LONG RUN EFFECTIVE DEMAND

Introducing Residential Investment in a Sraffian Supermultiplier SFC Model

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Summary

- Empirical motivation
- Review of the literature: demand-led growth models
- Stock-Flow Consistent Sraffian Supermutiplier model

Objective: Include residential investment in a heterodox demand-led growth model

Empirical Literature

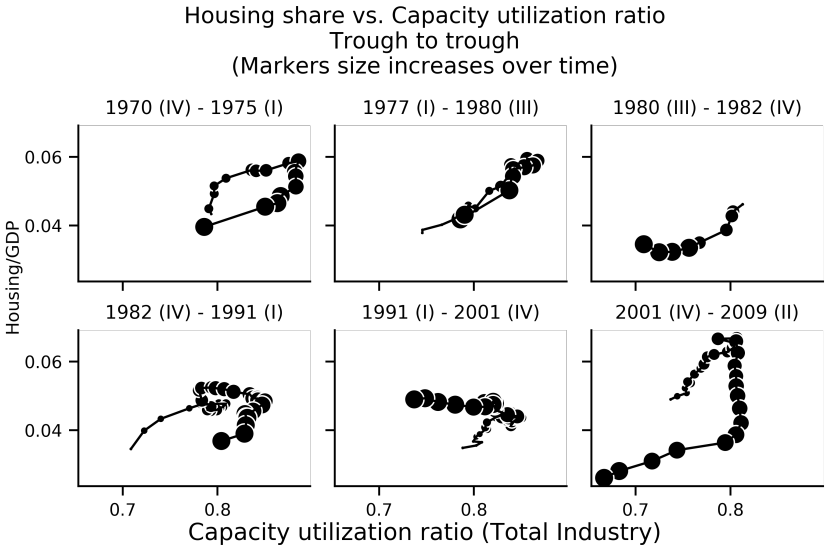
Non-capacity creating autonomous expenditures

- Freitas and Dweck (2013)
- Braga (2018)
- Girardi and Pariboni (2016, 2018)

Residential Investment

- Green (1997)
- Leamer (2007)
- Fiebiger (2018)

Empirical motivation: U.S. Economy



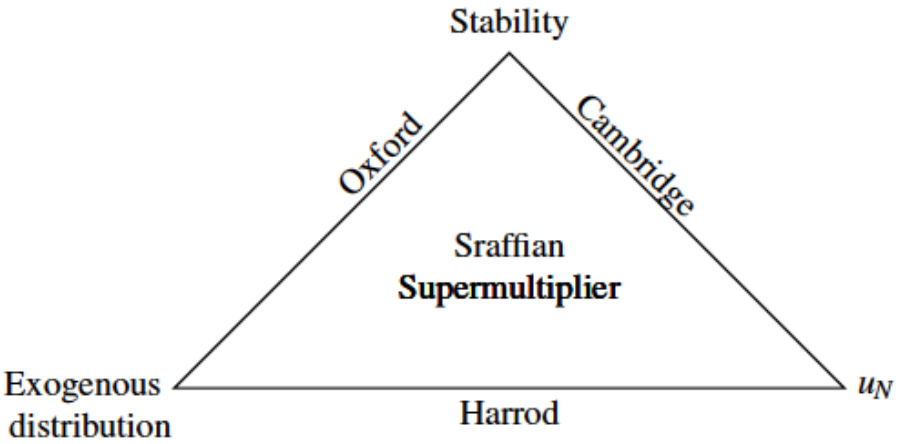
Literature Review: Alternative Closures

Harrod's question: which are the conditions for a balanced growth between demand and supply?

Heterodox alternative closures:

