameters and policy inputs:

$$u^* = \frac{(1-m)(a+g_c+\gamma_0+\gamma_n\pi)+[(1-m_I)+(1-m)\psi]g_I+x_n}{\Omega} \quad (18)$$

$$\Omega = 1 - (1 - m)(c + \gamma_u) > 0$$

The condition $\Omega > 0$ is the local Keynesian stability restriction under quantity adjustment. Under the capacity normalisation used here, the demand-led comparisons are restricted to feasible interior equilibria with $0 < u^* < 1$ and the labour and input availability described in Section 1. The star denotes equilibrium, not a normal-utilisation target or full employment. Adjustment towards a normal rate over longer horizons requires additional relationships of the kind discussed by Skott (2012) and Lavoie (2016).

5.2 Fiscal instruments and domestic revenue

Proposition 3. At fixed taxes, distribution and import coefficients, the effects on private non-oil utilisation of purchases, national wages or transfers, and public investment are

$$\frac{\partial u^*}{\partial g_c} = \frac{1-m}{\Omega} \quad (19)$$

$$\begin{aligned} \frac{\partial u^*}{\partial (w_{gn} + tr)} &= \frac{(1 - m)c_n}{\Omega} \\ \frac{\partial u^*}{\partial g_I} &= \frac{(1 - m_I) + (1 - m)\psi}{\Omega} \end{aligned}$$

Government migrant wages have the corresponding private-output multiplier $(1 - m)c_m(1 - \rho_g)/\Omega$. National wages and transfers induce less private production than purchases when $c_n < 1$. Public investment has a larger impact on private output than purchases if $(1 - m)\psi > m_I - m$: its higher import content can offset part of the associated private-investment response. Public-service employment also contributes directly to the supplementary production aggregate defined in Section 3.2.

Let $y_N = Y_N/K_p$ and $w_{sj} = W_{sj}/K_p$ for public-service workers of group j . Under the wage-cost convention, expanding service employment or hours at fixed wage rates, with other inputs available and the behavioural coefficients and taxes fixed, gives

$$\frac{\partial y_N}{\partial w_{sn}} = 1 + \frac{(1-m)c_n}{\Omega} \quad (19a)$$

$$\frac{\partial y_N}{\partial w_{sm}} = 1 + \frac{(1-m)c_m(1-\rho_g)}{\Omega} \quad (19b)$$

The first term is direct public-service value added and the second is induced private production. Transfers have only the induced term. A higher wage rate for unchanged employment and services raises household income but does not by itself increase real service output. Intermediate purchases already recorded in private value added are not added again. The aggregation leaves the private utilisation equation unchanged; endogenous service supply or productivity would require further equations.

Domestic revenue has an explicit demand effect. An additional fixed payment by national households, migrant households or firms reduces utilisation by $(1-m)c_n/\Omega$, $(1-m)c_m/\Omega$, or $(1-m)c_\pi/\Omega$, respectively, with all other behaviour fixed. Consequently, neither a spending total nor the single number D_g is a sufficient statistic for the output effect of a fiscal package. Who receives expenditure and who makes the associated payments matter.

The higher capital-spending multipliers discussed by Espinoza and Senhadji (2011) are compatible with this mechanism. Their reduced-form estimates do not, however, identify ψ . The model compares a static response of private output at given capital, while an empirical multiplier may include public value added, delayed expenditure and capacity adjustment. A quantitative interpretation requires a common horizon, spending definitions and estimates of the remaining parameters.

6 Distribution and domestic demand

6.1 Remittances and the composition of wages

Holding autonomous consumption fixed, the effect of the induced consumption coefficient is

$$\frac{\partial u^*}{\partial c} = \frac{(1-m)u^*}{\Omega} \quad (20)$$

The private-wage remittance margin therefore gives

$$\frac{\partial u^*}{\partial \rho} = - \frac{(1-m)(1-\pi)\lambda c_m u^*}{\Omega} \quad (21)$$

while reallocating a fixed private wage bill between national and migrant workers gives

$$\frac{\partial u^*}{\partial \lambda} = \frac{(1-m)(1-\pi)[(1-\rho)c_m - c_n]u^*}{\Omega} \quad (22)$$

Proposition 4. A higher private-wage remittance share weakly reduces private domestic demand under this closure; the effect is strict for a positive migrant wage bill and consumption propensity. A larger migrant share of the private wage bill reduces demand when migrants' expenditure out of each unit of wages, after remittances, is below nationals' expenditure propensity.

