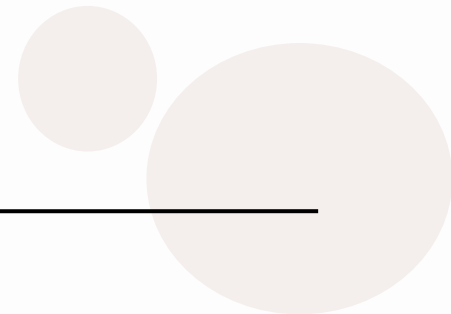

Unlocking The Gender-economic Growth Nexus in Developed, Semi-industrialized, and Low-income Agricultural Economies

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Motivation

- Gender differences in behaviour have been recognized as influential factors in macroeconomic outcomes.
- Previous research has primarily focused on the labour market and wage inequality; however, there is evidence of a significant effect of gender on aggregate consumption, with the consumption share rising as measures of women's discretionary income and bargaining power increase (Badru, 2019).
- Declining labour share of national income and workers' bargaining power raises questions about the economy-wide effects of stratification and the potential for recovery with a gender equality-led growth regime.
- Understanding the macroeconomic impact of gender inequality in wages across different economic structures and levels of development is crucial for designing effective policies (Badru, 2019).

This paper:

- Does the macroeconomic impact of gender inequality in wages vary across different economic structures and levels of development?
 - What are the linkages and transmission channels through which gender income equality influences macroeconomic aggregates?
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MAIN FINDINGS

The Good

Global economic growth is **gender equality-led** and **wage-led** in the long-run

Same conclusion holds for middle income countries.

The Good

Short-run improvements in gender wage equality are consistent with profit-led growth in low-income countries

This result suggests that higher gender equality makes the growth regime for LIAEs more wage-led or less profit-led in the long run.

The Ugly

Subject to a number of structural
and time constraints,
Gender **Inequality** is good for
economic growth

Gender inequality affects economic growth

- Under a neoclassical/endogenous growth model framework
 - ▶ Knowles, Lorgelly and Owen (2002)
 - ▶ Dollar and Gatti (1999)
 - ▶ Klasen (2002)
- Seguino (2000a; 2000b)

➤ This paper:

- Focus on private sector demand
- Bhaduri-Marglin framework
- estimates long and short-run effects (based on annual data)
- for 46 countries
 - DCs, SICs & LIAEs

Key Takeaways from the Bhaduri-Marglin (1990) Framework

How "growth matters for inequality":

- The Bhaduri-Marglin model suggests that the nature of growth can influence income distribution.
 - In a wage-led growth regime, an increase in the wage share can stimulate demand and lead to higher growth: $\left(\frac{dG}{dWS} > 0\right)$,
 - In a profit-led growth regime, an increase in the profit share can spur investment and lead to higher growth, potentially exacerbating income inequality: $\left(\frac{dG}{dPS} > 0\right)$,
 - The nature of growth can have differential impacts on men and women. For instance, growth in sectors that predominantly employ men can exacerbate the gender wage gap $\left(\frac{dGWG}{dG} > 0\right)$, and vice versa $\left(\frac{dGWG}{dG} < 0\right)$ (Anker (1998; Seguino, 2000; Zveglic and Rodgers 2004; Berik 2008)

where (G) represents growth and (WS) is the wage share, (PS) is the profit share and gender wage gap is GWG.

