The Effect of Gender Wage Differentials and Women’s Bargaining Power on Aggregate Expenditure

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HYPOTHESIS

BASIC PREMISE

- Within-household inequality has potential implications on aggregate consumption.
- The standard Keynesian view predicts that equalization of the income distribution leads to an increase in aggregate consumption

FORMAL MODEL

Our ‘gendered’ aggregate demand model incorporates a disaggregated consumption function that accounts for the potential differences in the consumption propensities of men and women:

$$where \qquad W = f(Y_f, Y_m)\ ; \quad Y_f < Y_m$$

Y_f refers to total female income ($wages$) and Y_m refers to total male income ($wages$)

HYPOTHESIS

Hypothesis 1:

The marginal propensity to consume out of female wage income is higher than that out of male wage income

- Gendered differences exist in consumption patterns and in individual MPCs [Microfounded Linkages][1]
- An increase in female wages or female employment, other things being equal, is expected to lead to higher consumption

Hypothesis 2:

A higher degree of gender equality in wages [or employment] changes the composition of consumption

. Lundberg et al (1997); Rubalcava et al. (2009); Haddad (1995)

FRAMEWORK

POST-KEYNESIAN

- Domestic demand (consumption) is wage-led
- Wages are an outcome of a bargaining process between employers and workers (women may have less bargaining power)
- Unemployment is involuntary. Leisure is not a choice but a residual
- Kaleckian growth models offer a general theory which allows for opposing effects of the wage share on growth

Wage-led Countries: United States & United Kingdom

Profit-led Countries: Canada, & Australia

Onaran & Galanis (2012); Onaran & Obst (2016)

…SEVERAL ISSUES

Little evidence to support the Keynesian intuition that equalization of the income distribution will increase consumption.

- No precise conclusion: equalizing income distribution will either have no effect on or (slightly) reduce aggregate consumption (Blinder (1975), Della Valle and Oguchi (1976), Musgrove (1980), Cuaresma et al. (2017))
- The first possibility is adequate for Modigliani's and Friedman's approaches.
- The second possibility is coherent with the RIH. But the treatment of women's participation in labour force data generates different interpretations, permitting a third possibility coherent with Keynes' arguments.

Few empirical tests have been conducted to determine whether aggregate consumption is independent of the distribution of income between men and women

For advanced countries — with largely closed gender gaps in education and more equal economic opportunities across sexes — income inequality arises mainly through gender gaps in economic participation

EMPIRICAL APPROACH

The proposed model for this empirical analysis follows the general specification:

$$CS_{it} = f(RW_{it}, BP_{it}, RIR_{it}, PCI_{it})$$

$\boldsymbol{CS}$ represents the ratio of Household consumption to Gross National Disposable Income (GNDI),
$\boldsymbol{RW}$ is the ratio of female wages to male wages
$\boldsymbol{BP}$ represents the bargaining power of women
$\boldsymbol{RIR}$ is the real interest rate
$\boldsymbol{PCI}$ is per capita income

Annual time series data are collected for Australia, Canada, United Kingdom and the United States from 1975 to 2014.

UNIT ROOT TESTS

ADF unit root tests (without structural breaks) and a breakpoint unit root test accounting for a possible (unknown) structural break in the series are employed

The unit root test with structural break is formulated following the framework of Perron (1989), Vogelsang and Perron (1998), Zivot and Andrews (1992) and Banerjee et al. (1992).

None of the series are integrated above order 2, i.e. the time series for Australia, Canada, USA and the UK are a combination of I(0) and I(1) series, making them fit for the ARDL cointegration estimation.