These are partial derivatives. They hold the total wage bill at a given output, productivity, distributional parameters and other behavioural coefficients fixed. A change in migration or employment policy need not preserve those conditions. The calculations therefore describe an expenditure mechanism rather than the overall employment, welfare or growth effect of replacing one group of workers with another. They also provide no sufficient basis for restricting remittances: household welfare and labour-supply responses are outside the model.

6.2 The wage and profit margin

Because a is independent of π when direct payments and spending propensities are fixed, the distribution derivative is

$$\frac{\partial u^*}{\partial \pi} = \frac{(1-m)[\gamma_\pi - u^*(c_w - c_\pi)]}{\Omega} \quad (23)$$

Proposition 5. Domestic demand is wage-led, in the sense that a lower profit share raises equilibrium private output, if and only if $\gamma_\pi < u^*(c_w - c_\pi)$. Otherwise the modelled response is profit-led or, at equality, locally neutral.

A positive consumption differential is necessary but not sufficient for wage-led demand when investment responds positively to the profit share. This distinction prevents a consumption comparison from being treated as a full regime estimate. The model holds non-oil exports and the import coefficients fixed. Distribution-induced changes in competitiveness would add a net-export response whose sign depends on how wages, mark-ups and prices change (Blecker 1989).

When $c_n > c_\pi > (1 - \rho)c_m$, the consumption channel reverses above

$$\bar{\lambda} = \frac{c_n - c_\pi}{c_n - (1 - \rho)c_m} \quad (24)$$

If $c_\pi \leq (1 - \rho)c_m$ and nationals also consume at least as much as profit recipients, no feasible migrant wage share reverses that channel. If profit recipients spend more than either worker

group, the channel is already reversed throughout the feasible range. Equation (24) is therefore meaningful as an interior threshold only under its stated ordering. With nonnegative γ_π , a strictly negative consumption differential makes the modelled demand response profit-led even when the investment response to distribution is zero.

6.3 Sensitivity to saving foreign profit distributions and import content

Table 3 examines how remittances, saving out of profits and foreign profit distributions change the consumption differential $c_w - c_\pi$ and the threshold migrant private-wage-bill share. It holds $c_n = c_m = 0.80$. The first two rows differ only in domestic profit saving; the third changes the fraction of after-tax profits distributed abroad, f . Both adjustments remove the consumption reversal in the first row. Each row is a parameter scenario; estimating a country's complete demand regime also requires its investment and trade responses.

Table 3 Illustrative sensitivity of the consumption channel

Case	ρ	λ	s_d	f	c_w	c_π	$c_w - c_\pi$	$\bar{\lambda}$
A	0.50	0.83	0.50	0.00	0.468	0.500	-0.032	0.750
B	0.50	0.83	0.55	0.00	0.468	0.450	0.018	0.875
C	0.50	0.83	0.50	0.10	0.468	0.450	0.018	0.875
D	0.26	0.83	0.50	0.00	0.627	0.500	0.127	None

All rows use $c_n = c_m = 0.80$. The differential is $c_w - c_\pi$ and the last column gives $\bar{\lambda}$, the migrant private-wage-bill share at which the two consumption propensities are equal. None indicates that the ordering for an interior threshold fails. A negative differential reverses the consumption channel; the complete demand response additionally depends on investment. Parameter scenarios are illustrative.

The sensitivity has a direct analytical counterpart. Because the autonomous term contains $-c_\pi t_f$, a change in the domestic profit-consumption propensity affects both induced and autonomous consumption. Substituting equation (13) yields

$$\frac{\partial u^*}{\partial f} = - \frac{(1-m)(1-s_d)(\pi u^* - t_f)}{\Omega} \quad (25)$$

The derivative is strictly negative when after-tax profits are positive and $s_d < 1$; it is zero at $s_d = 1$. Higher remittances lower c_w , while higher foreign profit distributions lower c_π . Each can reduce domestic output, but their effects on $c_w - c_\pi$ run in opposite directions. Comparing cases A and C in Table 3, raising f from 0 to 0.10 lowers c_π from 0.500 to 0.450, changing the differential from -0.032 to 0.018 . This removes the consumption-channel reversal while the full demand response continues to depend on investment. The relevant parameter f measures profits distributed abroad, which need not equal foreign equity ownership.