Key Takeaways from the Bhaduri-Marglin (1990) Framework

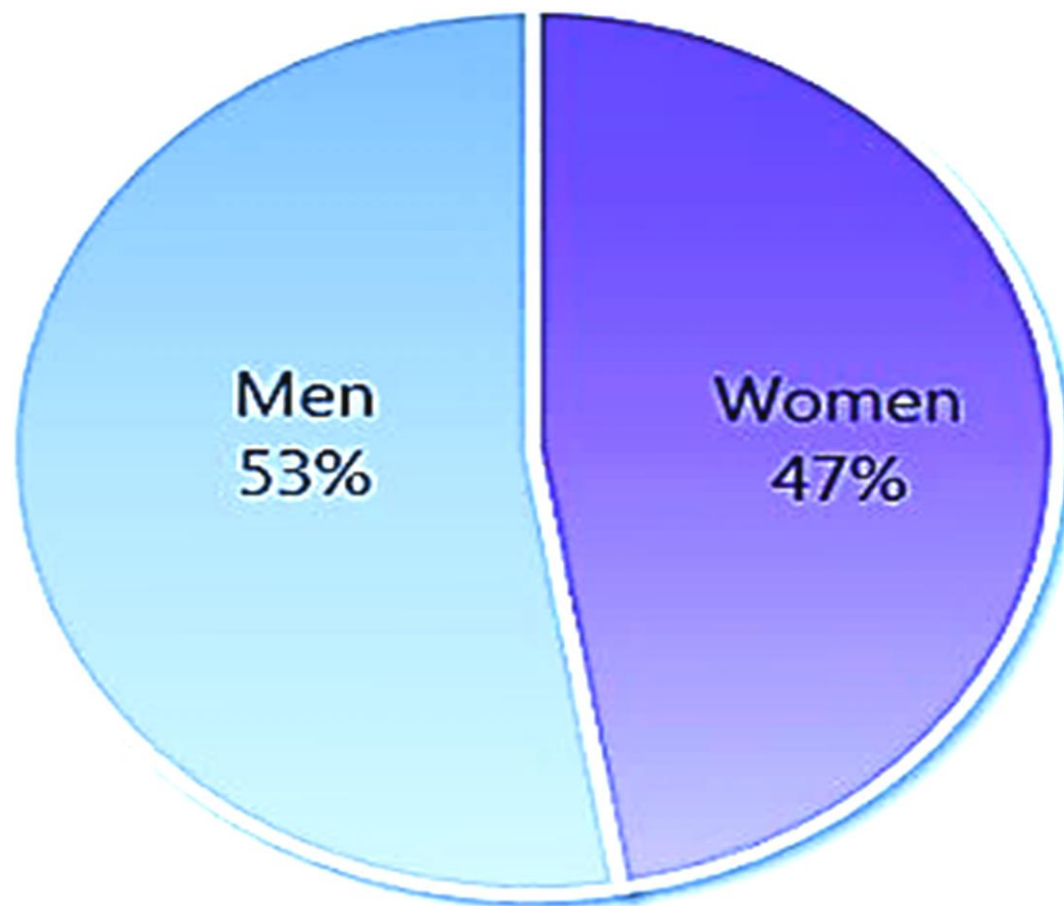
How "inequality matters for growth":

- Income distribution can significantly impact aggregate demand and hence economic growth by dampening consumption, as the marginal propensity to consume is typically lower for high-income groups: $\left(\frac{dC}{dIneq} < 0\right)$.
 - A higher gender wage gap can dampen consumption as women typically have a higher marginal propensity to consume: $\left(\frac{dC}{dGWG} < 0\right)$.
- High levels of inequality can also lead to lower levels of investment due to increased economic uncertainty and lower aggregate demand: $\left(\frac{dI}{dIneq} < 0\right)$.
 - Women often face higher barriers to access capital, which can limit their ability to invest in businesses or education: $\left(\frac{dI}{dGWG} < 0\right)$ (DiNardo et al., 1996; Borjas, 2002)

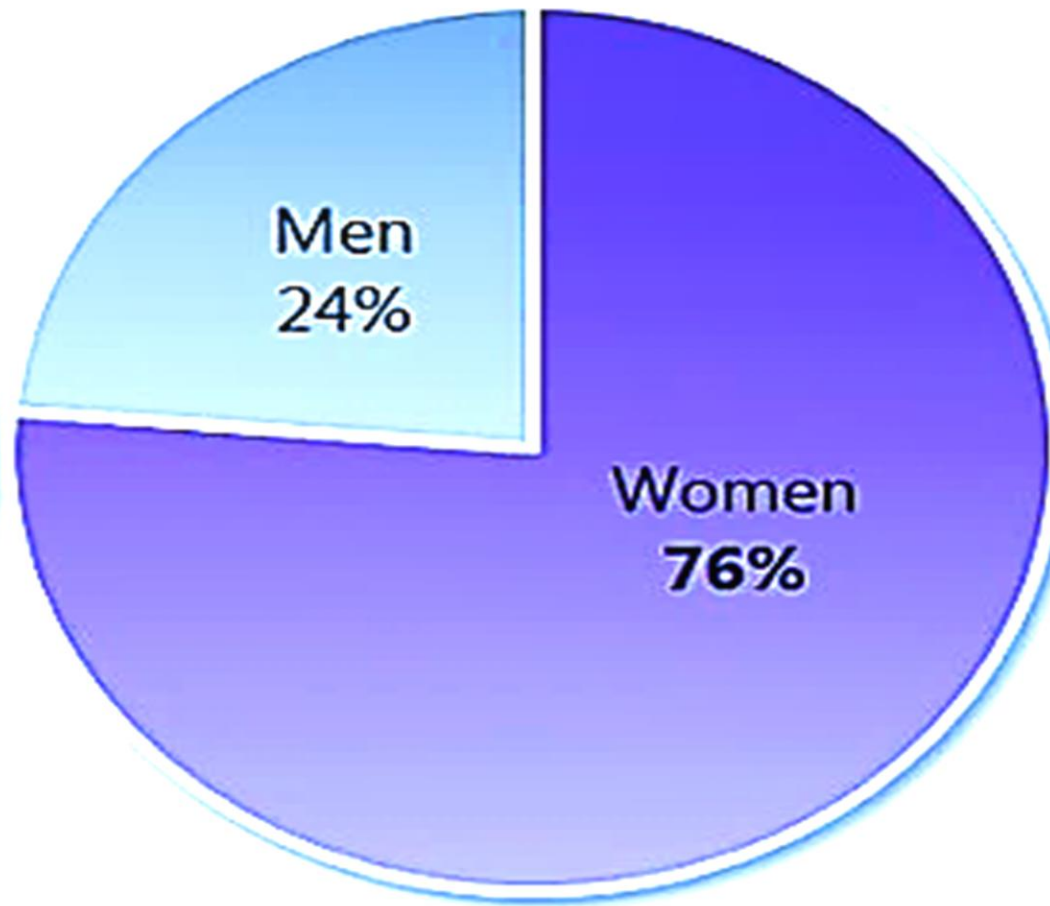
where (C) represents consumption, (I) represents investment