METHODS

We adopt the autoregressive distributed lag (ARDL) bounds testing approach for cointegration developed by Pesaran et al. (2001) to examine the effects of gender inequality on aggregate consumption following:

$$\Delta lnCS_t$$
$$= c + \beta_1 lnCS_{t-1} + \beta_2 lnRW_{t-1} + \beta_3 lnBP_{t-1} + \beta_4 RIR_{t-1} + \beta_5 lnPCI_{t-1} + \sum_{i=1}^{k} \alpha_{1i}\, \Delta lnCS_{t-1}$$
$$+ \sum_{i=0}^{k} \alpha_{2i}\, \Delta lnRW_{t-i} + \sum_{i=0}^{k} \alpha_{3i}\, \Delta lnBP_{t-i} + \sum_{i=0}^{k} \alpha_{4i}\, \Delta RIR_{t-i} + \sum_{i=0}^{k} \alpha_{5i}\, \Delta lnPCI_{t-i} + \mu_t$$

RESULTS

Model 1: $lnCS = f(lnRW, lnBP, RIR, lnPCI)$	***F* stat** Imposing lag length = one	***F* stats** Optimal lag length (AIC)	
		***F* stats**	**Lag length**
ARDL cointegration test[a]			
UNITED STATES OF AMERICA	6.122**	8.571***	6
UNITED KINGDOM	4.617*	5.294**	5
AUSTRALIA	3.518*	6.632**	3
CANADA	2.413	4.837*	3
[a] The calculated values are compared with critical values developed by Narayan (2005)			

STATISTICAL OUTPUT FOR LONG-RUN [ARDL] REGRESSION MODEL

Model 1 (lnCS)	USA	UK	AUSTRALIA	CANADA
lnRW	0.306***	0.348**	0.324**	0.359**
	(3.841)	(2.171)	(0.087)	(0.965)
lnBP	0.002	0.284***	0.171***	0.308*
	(1.653)	(0.414)	(0.160)	(0.679)
RIR	-0.002**	-0.007***	-0.003	-0.004
	(-2.953)	(0.801)	(-1.704)	(-1.308)
lnPCI	-0.000	-0.126	-0.472***	-0.309***
	(-0.039)	(-2.399)	(-7.636)	(-5.378)
$F_{\beta=\gamma=0}$	8.571***	5.294**	6.632**	4.837*
ECC	-0.998***	-0.714***	-0.830***	-0.409***
R^2	0.981	0.984	0.970	0.966
$R-bar^2$	0.974	0.978	0.951	0.946
X^2SC	1.305[0.287]	0.086[0.917]	0.623[0.546]	0.509[0.609]
X^2NORM	2.315[0.314]	0.047[0.976]	2.712[0.257]	0.342[0.842]
X^2FF	1.480[0.149]	2.040[0.051]	2.556[0.184]	1.153[0.264]
X^2HET	0.682[0.754]	0.541[0.846]	0.698[0.753]	0.507[0.876]

STATISTICAL OUTPUT FOR LONG-RUN [ARDL] REGRESSION MODEL

Model 2 (lnCS)	USA	UK	AUSTRALIA	CANADA
lnRW	0.381*	1.309*	0.684*	0.232**
	(4.019)	(3.130)	(3.757)	(3.120)
lnBP	0.030	-0.364	0.383***	0.641**
	(0.279)	(0.580)	(6.627)	(3.044)
RIR	-0.003***	0.018***	-0.008***	0.002*
	(-5.554)	(4.184)	(-5.444)	(1.721)
lnPCI	-0.009	-0.058	-1.207**	-0.104
	(-0.411)	(-0.628)	(-2.286)	(-1.586)
lnWS	0.151**	0.325*	-0.221**	-0.208
	(2.285)	(1.009)	(3.944)	(1.696)
ECC	-1.008***	-0.658***	-1.068***	-0.409***
R^2	0.981	0.972	0.942	0.951
X^2SC	1.305[0.287]	1.056[0.362]	1.279[0.527]	0.764[0.478]
X^2FF	1.480[0.149]	1.393[0.174]	0.906[0.548]	2.791[0.143]
X^2HET	0.682[0.754]	1.475[0.194]	3.142[0.143]	0.313[0.962]

SHORT-RUN DYNAMICS (ARDL)