Household groups can also differ in the import content of their consumption. Let m_n , m_m and m_π be the import fractions of expenditure by national wage recipients, migrant wage recipients and domestic profit recipients. Define their expenditure propensities on domestic value added as $b_n = (1 - m_n)c_n$, $b_m = (1 - m_m)(1 - \rho)c_m$ and $b_\pi = (1 - m_\pi)c_\pi$. The consumption-channel threshold is then

$$\bar{\lambda}_d = \frac{b_n - b_\pi}{b_n - b_m} \quad (26)$$

$$b_n > b_\pi > b_m.$$

The threshold in equation (26) concerns expenditure on domestic value added. A common import factor cancels from the comparison; unequal factors change the relative propensities. This extension relaxes the consumption comparison while equations (17)–(25) retain the common-import benchmark. Incorporating unequal coefficients throughout the main closure would also require changing equilibrium utilisation and the fiscal multipliers. Empirical identification requires group-specific expenditure responses: an aggregate imports-plus-remittances ratio combines different bases and does not measure these marginal propensities.

7 Empirical interpretation and identification

7.1 Monetary counterparts

Official monetary surveys contain more detail than equation (6), including claims on state enterprises and other items net. For the illustration, write $M3_t = NFA_t + NCG_t + CSE_t + CP_t + O_t$, where $M3$ is observed broad money, CSE denotes claims on state enterprises and CP denotes claims on the private sector. The reconciliation term is defined by $O_t = M3_t - NFA_t - NCG_t - CSE_t - CP_t$. For any signed counterpart $J_{j,t}$, its contribution to annual M3 growth is $100(J_{j,t} - J_{j,t-1})/M3_{t-1}$ percentage points. Thus a negative change in O contributes negatively. Table 4 applies this formula to the source's rounded stocks; contributions calculated from unrounded observations can differ slightly.

Table 4 Saudi monetary stocks and calculated growth contributions

Counterpart	2022	2023	2024	2023 pp	2024 pp
Net foreign assets	1,736	1,607	1,520	-5.17	-3.24
Net claims on government	-127	55	128	7.29	2.72
Claims on state enterprises	128	147	203	0.76	2.09
Claims on private sector	2,290	2,519	2,855	9.18	12.51
Reconciliation term	-1,532	-1,643	-1,785	-4.45	-5.29
Broad money M3	2,495	2,685	2,921	7.62	8.79

Stocks are SAR billion; pp are percentage points of annual M3 growth. Source: IMF (2025b), Table 4. Contributions use changes in the displayed rounded stocks divided by prior-year M3. *O* is computed as M3 less the four reported counterparts. It is distinct from currency outside banks and need not coincide with a separately published other-items-net series.

The combined NFA and NCG contribution is positive in 2023 and slightly negative in 2024, while private credit contributes positively in both years. These observations describe the changing counterpart composition; they do not identify why either series moved. Currency outside banks is included in the money aggregate, not in an other items category (IMF 2016).

A country application of equation (9) would independently measure the fiscal injection, private external transactions and resident nonbank acquisitions of government securities. It would then reconcile public-sector coverage, valuation changes, financial instruments and timing. Opposite movements in NFA and NCG alone cannot establish financing invariance, and a large fiscal deficit need not produce a large net monetary addition if external payments or nonbank asset acquisition absorb it.

7.2 Measuring the distribution parameters

The wage-bill share λ requires employment and remuneration for national and migrant workers in the same private-sector population and period. The remittance share ρ requires payments made from that population's wages, rather than an aggregate transfer series divided by an approximately related wage bill. Domestic workers, public-sector migrants, informal earnings and changes in labour-force composition can all affect the mapping.

World Bank personal remittances combine personal transfers and compensation of employees, and the statistical concepts depend on residence rather than nationality alone (World Bank, n.d.). Applying the numerator to a nationality-based private wage bill therefore requires adjustments. Combining an all-sector wage mean with private employment, or a remittance

flow with a wage observation from another year, can be informative for sensitivity analysis but does not produce a reliable country regime classification.

Measurement uncertainty should also be propagated jointly. The migrant wage bill enters both the numerator of λ and the denominator of a wage-based remittance ratio. Treating the resulting errors as independent can exaggerate or conceal the uncertainty in c_w . In the special case $c_n = c_m = c_0$, private-worker consumption is $c_w = c_0(1 - \lambda\rho)$, so the product of the two parameters is the relevant object. A consistent common population is more valuable than apparently precise but incompatible individual ratios.

Estimation of a demand regime additionally requires c_n, c_m, c_π , the response of investment to distribution, and any competitiveness effect. A national employment share or a remittance-to-GDP ratio cannot supply those parameters. The theoretical thresholds identify what must be measured; the numerical examples show how strongly conclusions can depend on that measurement.

8 Fiscal policy growth and the limits of the closure

8.1 Stabilising the domestic fiscal impulse

The framework supports evaluating fiscal choices by their effects on domestic expenditure as well as by their financing consequences. A rule that immediately offsets a fall in hydrocarbon receipts by cutting domestic spending can transmit the shock to private demand. Smoothing the fiscal impulse can reduce that transmission where financing buffers permit. Spending composition and the incidence of domestic revenue measures nevertheless matter, so a single deficit target cannot fully characterise the demand effect.