Women are 3/4 of workers in the 10 largest low-wage jobs

Overall Workforce



Low-Wage Workforce



Theoretical Framework

- Heterodox economists agree that distribution significantly impacts demand.

However, they diverge on the sign of the effect:

- Goodwin/Marx Theory:
 - $\frac{d(\text{Profit Share})}{dt} > 0 \Rightarrow \frac{d(\text{Investment})}{dt} > 0 \Rightarrow \frac{d(\text{Growth})}{dt} > 0$
 - Goodwin Cycle:
 - $\frac{d(\text{Profit Share})}{dt} > 0 \Rightarrow \frac{d(\text{Investment})}{dt} > 0 \Rightarrow \frac{d(\text{Growth})}{dt} > 0 \Rightarrow$
 $\frac{d(\text{Employment})}{dt} > 0 \Rightarrow \frac{d(\text{Profit Share})}{dt} < 0 \Rightarrow \frac{d(\text{Investment})}{dt} < 0 \Rightarrow \dots$
 - Kalecki/Post Keynesians Theory:
 - $\frac{d(\text{Profit Share})}{dt} > 0 \Rightarrow \frac{d(\text{Consumption})}{dt} < 0 \Rightarrow \frac{d(\text{Growth})}{dt} < 0$
 - There is a consensus that $\frac{dC}{dWS} > 0$ and $\frac{dI}{dWS} < 0$ (Also, $\frac{dNX}{dWS} < 0$)
 - Goodwin (implicitly): The effect of wage share on investment is larger than the effect on consumption.
 - Kalecki: The effect of wage share on consumption is larger than the effect on investment.
-

Empirical literature: Systems approach

- **Systems approach (top down): usually VAR**
 - Barbosa-Filho and Taylor (2006): VAR with Y, PS; then decompose effects within Y; for USA
 - Flaschel and Proano (2007): 5-variable system (Y, p, w, u), no decomposition; for Euro area
 - Stockhammer and Onaran (2004): structural VAR 5 variables (I/K, pi, z, u, pdy); US, UK, F
 - Onaran and Stockhammer (2005): structural VAR 5 variables (I, C, z, PS, X, M); Korea, Turkey
 - Allain and Canry (2008): VECM with 7 variables (I/Y, C/Y, NX/Y, R/Y, Y_W, ex); for France
- **Deals with simultaneity, weak in identifying effects on C and I (few if any control variables)**
 - find either very small effects or profit-led demand regime

Empirical Literature: Single equation approach

- **Single equation approach I: estimate separate C, I, NX functions. (implicit: constant effect dNX/dWS despite rising X/Y and M/Y)**
 - Bowles and Boyer (1995): 6 OECD countries
 - Naastepad and Storm (2006): 8 OECD countries
 - Hein and Vogel (2008): 6 OECD countries
 -
 - **Single equation approach II: estimate separate C, I, X, M, P functions. (implicit: dNX/dWS will change with rising X/Y and M/Y)**
 - Stockhammer/Onaran/Ederer (2009): Euro area
 - Ederer & Sto. (2007), Sto. and Ederer (2008), Sto./Hein/Grafl (2008): France, Austria, Germany respectively
 -
 - **Good in identifying effects, bad in dealing with endogeneity**
 - Most find wage-led private domestic demand regimes
-