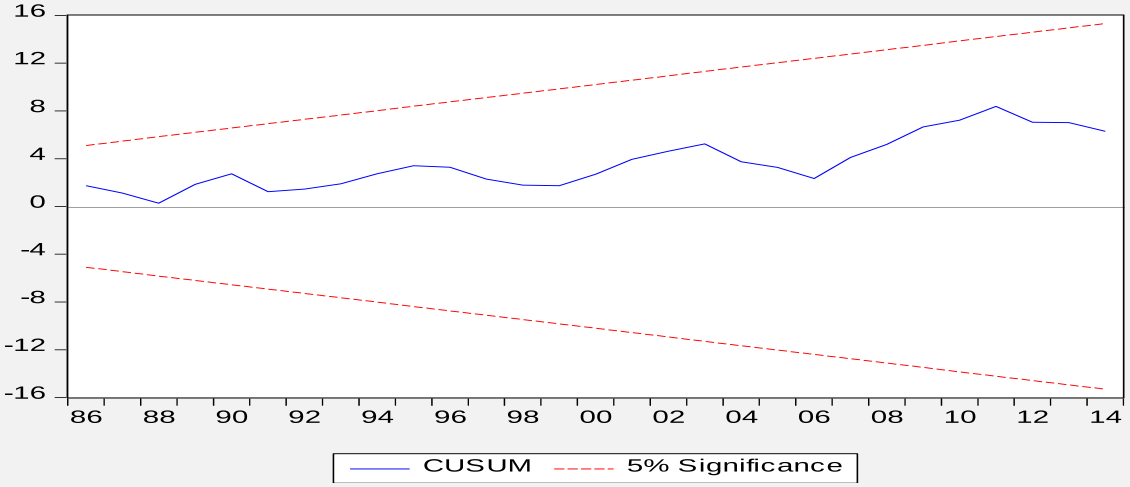
Dependent Variable: $\Delta lnCS_{t-1}$

	USA	UK	AUSTRALIA	CANADA
ΔlnRW$_{t-1}$	0.175**	0.804***	0.331**	0.033
	(1.563)	(7.762)	(3.082)	(0.595)
ΔlnBP$_{t-1}$	0.804***	0.694**	-0.154	0.049
	(2.153)	(2.647)	(-1.004)	(0.139)
ΔRIR$_{t-1}$	-0.005***	0.007***	0.000	-0.000
	(-6.255)	(6.461)	(0.029)	(-0.111)
ΔlnPCI$_{t-1}$	-0.096*	-0.016	-0.733***	-0.616***
	(-1.605)	(-0.190)	(-5.409)	(-13.021)
ECC	-0.998***	-0.714***	0.830***	-0.409***

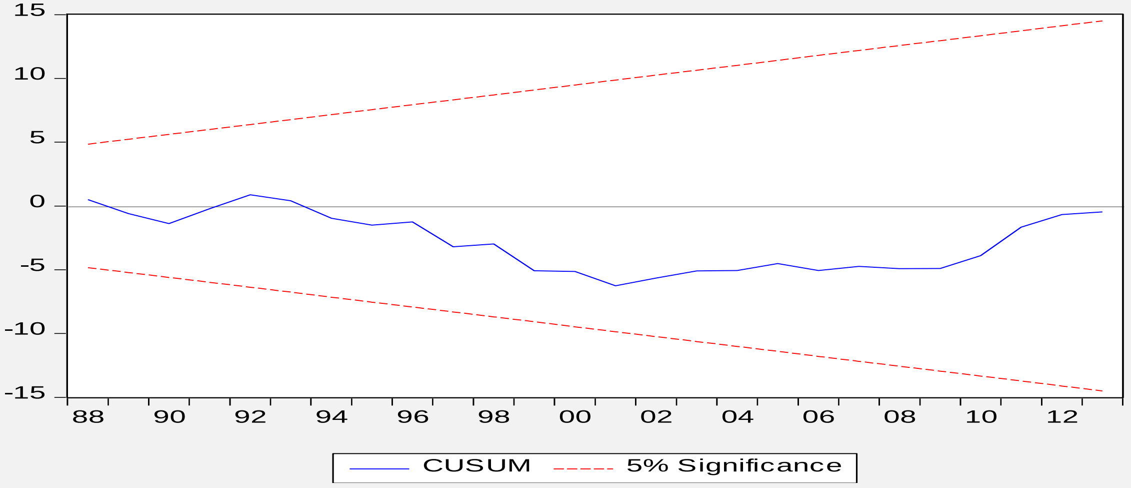
* implies 10% level of significance ** implies 5% level of significance *** implies 1% level of significance