A practical assessment must connect the demand objective to a sovereign asset and liability position. Usable foreign assets, government deposits, borrowing costs, maturity structure and reserve needs determine which paths are feasible. Asset ownership and legal access matter as well as their consolidated value. Neither a current surplus nor a three-year average overall balance establishes that an expenditure path is sustainable. External assets provide financing capacity but do not remove the external constraint of a maintained peg.

Functional finance directs attention to output and employment outcomes. Productive capacity, labour availability, the public balance sheet and external settlement determine the feasible means of pursuing those outcomes. Identifying a numerical full-employment fiscal stance requires an employment relationship and country-specific estimates of expenditure responses.

Private investment and financial behaviour can also respond directly to oil-price expectations and risk.

8.2 Public investment and productive capacity

The static public-investment multiplier concerns demand at given capacity. A persistent investment programme also changes productive capacity, operating costs and possibly export or import-substitution opportunities. Those effects cannot be inferred from the impact multiplier alone.

For illustration of the required accounting, let public capital be K_g and define effective capacity $Q = K_p + \theta K_g$, with constant θ . If $\dot{K}_p = I - \delta_p K_p$ and $\dot{K}_g = G_I - \delta_g K_g$, then

$$\frac{\dot{Q}}{Q} = \frac{K_p}{Q} (g + \theta g_I - \delta_p) - \frac{\theta \delta_g K_g}{Q} \quad (27)$$

This expression uses the same private-capital denominator for g and g_I as the static closure. If utilisation is instead measured against Q , the demand and investment equations must be transformed accordingly. Moreover, additive public capacity is only one possible technology; infrastructure may raise private productivity through complementarity rather than through an independent capacity stock.

A complete growth model must specify these relationships together with expenditure paths, exports, fiscal responses and asset accumulation. Constant utilisation requires consistency between the relevant demand and capacity paths; it does not generally require government expenditure alone to grow at a mechanically prescribed rate. Public investment can raise an output level, alter a growth rate or change utilisation, and these are distinct outcomes. No long-run multiplier or sustainability theorem is claimed here.

8.3 Employment and monetary policy

Public employment supports household income through the government wage terms in equation (15), and public-service production enters the supplementary aggregate in Section 5.2. An employer-of-last-resort programme would additionally specify an employment guarantee, access conditions and the adjustment of employment over the cycle. Those institutional and behavioural features would determine its stabilising role.

The money identity similarly identifies channels to be modelled rather than explaining monetary transmission by itself. Policy rates may influence private credit, capital flows, imports, fiscal debt service and portfolio choices. The empirical transmission evidence

discussed by Espinoza and Prasad (2012) is relevant to selecting those behavioural equations, but it cannot turn an accounting decomposition into a causal explanation. Introducing interest payments would also redistribute income between debtors and creditors, with demand effects depending on their expenditure propensities.

9 Conclusion

Rent-financed public expenditure and endogenous bank money can be analysed within a common transactions framework. The domestic fiscal injection supports private income, while its monetary counterpart depends on external payments and private portfolio allocation. Financing changes that cancel on consolidation are conditionally neutral for the monetary total; resident nonbank purchases of government securities remain as a withdrawal. Compensation mechanisms operate through reserve and public accounts, while continued foreign-currency settlement depends on the external financing position.

The distributional result is behavioural and conditional. Remittances reduce the domestic spending generated by migrant wages, and a sufficiently large migrant wage share can make the consumption response to a higher wage share negative. The relevant threshold depends on domestic spending out of profits, foreign profit distributions and import content. Its existence is a theoretical possibility; whether any GCC economy crosses it remains an empirical question.

Fiscal analysis therefore needs the composition and incidence of expenditure alongside financing and external constraints. Private-output multipliers measure induced demand; the public-service aggregate also records the direct contribution of government provision. Empirical work requires consistent public-sector, monetary and household definitions followed by estimates of expenditure responses. A dynamic extension would specify capital accumulation, portfolio behaviour and sovereign balance sheets. The accounting and static results identify the relationships needed to trace those interactions over time.

References

- Alrasheedy, A. (2020). The transmission mechanisms of endogenous money supply in the case of Saudi Arabia. SAMA Working Paper WP/19/12, January. Saudi Arabian Monetary Authority.
- Beblawi, H. (1987). The rentier state in the Arab world. *Arab Studies Quarterly*, 9(4), 383–398.
- Bhaduri, A., and Marglin, S. (1990). Unemployment and the real wage: the economic basis for contesting political ideologies. *Cambridge Journal of Economics*, 14(4), 375–393.