Estimation Strategy

- **Focus on long run quasi equilibrium effects and short run dynamics using annual data**
 - Post-Keynesians and other heterodox economists would argue that the macro economy is itself made up of a series of short runs. Disequilibria that result from demand-side shocks can produce long-lasting effects (Dutt and Ross, 2007).
 - **Single Equation Approach**
 - Panel data (largest case $N = 46$; $T = 31$)
 - Estimates goods market behavioural equations building on insights from multi-factor models in nonstationary panels (Kapetanios, Pesaran and Yamagata, 2011; Pesaran, 2006).
 - Log-log transformation; Jackknife bias correction
 - **To obtain relevant effects, the coefficients have to be transformed from elasticities to marginal effects**
-

MODEL

Model

- $Y = C(Y, WS, RW) + I(Y, WS, RW, INT) + NX(Y, WS, RW, EX) + G'$
 - WS ... Wage share (W/Y)
 - Profit Share = 1-WS
 - RW... Female-to-male wage ratio
- Cumulative (Multiplier) Effect on Income (Stockhammer and Wildauer, 2016):

$$\frac{dY^*}{dWS} = \frac{g_1}{1 - g_2}$$

$$\text{where } g_1 = \left(\frac{\partial C}{\partial WS} + \frac{\partial I}{\partial WS} + \frac{\partial NX}{\partial WS} \right) \text{ and } g_2 = \left(\frac{\partial C}{\partial Y} + \frac{\partial I}{\partial Y} + \frac{\partial NX}{\partial Y} \right)$$

- If $dY/dWS < 0$ **profit-led demand (Goodwin case)**
 - If $dY/dWS > 0$ **wage-led demand (Kalecki case)**
-

Model II

Equilibrium condition: $Y = C + I + NX$

- $\Delta Y / \Delta RW > 0$ (*expected hypothesis*)
 - i.e. if MPC out of female wage income $>$ MPC out of male wage income, then
 - higher RW \rightarrow higher output: gender equality-led regime
 - If the regime is gender-equality led ($dY/dRW > 0$), then higher gender equality makes the regime more wage-led or less profit-led
-

Model III

- The relative contributions to actual growth attributable to each explanatory variable is derived by multiplying the estimated coefficient with the actual change in the variable
 - e.g. $\hat{\beta}_{CRW}\Delta RW$ for consumption
 - An increase in gender equality that results in injections exceeding leakages($S + M < I + X$) is expansionary.
 - i.e., a redistribution stimulates aggregate demand, leading to an increase in output.
 - A redistribution with this effect would be “**gender cooperative**” (Seguino and Setterfield, 2010)
-

Consumption Side

- The hypothesis is that women have a higher *mpc* than men and, as such, there exists an inverse relationship between gender inequality and aggregate consumption such that: $\partial C / \partial RW > 0$.
 - We also expect that women's labour force participation (LP) may impact on their consumption expenditure either
Directly because they are able to earn own income by working), or
Indirectly because more engagement of women in the labour market may imply that they are better able to organize in unions that advocate for higher wages for women, relative to men).
-

Investment Side

The net effect of higher female wages on profits and thus investment may be positive or negative, depending on the economic environment.

For example, the degree of firm mobility may determine the impact of higher female wages on investment.

Net Exports Side

- Firstly, increased labour force participation by women often has the result of reducing the time spent on unpaid caring labour – especially in the presence of rigid gender roles – and fertility rates, leading to increased earnings for women with potential negative impacts on the labour force [which according to feminist theory, is a ‘produced means of production’].
 - Secondly, a lower wage position for women has a potentially positive impact on the composition and direction of production and thus exports through the expected positive effect on profits and comparative advantage (Busse and Spielmann, 2003).
 - Which of these two cases has a higher effect on NX is expected to depend on the level of economic development [or structure] of a country.
 - Labour market conditions of women relative to men are expected to have different consequences in SIEs and LIAEs.
-

Methodology

- The study employs common factor models to estimate the average long-run effect and short-run dynamics, allowing for heterogeneous impacts across countries.
 - In addition to the standard Autoregressive Distributed Lag (ARDL) model, the study uses the Cross Sectional-ARDL (CS-ARDL) and Cross Sectional - Distributed Lag (CS-DL) approaches by Chudik et al. (2016).
 - Both approaches allow for country-specific heterogeneity and cross-country correlations, making them robust to endogeneity created by unobserved common factors and omitted variable bias.
 - Before testing for long-run cointegration between the variables of interest, the study first checks for the order of integration in the series using unit root tests. These include the Levin–Lin–Chu (LLC) unit root tests, the Im-Pesaran-Shin (IPS) test, and the Cross-sectionally augmented IPS (CIPS) test.
-