CUSUM STABILITY TEST

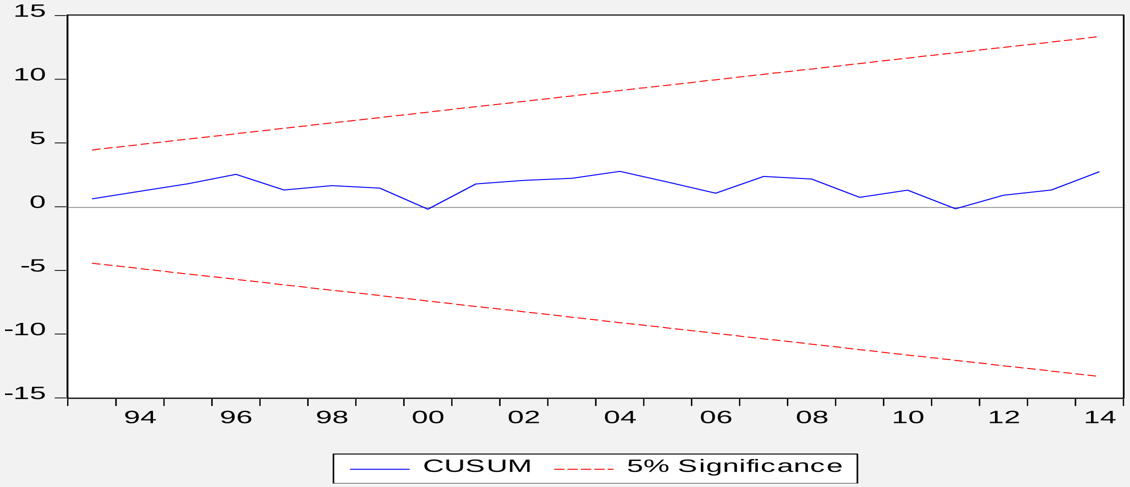
UNITED STATES



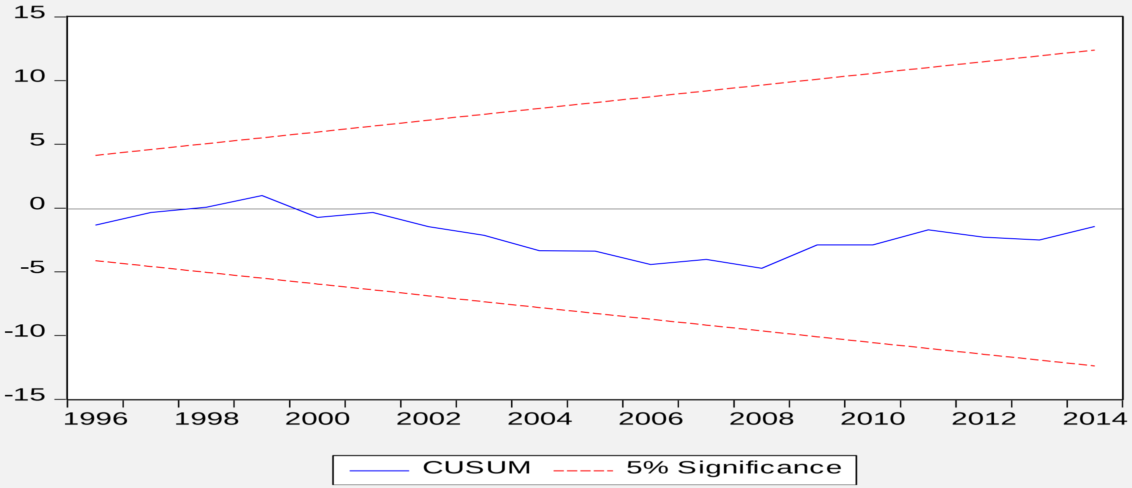
UNITED KINGDOM



AUSTRALIA



CANADA



GRANGER CAUSALITY

We apply Granger causality tests within the VECM approach to examine the causal relationship between the variables following the VAR specification:

$$\begin{bmatrix} \Delta lnCS_t \\ \Delta lnRW_t \\ \Delta lnBP_t \\ \Delta lnPCI_t \\ \Delta lnRIR_t \end{bmatrix} = \begin{bmatrix} k_1 \\ k_2 \\ k_3 \\ k_4 \\ k_5 \end{bmatrix} + \sum_{i=1}^{n} \begin{bmatrix} d_{11}(L) d_{12}(L) d_{13}(L) d_{14}(L) d_{15} \\ d_{21}(L) d_{22}(L) d_{23}(L) d_{24}(L) d_{25} \\ d_{31}(L) d_{32}(L) d_{33}(L) d_{34}(L) d_{35} \\ d_{41}(L) d_{42}(L) d_{43}(L) d_{44}(L) d_{45} \\ d_{51}(L) d_{52}(L) d_{53}(L) d_{54}(L) d_{55} \end{bmatrix} \begin{bmatrix} \Delta lnCS_{t-1} \\ \Delta lnRW_{t-1} \\ \Delta lnBP_{t-1} \\ \Delta lnPCI_{t-1} \\ \Delta lnRIR_{t-1} \end{bmatrix} + \begin{bmatrix} \delta_1 ECT_{t-1} \\ \delta_2 ECT_{t-1} \\ \delta_2 ECT_{t-1} \\ \delta_4 ECT_{t-1} \\ \delta_5 ECT_{t-1} \end{bmatrix} + \begin{bmatrix} C_1 \\ C_2 \\ C_2 \\ C_4 \\ C_5 \end{bmatrix} + \begin{bmatrix} \mu_1 \\ \mu_2 \\ \mu_3 \\ \mu_4 \\ \mu_5 \end{bmatrix}$$

We find a unidirectional causal link between the ratio of female-to-male wages and the consumption share in the short-run (except for Australia)

GRANGER CAUSALITY

USA	**Short-run (F-statistic)**					**Long-run (t statistic)**
Dependent variable	Sources of Causation					
	ΔlnCS	**ΔlnRW**	**ΔlnBP**	**ΔRIR**	**ΔlnPCI**	
ΔlnCS	-	3.606**	3.752**	1.352	1.473	2.119**
ΔlnRW	0.248	-	6.038***	1.182	0.740	-0.042
ΔlnBP	1.383	0.033	-	2.416	1.769	0.565
ΔlnRIR	0.242	1.183	2.431	-	0.705	1.692
ΔlnPCI	9.122***	1.137	1.433	5.697**	-	-2.604

GRANGER CAUSALITY

UK	**Short-run (F-statistic)**					**Long-run (t statistic)**
Dependent variable	Sources of Causation					
	ΔlnCS	**ΔlnRW**	**ΔlnBP**	**ΔRIR**	**ΔlnPCI**	
ΔlnCS	-	5.172**	3.551***	0.242	2.361	-2.133**
ΔlnRW	0.311	-	3.139*	1.135	3.928*	-1.406
ΔlnBP	2.426	1.109	-	3.494**	0.176	-3.373
ΔlnRIR	1.525	0.423	1.362	-	2.499*	-1.495
ΔlnPCI	1.377	6.820***	5.413**	0.028	-	0.923