Blecker, R. A. (1989). International competition, income distribution and economic growth. *Cambridge Journal of Economics*, 13(3), 395–412.

Blecker, R. A. (2016). Wage-led versus profit-led demand regimes: the long and the short of it. *Review of Keynesian Economics*, 4(4), 373–390.

Blecker, R. A. (2025). Monopoly, inequality, and the economy: Kaleckian macro models for undergraduate teaching. *Review of Political Economy*. Published online 29 April 2025. <https://doi.org/10.1080/09538259.2025.2483308>

Central Bank of Kuwait (n.d.). Exchange rate policy. Monetary Policy section, Central Bank of Kuwait website. Available at: <https://www.cbk.gov.kw/en/monetary-policy/exchange-rate-policy>. Accessed 27 September 2026.

Espinoza, R. A., and Prasad, A. (2012). Monetary policy transmission in the GCC countries. IMF Working Paper WP/12/132.

Espinoza, R. A., and Senhadji, A. S. (2011). How strong are fiscal multipliers in the GCC? An empirical investigation. IMF Working Paper WP/11/61.

Faudot, A. (2019). Saudi Arabia and the rentier regime trap: a critical assessment of the plan Vision 2030. *Resources Policy*, 62, 94–101.

Godley, W., and Lavoie, M. (2007). *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth*. Basingstoke: Palgrave Macmillan.

Gray, M. (2011). A Theory of Late Rentierism in the Arab States of the Gulf. CIRS Occasional Paper No. 7. Doha: Georgetown University School of Foreign Service in Qatar.

Hanieh, A. (2011). *Capitalism and Class in the Gulf Arab States*. New York: Palgrave Macmillan.

Hertog, S. (2010). *Princes, Brokers, and Bureaucrats: Oil and the State in Saudi Arabia*. Ithaca, NY: Cornell University Press.

ILO (2023). *Review of National Social Protection Legislation and Legal Frameworks for Migrant Workers in the Gulf Countries*. Geneva/Beirut: International Labour Organization.

IMF (2016). *Monetary and Financial Statistics Manual and Compilation Guide*. Washington, DC: International Monetary Fund. Chapter 6.

IMF (2025a). Gulf Cooperation Council: Enhancing Resilience to Global Shocks. Economic Prospects and Policy Challenges for the GCC Countries. IMF Policy Paper, December. Table 4, p. 52.

IMF (2025b). Saudi Arabia: 2025 Article IV Consultation. IMF Country Report No. 25/223. Table 4, p. 47.

Kalecki, M. (1971). *Selected Essays on the Dynamics of the Capitalist Economy 1933–1970*. Cambridge: Cambridge University Press.

Korniienko, Y., and Xin, W. (2025). Gulf Cooperation Council Diversification: The Role of Foreign Investments and Sovereign Wealth Funds. IMF Working Paper WP/25/174. Washington, DC: International Monetary Fund.

Lavoie, M. (2016). Convergence towards the normal rate of capacity utilization in neo-Kaleckian models: the role of non-capacity creating autonomous expenditures. *Metroeconomica*, 67(1), 172–201.

Lavoie, M. (2021). Two post-Keynesian approaches to international finance: the compensation thesis and the cambist view. In B. Bonizzi, A. Kaltenbrunner and R. A. Ramos (eds), *Emerging Economies and the Global Financial System: Post-Keynesian Analysis*. Abingdon: Routledge, pp. 14–27.

Lavoie, M. (2022). *Post-Keynesian Economics: New Foundations*, 2nd edition. Cheltenham: Edward Elgar.

Lerner, A. P. (1943). Functional finance and the federal debt. *Social Research*, 10(1), 38–51.

Medas, P., and Zakharova, D. (2009). A primer on fiscal analysis in oil-producing countries. IMF Working Paper WP/09/56.

Moore, B. J. (1988). *Horizontalists and Verticalists: The Macroeconomics of Credit Money*. Cambridge: Cambridge University Press.

Skott, P. (2012). Theoretical and empirical shortcomings of the Kaleckian investment function. *Metroeconomica*, 63(1), 109–138.

Tas, B. K. O., and Togay, S. (2012). A direct test of the endogeneity of money: implications for Gulf Cooperation Council countries. *Economic Modelling*, 29(3), 577–585.
<https://doi.org/10.1016/j.econmod.2011.12.015>

World Bank (2013). The 2008 SNA—Compilation in Brief: A Complement to the System of National Accounts 2008. Available at: <https://unstats.un.org/unsd/nationalaccount/docs/2008SNA-CompilationBrief.pdf>. Accessed 27 September 2026.