Methods II

ARDL ECM SPECIFICATION

$$\Delta y_{it} = \beta_i (y_{i,t-1} - \theta'_i x_{it}) + \sum_{j=0}^{q-1} \delta_{ij}^* \Delta x_{i,t-j} + \sum_{j=1}^{p-1} \lambda_{it}^* \Delta y_{i,t-1} + u_{it}$$

CS-ARDL ECM SPECIFICATION

$$\Delta y_{it} = \alpha_i + \beta_i (y_{i,t-1} - \theta'_i x_{it}) + \sum_{j=0}^{q-1} \delta_{ij}^* \Delta x_{i,t-j} + \sum_{j=1}^{p-1} \lambda_{it}^* \Delta y_{i,t-j} + \sum_{j=1}^p \psi_j \overline{y_{t-j}} + \sum_{j=0}^q \kappa_i \overline{x_{t-j}} + \sum_{j=1}^{p-1} \Phi_j \overline{\Delta y_{t-j}} + \sum_{j=0}^{q-1} \Gamma_i \overline{\Delta x_{t-j}} \varepsilon_{it}$$

CS-DL ECM SPECIFICATION

$$y_{it} = \alpha_i + \theta'_i x_{it} + \sum_{j=0}^q \delta_{ij} \Delta x_{i,t-j} + \sum_{j=0}^{p_{\bar{y}}} \psi_{ij} \overline{y_{t-j}} + \sum_{j=0}^{q_{\bar{x}}} \kappa_{ij} \overline{x_{t-j}} + \varepsilon_{it}$$

Elasticities are converted into marginal effects

$$\frac{\partial Y}{\partial WS} = \hat{\beta}_{C,WS} \left(\frac{C}{WS} \right) + \hat{\beta}_{I,WS} \left(\frac{I}{WS} \right) + \hat{\beta}_{X,WS} \left(\frac{X}{WS} \right) + \hat{\beta}_{M,WS} \left(\frac{M}{WS} \right)$$

Elasticities for the different country groups are calculated using GDP-weighted sample averages

$$\frac{\partial Y}{\partial WS} = \hat{\beta}_{C,WS} \left(\phi \frac{C}{Y} \right) \frac{1}{\phi WS} + \hat{\beta}_{I,WS} \left(\phi \frac{I}{Y} \right) \frac{1}{\phi WS} + \hat{\beta}_{X,WS} \left(\phi \frac{X}{Y} \right) \frac{1}{\phi WS} + \hat{\beta}_{M,WS} \left(\phi \frac{M}{Y} \right) \frac{1}{\phi WS}$$

Total Effects: dy/dws

Long-run WS effects on Aggregate demand for different Income groups

	PANEL	DEVELOPED COUNTRIE	SICs	LIAEs
Consumption	0.671	-0.661	2.879	4.307
Investment	-0.049	3.701	-0.274	0.169
Net Export	-0.11	-0.493	0.498	-0.154
y^{PED}	0.512	2.547	3.103	4.322
Multiplier	4.484	0.561	1.769	0.563
Total Effect	2.296	1.429	1.489	2.433
Openness	7%	21%	36%	61%

Total Effects: dy/dws

Short-run effects on aggregate demand for different income groups

	PANEL	DEVELOPED COUNTRIES	SICs	LIAEs
Consumption	0.133	0.076	0.131	1.333
Investment	-0.163	0.453	-0.548	2.123
Net Export	-0.016	-0.119	-0.348	-4.004
γ^{PED}	-0.046	0.410	-0.765	-0.548
Multiplier	1.156	1.675	0.718	1.783
Total Effect	-0.053	0.687	-0.549	-0.977