GRANGER CAUSALITY

AUS	Short-run (F-statistic)					Long-run (t statistic)
Dependent variable	Sources of Causation					
	ΔlnCS	**ΔlnRW**	**ΔlnBP**	**ΔRIR**	**ΔlnPCI**	
ΔlnCS	-	0.720	1.809	0.749	1.352	-4.223***
ΔlnRW	0.726	-	0.067	1.084	3.229*	0.338
ΔlnBP	0.398	0.980	-	2.727*	0.153	1.438
ΔlnRIR	1.892	0.925	2.447	-	1.267	1.569
ΔlnPCI	4.359*	3.229*	1.366	0.655	-	1.268

GRANGER CAUSALITY

CAN	**Short-run (F-statistic)**					**Long-run (t statistic)**
Dependent variable	Sources of Causation					
	ΔlnCS	**ΔlnRW**	**ΔlnBP**	**ΔRIR**	**ΔlnPCI**	
ΔlnCS	-	0.055	0.899	1.677	0.591	-1.854*
ΔlnRW	0.655	-	3.194	0.598	3.112*	-2.600**
ΔlnBP	2.894**	4.388**	-	0.732	2.823**	-6.825***
ΔlnRIR	4.708**	6.979***	3.284**	-	6.915***	-1.114
ΔlnPCI	1.200	2.909**	0.381	2.220	-	1.831

SUMMARY

The long-run marginal propensity to consume out of wage income is higher for women than for men

- ↑ ratio of female-male wages by 1% point → H/H consumption share out of income increases by 0.2% -0.4% points [US, UK, Australia, Canada]
- ↑ in H/H consumption share due to ↑ [female] wages → ↑AD = wage-led recovery

In the short-run, a higher degree of gender equality (↑ female wages) is expected to positively affect aggregate consumption [US, UK, Australia,]

- Short-run results indicate that as women's income and labour force participation increase, the consumption share rises, implying a significant effect of gender on aggregate consumption.

Higher labour force participation for women → higher share of aggregate consumption

- United States, United Kingdom and Australia

SUMMARY/CONCLUSION

Consumption ↑ as gender equality ↑

- level and composition of consumption
- Significant and positive relationship between changes in gender wage equality (female wages) and changes in household spending on education in the USA ($\varepsilon = 0.12$) and on healthcare in Australia ($\varepsilon = 0.08$)
- more income in the hands of women → household spending on children's education and health…↑

CONCLUSION/RECOMMENDATIONS

Our findings support a long-run relationship between the variables; Gender pay gaps and low participation of women in the labour market are shown to retard aggregate consumption and hence aggregate demand.

This implies that gender-aware labour market policies and the strengthening of the bargaining power of women can serve to boost demand in both wage-led and profit-led economies following the results from the analysis.

Gender-aware labour market policies

- Gender wage equality
- Labour Market Regulation to achieve dual earner, dual carer family model (Onaran, 2016)

SHORT-RUN EFFECT OF GENDER ON COMPOSITION OF CONSUMPTION
UNITED STATES & AUSTRALIA

	UNITED STATES		AUSTRALIA	
	Δlnedushare	Δlnhealthshare	Δlnedushare	Δlnhealthshare
$\Delta lnRW$	0.124***	-0.175	0.321	0.084**
	(-3.861)	(-0.854)	(0.895)	(1.909)
$\Delta lnBP$	0.051	-0.285*	1.795	2.801
	(0.125)	(-2.464)	(0.904)	(1.952)
$\Delta lnADR$	-0.112	0.105***	-2.729	0.506
	(-0.327)	(0.2.747)	(-0.877)	(2.141)
$F_{PSS-LINEAR}$	4.237*	4.959*	1.853	3.906*
ECC	-0.056*	-0.312***	-0.154	-0.395***
R^2	0.994	0.997	0.840	0.811
$R-bar^2$	0.993	0.996	0.768	0.771
X^2SC	1.222[0.309]	3.914[0.333]	3.749[0.036]	1.947[0.188]
X^2NORM	7766[0.020]	5.239[0.072]	5.149[0.076]	0.805[0.668]
X^2FF	0.207[0.836]	0.680[0.502]	0.856[0.362]	0.312[0.759]
X^2HET	0.844[0.527]	0.907[0.565]	1.801[0.116]	2.210[0.167]