World Bank (n.d.). Personal remittances paid, current US dollars. World Development Indicators metadata, series BM.TRF.PWKR.CD.DT. Available at: <https://databank.worldbank.org/metadataglossary/world-development-indicators/series/BM.TRF.PWKR.CD.DT>. Accessed 27 September 2026.

Appendix A Transactions matrix

Sources of funds are positive and uses negative. Each row sums to zero. Each sector's full column, combining Panels A and B, sums to zero under its budget constraint. Neither panel is separately a complete sector budget.

Panel A Current transactions

Flow	G	CB	Banks	F current	F capital	N	Mg	RoW
Oil exports	$+X_o$							$-X_o$
Non-oil exports				$+X_n$				$-X_n$
Oil imports	$-M_o$							$+M_o$
Other imports				$-M$				$+M$
Public purchases and investment	$-(G_c + G_I)$			$+(G_c + G_I)$				
Private investment				$+I$	$-I$			
Private wages				$-(W_n + W_m)$		$+W_n$	$+W_m$	
Government wages	$-(W_{gn} + W_{gm})$					$+W_{gn}$	$+W_{gm}$	
Transfers	$-Tr$					$+Tr$		
Consumption				$+(C_n + C_m)$		$-C_n$	$-C_m$	
Domestic receipts	$+T$			$-T_f$		$-T_n$	$-T_m$	
Sovereign asset income	$+r_f A_f$							$-r_f A_f$
Domestic profit distributions				$-\Pi_d$		$+\Pi_d$		
Retained profits				$-\Pi_u$	$+\Pi_u$			
Foreign profit distributions				$-Z$				$+Z$
Household remittances							$-R_m$	$+R_m$

G consolidates government, the hydrocarbon producer and sovereign funds. $T = T_f + T_n + T_m$ and $\Pi = \Pi_d + \Pi_u + Z$. Private firms intermediate non-oil imports. The public wage totals include service and oil-sector compensation, as split in Section 4.1. Y_s is a supplementary production measure; it introduces no duplicate wage payment into this matrix.

Panel B Financial transactions

Flow	G	CB	Banks	F current	F capital	N	Mg	RoW
Sovereign foreign assets	$-\Delta A_f$							$+\Delta A_f$
Government deposits at CB	$-\Delta D_{gc}$	$+\Delta D_{gc}$						
Government deposits at banks	$-\Delta D_{gb}$		$+\Delta D_{gb}$					
Government securities at banks	$+\Delta B_b$		$-\Delta B_b$					
Government securities at nonbanks	$+\Delta B_h$					$-\Delta B_h$		
Government foreign borrowing	$+\Delta B_x$							$-\Delta B_x$
Central-bank foreign assets		$-\Delta FX$						$+\Delta FX$
Bank net foreign assets			$-\Delta NFA_b$					$+\Delta NFA_b$
Bank reserves		$+\Delta R_b$	$-\Delta R_b$					
Central-bank lending to banks		$-\Delta H$	$+\Delta H$					
Private deposits			$+\Delta D$		$-\Delta D_f$	$-\Delta D_n$	$-\Delta D_m$	
Currency outside banks		$+\Delta C_0$				$-\Delta C_{0n}$	$-\Delta C_{0m}$	
Bank loans			$-\Delta L$		$+\Delta L$			
Nonbank private capital inflows					$+K$			$-K$

$D = D_f + D_n + D_m$ and $C_0 = C_{0n} + C_{0m}$. Government securities held by resident nonbanks are assigned to national households. D_{gc} is net of central-bank claims on government. K excludes government foreign borrowing and bank foreign transactions. Stock changes denote transactions, with valuation changes excluded.

The firm capital account is $\Pi_u + \Delta L + K = I + \Delta D_f$. Household financial saving is allocated between the instruments shown. The government column combines current, capital and financial transactions. Domestic interest transfers, public debt service and bank operating profits are suppressed; sovereign foreign-asset income remains recorded.

Appendix B Derivations and numerical reproduction

B1 Monetary identity

Rearranging the government constraint gives

$$X_o - M_o + r_f A_f - \Delta A_f = D_g - \Delta B_b - \Delta B_h - \Delta B_x + \Delta D_{gc} + \Delta D_{gb}$$

Substituting this into the external account cancels ΔB_x . Subtracting ΔNFA_b and inserting the central-bank constraint gives equation (7). Adding the bank constraint then cancels government bank financing, government bank deposits, bank foreign assets and refinancing. Adding currency to deposits produces equation (8). Equation (9) follows by comparison with equation (6). Every cancellation concerns transactions valued consistently; observed stock changes additionally require valuation and classification adjustments.