Results

GLOBAL ECONOMIC GROWTH



**LONG-RUN WAGE-LED
GROWTH**



**SHORT-RUN PROFIT-LED
GROWTH**

Results

DCs

- long-run wage-led growth
- Short-run wage-led growth

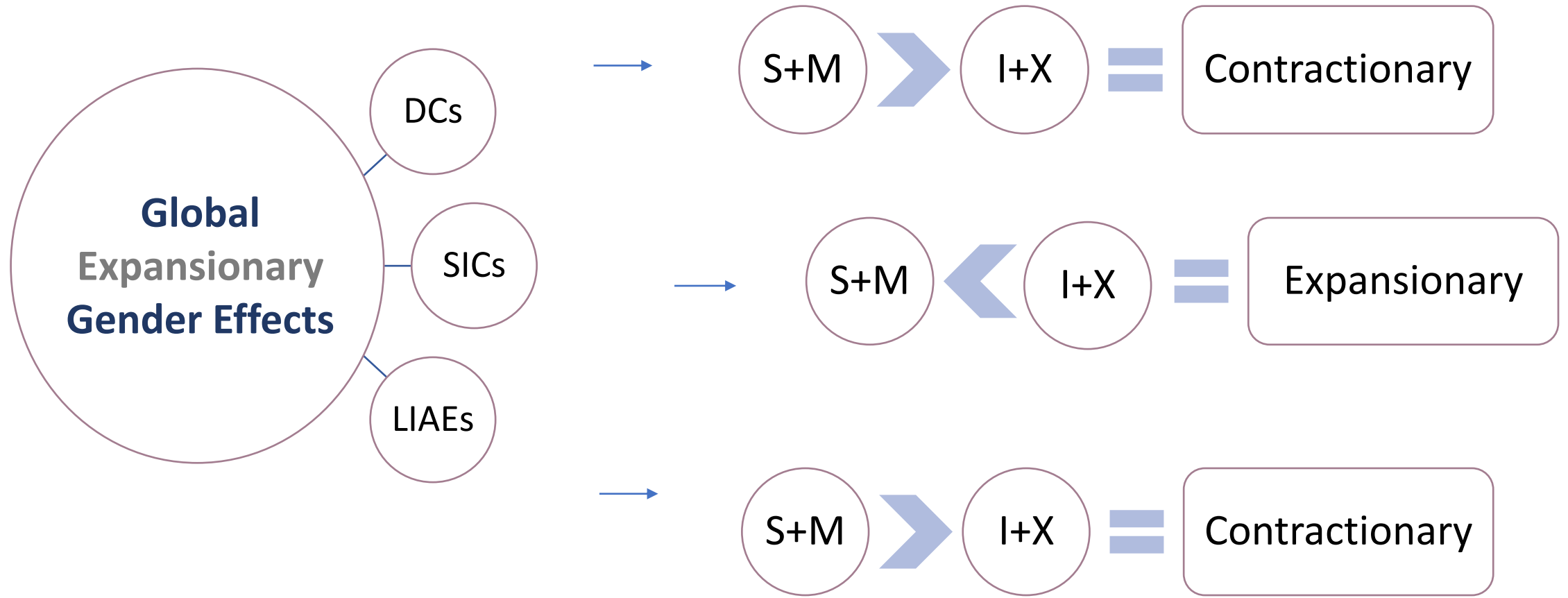
SICs

- long-run wage-led growth
- Short-run profit-led growth

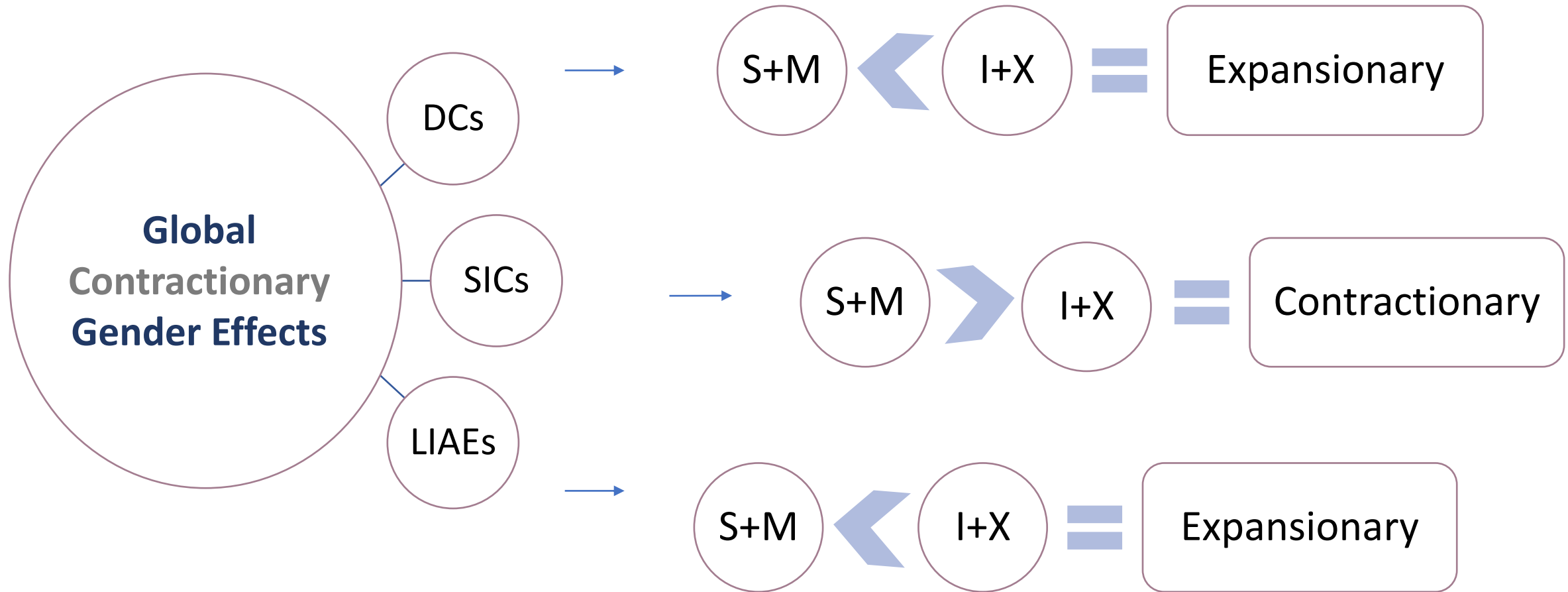
LIAEs

- long-run wage-led growth
 - Short-run profit-led growth
-

Long-run Gender Effects on Growth



Short-run Gender Effects on Growth



Summing Up Gender & Class Differences in Macroeconomic Outcomes

- Private excess demand ($g_1 = 0.512$) effect is the first round/initial effect or the sum of the partial effects, given a certain level of income.
- The second round effects (multiplier = 4.48) includes the indirect effect; the first round effects increase income and thus induce additional expenditures.
 - **A Global wage-led demand regime,**
 - Although some individual countries may have a profit-led regime

GENDER EFFECTS:

