Remittances, Labour Supply and the Functional Income Distribution

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The Question

How can we account for the diverse effects of remittances on economic growth?

- Do remittance inflows determine the functional income distribution in recipient countries?
- Is the Functional Income Distribution an important determinant of economic growth?

The Argument

- Remittances are important determinants of the functional income distribution. The final result hinges on the labour supply decision.
- The Functional Income Distribution is an important determinant of economic growth. The final result hinges on whether the economy is wage or profit led.

Labour Supply Decision

Basic work-leisure setup.

- Consider an individual i with utility function $U_i(y_i, l_i)$, where y_i and l_i are income and leisure hours respectively.
- Let $l_i = t_i - h_i$.
- Budget constraint is $y_i = w + v_i$, where w and v_i are hourly wage and non-labour income respectively.
- Lagrangian $\mathcal{L}_i = U_i(y_i, l_i) + \lambda(wt_i + v_i - y_i - wl_i) = 0$.
- $\partial h_i / \partial v_i < 0$: leisure is a normal good. $\partial h_i / \partial v_i > 0$: leisure is an inferior good.
- $Z = \frac{1}{V}$ if leisure is a normal good, where Z is the labour force and $V = \sum_{i=1}^{n} v_i$. The reverse holds if leisure is an inferior good.

Firm

- Production technology of firm j: $Q_j = f(\ell_j, m_j)$, where ℓ_j and m_j are total labour hours the firm hires and intermediate inputs respectively.
- Q_j may be exported or consumed locally.

$$p_j = (\tau_j)\frac{w}{\theta_j}(ep_{mj}),\ e \text{ is nominal exchange rate} \tag{1}$$

- $ep_{mj} = p_k^d + {p_k^i}^m$, costs of intermediate inputs.
- Investment function $g_j = I/K$ is as follows, where π, μ_j, φ_j are profit share, capacity utilization and animal spirits respectively:

$$g_j = f(\pi, \mu_j, \varphi_j), \qquad f_\pi, f_{\mu j}, f_{\varphi j} > 0 \tag{2}$$

Goods Market Equilibrium I

Assumptions:

1. **No government**
2. **Only profit income is saved.**

- Saving function, where s is the saving rate:

$$\sigma = (s\pi)\mu \tag{3}$$

- Current account balance as a ratio to capital stock $b = CB/K$, where $b_{\mu h}, b_{\mu f}, b_{NUT}, e^*$ are domestic and foreign capacity utilization, net unilateral transfers and real exchange rate respectively:

$$b = b(\mu_h, \mu_f, NUT, e^*), \quad e^* > 0, b_{\mu h} < 0, b_{\mu f} > 0, b_{NUT} > 0 \tag{4}$$

- $b = X + NUT - e^* IM.$

Goods Market Equilibrium II

- Goods market equilibrium condition with no government is $\sigma = b + G$, where $G = \sum_{j=1}^{n} g_j$.
- Goods market implicit solution:

$$(s\pi)\mu = f(\pi, \mu, \varphi) + b(\mu_h, \mu_f, NUT, e^*) \tag{5}$$

- The Keynesian stability condition is found by analyzing the conditions for adjustments in the utilization rate to eliminate excess demand for goods (EDG), where $EDG = b + G > \mu$.
- Short run stability, $\frac{\partial EDG}{\partial \mu} = f_\mu + b_\mu - s\pi < 0$ and $\frac{\partial b}{\partial \mu} < 0$.

Goods Market Equilibrium III

- Given that (6) is a general function, there is no explicit solution but we can derive its slope.

$$(s\pi)\mu = f(\pi, \mu, \varphi) + b(\mu_h, \mu_f, NUT, e^*) \tag{6}$$

- Totally differentiating (6) with respect to μ and the wage share $\alpha = 1 - \pi$, we obtain:

$$\frac{\partial \mu}{\partial \alpha} = \frac{s\mu - f_\pi}{s\pi - f_\mu - b_\mu} \tag{7}$$

- Denominator is positive given the stability condition.
- Wage led demand regime: $\frac{\partial \mu}{\partial \alpha} > 0$.
- Profit led demand regime: $\frac{\partial \mu}{\partial \alpha} < 0$.

Goods Market Equilibrium III cont'd

A relatively large utilization effect on investment and high saving engender wage led growth

- Wage led growth regime: $\frac{\partial G}{\partial \alpha} > 0$.

A relatively large profitability effect on investment and greater openness to imports lead to profit led growth

- Profit led growth regime: $\frac{\partial G}{\partial \alpha} < 0$.

$$\frac{\partial G}{\partial \alpha} = \frac{s(f_\mu \mu - f_\pi \pi) - f_\pi (b_\mu)}{s\pi - f_\mu - b_\mu} \quad (8)$$

Functional Income Distribution I

Aggregate income Y that can be divided into total wages wH and profits Π as follows.

$$Y = wH + \Pi, \qquad \text{where } H = \sum_{i=1}^{n} h_i \tag{9}$$

Given that Π = PY-(wH+eP$_m$), where eP_m is aggregate cost of intermediate inputs and aggregate price P=$(\tau)\frac{wH}{\Theta}(eP_m)$; (9) becomes:

$$Y = wH + [(\tau)\frac{wH}{\Theta}(eP_m)]Y - (wH + eP_m) \tag{10}$$

Now dividing both sides of equation (10) by the wage bill wH and taking the inverse lead us to the wage share $\frac{wH}{Y} = \alpha$.