B2 Profit identity

Substitute the two household budgets in equation (11) into equation (10). Private wages cancel, giving

$$\Pi = I + \Pi_d + D_g + X_n - M - R_m - S_n - S_m$$

$$S_n = S_{Wn} + S_{\Pi}, S_m = S_{Wm}, S_W = S_{Wn} + S_{Wm}$$

and

$$C_{\Pi} = \Pi_d - S_{\Pi}$$

Equation (12) follows. Government wages to either household group are retained throughout, while oil-sector imports are confined to the consolidated government's external transactions.

B3 Comparative statics

In equation (18), the numerator is independent of ρ and λ , while

$$\partial c / \partial \rho = -(1 - \pi) \lambda c_m$$

And

$$\partial c / \partial \lambda = (1 - \pi) [(1 - \rho) c_m - c_n]$$

Differentiation therefore gives equations (21) and (22). For the profit share, $\partial c / \partial \pi = c_{\pi} - c_w$ and the numerator changes by $(1 - m) \gamma_{\pi}$, producing equation (23). Equating c_w and c_{π} yields equation (24), subject to the ordering needed for an interior threshold. For foreign distributions,

$$\partial c_{\pi} / \partial f = -(1 - s_d)$$

And

$$\frac{\partial a}{\partial f} = (1 - s_d) t_f$$

producing equation (25).

For equations (19a) and (19b), use $y_N = u + w_{sn} + w_{sm}$ under the stated wage-cost convention and differentiate at fixed oil-sector wages. Each service-wage increase changes the corresponding total public wage in equation (15), while also contributing directly to y_N .

B4 Data and calculation conventions

Table 1 transcribes the 2024 columns of IMF (2025a), Table 4, without averaging across years or converting fiscal definitions. The table retains the source's published units and coverage qualifications. It is not used to calibrate D_g or infer a marginal import coefficient.

Table 3 is generated directly from equations (13), (14) and (24). For its first row, $c_\pi = 0.50$, $c_w = 0.468$, the differential is -0.032 , and the threshold is 0.750 . In the second and third rows, $c_\pi = 0.45$, the differential is 0.018 and the threshold is 0.875 . In the fourth row, the ordering for an interior threshold fails because migrant domestic expenditure exceeds profit consumption.

Table 4 uses rounded monetary stocks from IMF (2025b), Table 4. Its reconciliation term O is M3 less the four displayed counterparts. For example, the 2023 NFA contribution is $100(1607 - 1736)/2495 = -5.17$ percentage points. The combined NFA and NCG contribution is calculated before rounding. All contributions use the same lagged-M3 denominator. The computed residual includes the counterpart items needed for reconciliation and is distinct from currency holdings.

Appendix C Notation

Table C1 Principal notation

Symbol	Definition and units
Y, Y_s, Y_N	Private non-hydrocarbon value added, public-service value added and their sum. Flows in domestic currency per period at the fixed prices of the demand closure.
E_g, T, D_g	Consolidated expenditure on modelled domestic agents, domestic current receipts and their difference. Currency flows; imports embodied in purchases have not yet been deducted.
T_f, T_n, T_m	Domestic current receipts from firms, national households and migrant households. Currency flows; lower-case t_f, t_n, t_m divide by K_p .
X_o, M_o, X_n, M	Gross hydrocarbon exports, oil-sector imports, non-oil exports and imports intermediated by private firms. Currency flows.
$G_c, G_l, I; g_c, g_l, g$	Government purchases, public investment and private investment. Upper case denotes currency flows; lower case divides by K_p .
W_n, W_m	National and migrant private wage bills. Currency flows.
W_{gn}, W_{gm}	National and migrant wage payments of the consolidated public sector, including service and hydrocarbon wages. Currency flows.
$W_{sn}, W_{sm}; W_{on}, W_{om}$	Public-service and hydrocarbon-sector wage bills by household group. $W_{gj} = W_{sj} + W_{oj}$ for $j = n, m$; only service compensation enters the simplified Y_s measure.
$Tr; tr$	Transfers to national households, in currency and per unit of K_p . Distinct from domestic receipts T .
R_m, Z, K	Household remittances, private profit distributions abroad and net nonbank private capital inflows. Currency flows; K excludes government and bank external transactions.
A_f, r_f	Sovereign foreign-asset stock in currency and its current yield per period.
B_b, B_h, B_x	Government securities held by banks, resident nonbanks and foreign creditors. Currency stocks.
D_{gc}, D_{gb}	Net government central-bank deposits and government deposits at commercial banks. Currency stocks; central-bank claims on government are netted in D_{gc} .
FX, NFA_b	Central-bank foreign assets and commercial-bank net foreign assets. Currency stocks.
R_b, H	Bank reserves and domestic-currency central-bank refinancing of banks. Currency stocks; H is an asset of the central bank and liability of banks.
D, D_f, D_n, D_m	Total private deposits and deposits of firms, national households and migrant households. Currency stocks.
C_0, C_{0n}, C_{0m}	Currency outside banks and the holdings of national and migrant households. Currency stocks.
M_b, L	Model money held by private sectors, $D + C_0$, and bank loans to firms. Currency stocks.