- Long-run: **Gender Cooperative;** expansion
 - Short-run: **Gender Conflictive;** contraction
-

Conclusion

- Overall, our findings suggest that global economic growth is wage led in the long run and profit led in the short run.
 - Gender equality may be a substantive long-run economic growth-promotion tool.
 - Overall, economic growth is **gender cooperative** in the long run but **gender conflictive** in the short run
 - Gender equality may have expansionary effects on long-run economic growth and may be effective in pushing an economy from a short-run profit-led growth regime to a wage-led agenda.
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Conclusion

- Distribution plays a role in determining (private domestic) demand and growth
 - Wage moderation is unlikely to stimulate employment in developed countries
 - Gender equality may promote sustainable growth due to its wage-led characteristics

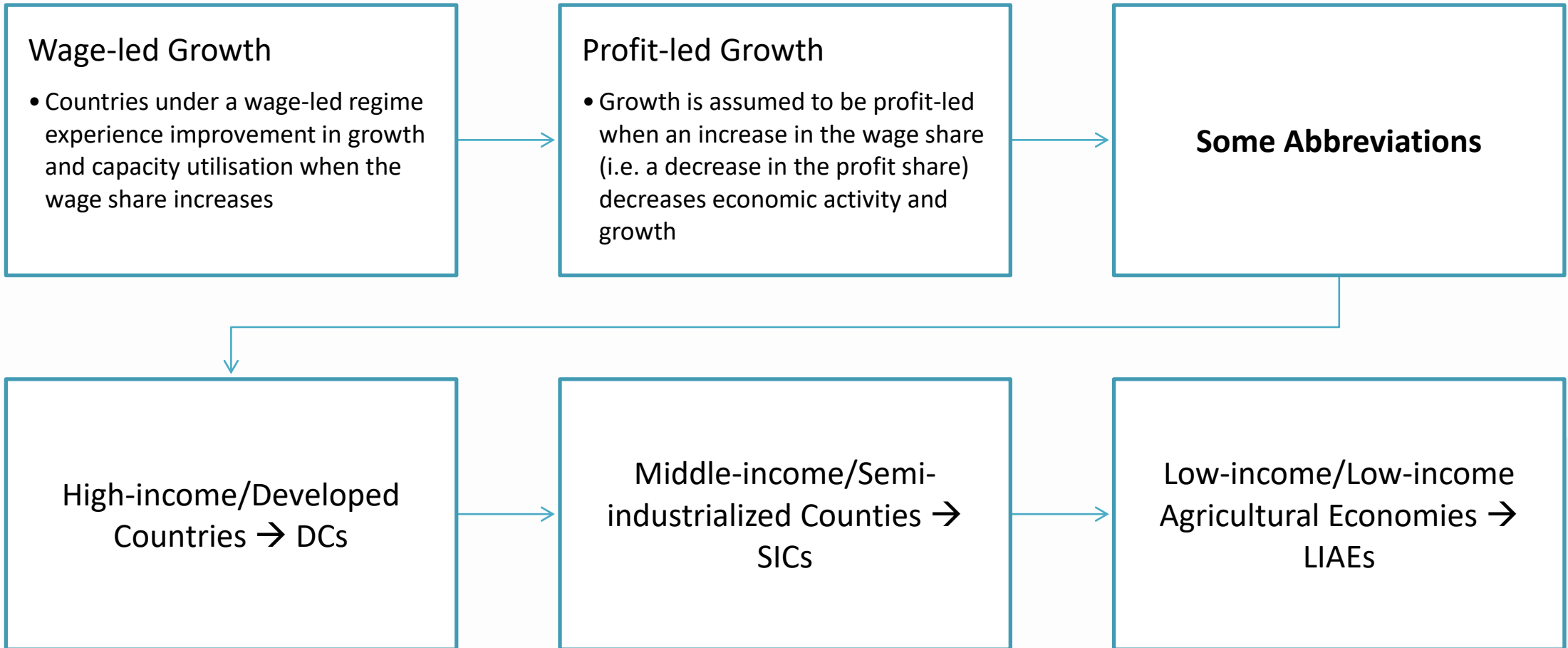
Why wage-led growth?