Functional Income Distribution II

$$\alpha = \frac{wH\Theta}{[(\tau)(eP_m)]Y - eP_m} \tag{11}$$

The wage share can be expressed in terms of aggregate time endowment T and leisure hours L:

$$\alpha = \frac{(wT - wL)\Theta}{[(\tau)(eP_m)]Y - eP_m} \tag{12}$$

Functional Income Distribution III

Theorem 1

Non-labour income V is an important determinant of labour supply and consequently, the aggregate wage share α.

Theorem 2

In a flexible exchange rate system, remittance inflows engender a nominal exchange rate appreciation and increases the wage share, but the net effect is determined by individuals' labour supply decision.

Theorem 3

In fixed exchange rate systems, remittances have ambiguous effects on the functional income distribution but only through the labour supply decision channel.

Functional Income Distribution IV

The wage share is given by seven factors, all interrelated:

- Remittance inflow;
- The intensity of the class struggle, through which capitalists and unions clash;
- The degree of monopoly, which the markup reflects;
- The ratio of aggregate prices to intermediate input prices;
- Foreign exchange rate;
- The level of economic activity;
- Labour productivity.

Dynamics I

For simplicity we ignore intermediate inputs and assume a fixed exchange rate.
The wage share becomes:

$$\alpha = \frac{wH\Theta}{\tau Y} \tag{13}$$

The rate of change of the wage share is:

$$\hat{\alpha} = \hat{w} + \hat{H} + \hat{\Theta} - \hat{\tau} - \hat{Y} \tag{14}$$

Let $\hat{H} = \phi(V\gamma - V\psi)$, where parameters γ and ψ reflect leisure as inferior and normal goods respectively. After substitution:

$$\hat{\alpha} = \hat{w} + \phi(V\gamma - V\psi) + \hat{\Theta} - \hat{\tau} - \hat{Y} \tag{15}$$

Dynamics II

We now specify the rate of change of non-labour income or remittances V, where α^T and β are target wage share and an altruism parameter.

$$\hat{V} = \eta(\alpha^T - \alpha) + \beta \tag{16}$$

Let $\alpha^T = 1 - \pi^T$. Given that

$$\pi^T = a_0 - a_1(H) \tag{17}$$

Equation (16) can be rewritten as:

$$\hat{V} = \eta(1 - [a_0 - a_1(H)] - \alpha) + \beta \tag{18}$$

Dynamics III

We now have two differential equations with two unknowns $(\hat{\alpha})$ and $(\hat{V})$ as shown below.

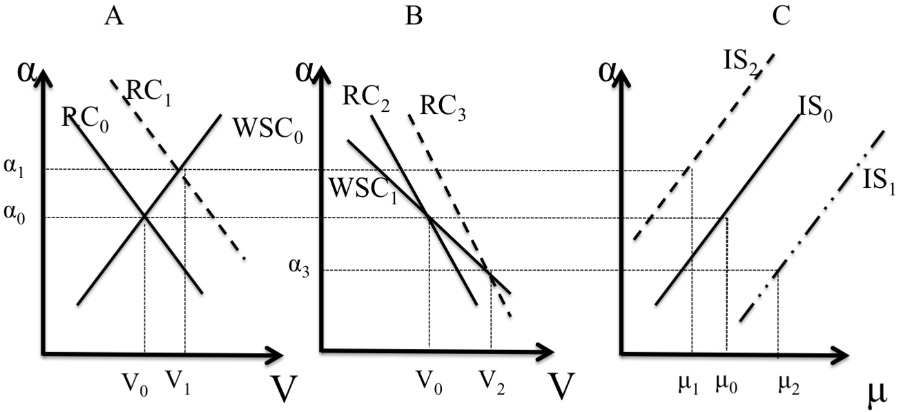
$$\hat{\alpha} = 0 \Rightarrow \hat{\bar{w}} + \phi V \gamma - \phi V \psi + \hat{\Theta} - \hat{\tau} - \hat{Y}$$

$$\hat{V} = 0 \Rightarrow \eta - \eta a_0 + \eta a_1(H) - \alpha + \beta$$

The remittance curve (RC) is always downward sloping but the wage share curve (WSC) can be either upward sloping when leisure is an inferior good $(\gamma > \psi)$ or downward sloping $(\gamma < \psi)$ when leisure is a normal good. However, the wage share curve is always flatter than the remittance curve when both are downward sloping and the steady state equilbrium is observed when the curves intersect at $\hat{\alpha} = \hat{V} = 0$.

Dynamics IV

Figure 1: Remittances, Wage Share and Growth



Policy

Key policy problem: How to alter individuals' work preference?

- Higher minimum wages
- Lower labour market discrimination
- National internships
- Production diversification