Symbol	Definition and units
NFA, NCG	Banking-system net foreign assets and net claims on government; $NFA = FX + NFA_b$ and $NCG = B_b - D_{gb} - D_{gc}$. Currency stocks.
Π, Π_d, Π_u, C_Π	After-tax private profits, domestic profit distributions, retained profits and consumption from domestic profit distributions. Currency flows.
S_n, S_m, S_W, S_Π	National and migrant household saving, wage-and-transfer saving and saving from domestic profit distributions. Currency flows; Appendix B2 separates S_{Wn} and S_{Wm} .
K_p, K_g, Q	Private and public capital stocks and effective capacity. The static closure normalises capacity per unit of private capital to one.
$\theta, \delta_p, \delta_g$	Public-capital conversion coefficient and private/public depreciation rates per period in Section 8.2.
u, u^*	Private utilisation Y/K_p and its short-run goods-market equilibrium. Feasible interior comparisons impose $0 < u^* < 1$; the star is not a normal-rate or full-employment target.
$\mathcal{Y}_N$	Total non-hydrocarbon value added divided by K_p . Supplementary production aggregate; not private capacity utilisation.
π, λ	Pre-direct-tax private profit share and migrant share of the private wage bill. Dimensionless; λ is not an employment share.
ρ, ρ_g	Remittance fractions of private and public migrant wages. Dimensionless.
c_n, c_m	Consumption propensities out of national disposable wage/transfer income and migrant income after remittances and fixed payments. Dimensionless; expenditure includes imports.
f, s_d, c_π	Share of after-tax profits distributed abroad, effective saving fraction of the remainder, and domestic consumption propensity out of total after-tax profits: $c_\pi = (1 - f)(1 - s_d)$.
c_w, c	Average consumption propensity out of private wages and the aggregate induced consumption coefficient. Dimensionless; defined in equation (14).
a	Autonomous consumption per unit of K_p , defined in equation (15). Derived from the specified wages, transfers and fixed domestic receipts.
m, m_I	Benchmark import content of consumption/private investment/government purchases, and import content of public investment. Dimensionless fractions.
$\gamma_0, \gamma_u, \gamma_\pi, \psi$	Parameters of $g = \gamma_0 + \gamma_u u + \gamma_\pi \pi + \psi g_I$: autonomous accumulation and responses to utilisation, profit share and public investment. Units follow the common period and capital normalisation.
Ω	Local Keynesian stability denominator $1 - (1 - m)(c + \gamma_u)$, required to be positive.
$\bar{\lambda}, \bar{\lambda}_d$	Interior migrant private-wage-bill thresholds for consumption-channel reversal under common and unequal import content, respectively.
m_n, m_m, m_π	Import fractions of expenditure by national wage recipients, migrant wage recipients and domestic profit recipients in the Section 6.3 extension.

Symbol	Definition and units
b_n, b_m, b_π	Corresponding expenditure propensities on domestic value added: $(1 - m_n)c_n$, $(1 - m_m)(1 - \rho)c_m$, $(1 - m_\pi)c_\pi$.
$M3, CSE, CP$	Observed broad money, claims on state enterprises and claims on the private sector in Section 7.1. Table 4 reports SAR billion.
O	Signed monetary-survey reconciliation term $M3 - NFA - NCG - CSE - CP$, in the same units. Distinct from currency and not necessarily identical to published other items net.
$J_{j,t}$	Generic signed counterpart in the Section 7.1 identity. Its growth contribution is $100(J_{j,t} - J_{j,t-1})/M3_{t-1}$ percentage points.

Lower-case expenditure and receipt variables equal the corresponding flows divided by K_p ; their units are per period under the capacity normalisation in Section 5. Shares and propensities are dimensionless. Δ denotes a financial transaction change with revaluations excluded. National and migrant households are N and Mg in Appendix A. The monetary-survey symbol $M3$ is distinct from imports M and the model aggregate M_b .