- Equality-led growth strategies are essentially wage-led
 - Negligible positive results in the short-run but large multiplier effects on long-term growth
-



Thanks!

APPENDIX



Demand-led Growth Framework

- Demand-led growth models are driven by the aggregate level of spending which becomes a function of the distribution of income between workers and capitalists.
 - This is a structural rather than an individualist disaggregation. It is based on the different economic functions of workers and capitalists and corresponds to the institutional division between firms and households.
 - Any disaggregation by gender should be based on a similar understanding of the way in which gender as a social institution impinges on or constrains the behaviour of the macro economy.
 - Correct economic decisions require that gender relations be incorporated into the framework of analysis rather than used as a method of classifying or evaluating outcomes (Elson, 1991; Haddad et al, 1992; Palmer, 1992)
-

LLC, IPS AND CIPS PANEL UNIT ROOT TEST RESULTS

	Deterministic Trend	LLC	IPS	CIPS
<i>A. LEVEL</i>				
Y	Trend, Intercept	1.855	13.902	-1.449**
C	Trend, Intercept	-1.085	-0.648	-5.129***
I	Intercept	4.798	8.295	3.946
X	Intercept	5.845	13.426	11.370
M	Trend, Intercept	-1.470*	0.711	-2.442**
WS	Trend, Intercept	-0.913***	-0.986	-0.570
RW	Trend, Intercept	-0.997	-2.130**	-3.556***
INT	Intercept	-16.682***	-8.285***	-0.963
EX	Intercept	-23.433***	-23.030***	-11.928***
<i>A. FIRST DIFFERENCE</i>				
ΔY	Trend, Intercept	-16.642***	-18.367***	-5.423***
ΔC	Intercept	-21.591***	-22.289***	-8.751***
ΔI	Intercept	-24.389***	-24.499***	-9.741***
ΔX	Intercept	-21.780***	-22.663***	-6.269***
ΔM	Intercept	-22.511***	-22.532***	-4.284***
ΔWS	Intercept	-14.979***	-18.650***	-5.275***
ΔRW	Intercept	-17.087***	-20.596***	-3.051**

We determine the optimal lag length using the Schwarz Information Criterion (SIC). Δ is the first difference operator.

***, ** and * denote rejection of H_0 at 1%, 5% and 10% significance levels respectively.

the inclusion of a trend term is dependent on the observable characteristics of the series.

-
- In Developed Countries (DC), both long-run and short-run growth are wage-led.
 - Semi-Industrialized Countries (SIC) experience wage-led growth in the long-run, but profit-led growth in the short-run.
 - Low-Income Agrarian Economies (LIAE) also experience wage-led growth in the long-run, but profit-led growth in the short-run.
 - These dynamics contribute to a global wage-led demand regime.
 - In terms of gender effects, the long-run trend is cooperative and expansionary, while the short-run trend can be conflictive and contractionary.
-