- Cambridge
- Kalecki
- Sraffian Supermultiplier

Literature Review: Alternative Closures



Literature Review: autonomous expenditures

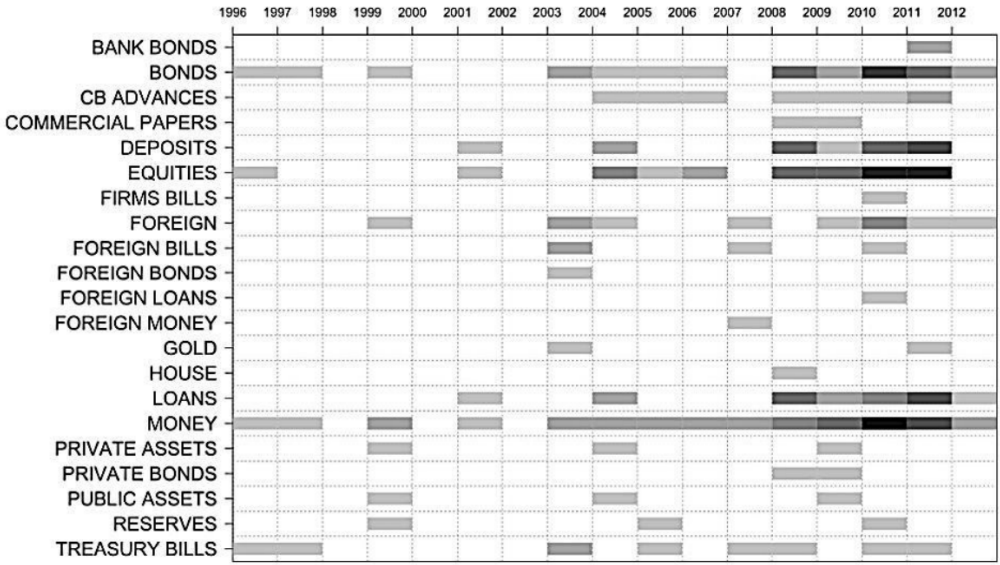
Hybrid neo-Kaleckian models:

- Allain (2015): public expenditures
- Nah and Lavoie (2017): exports

Sraffian Supermultiplier:

- Pariboni (2016), Mandarino, dos Santos and Macedo e Silva (ROKE, forthcoming): debt-financed consumption
- Brochier and Macedo e Silva (2019): fully specified SSM-SFC; wealth-financed consumption

Housing in SFC models



Balance Sheet Matrix

	Households	Firms	Banks	$\sum$
Deposits	$+M$		$-M$	0
Loans		$-L$	$+L$	0
Mortgages	$-MO$		$+MO$	0
$\sum$ Net financial Wealth	V_h	V_f	V_b	0
Capital		$+K_f$		$+K_f$
Houses	$+K_h$			$+K_h$
$\sum$ Net Wealth	NW_h	NW_f	NW_b	$+K$

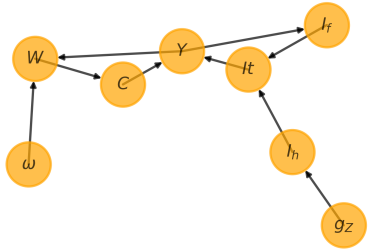
Transaction Flow Matrix and Flow of Funds

	Households		Firms		Banks	Total
	Current	Capital	Current	Capital		Σ
Consumption	$-C$		$+C$			0
Non-Residential investment			$+I_f$	$-I_f$		0
Residential investment		$-I_h$	$+I_h$			0
[Product]			$[Y]$			$[Y]$
Wages	$+W$		$-W$			0
Profits	$+FD$		$-FT$	$+FU$		0
Interest (deposits)	$+r_m \cdot M_{-1}$				$-r_m \cdot M_{-1}$	0
Interest (loans)			$-r_l \cdot L_{-1}$		$+r_l \cdot L_{-1}$	0
Interest (mortages)	$-r_{mo} \cdot MO_{-1}$				$+r_{mo} \cdot MO_{-1}$	0
Subtotal	$+S_h$	$-I_h$		$+NFW_f$	$+NFW_b$	0
Change in deposits	$-\Delta M$				$+\Delta M$	0
Change in mortgages		$+\Delta MO$			$-\Delta MO$	0
Change in Loans				$+\Delta L$	$-\Delta L$	0
Total	0	0	0	0	0	0

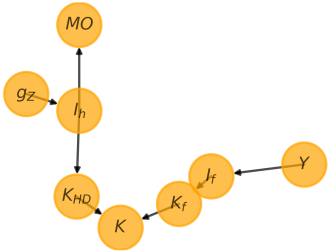
Model Structure I

$$Y = \begin{cases} C_w = W \\ I_f = h \cdot Y \\ I_h = Z = (1 + g_{I_h}) \cdot I_{h_{t-1}} \end{cases} \qquad \begin{aligned} \Delta h &= h_{t-1} \cdot \gamma_u (u - u_N) \\ \Delta MO &= I_h \end{aligned}$$

Model Structure II



(a) Flow dynamics



(b) Stock-Flow dynamics

Model Solution I

Output level:

$$Y_t = \frac{1}{1-\omega-h_t} \cdot (I_h)$$

Out of equilibrium growth rate

$$g = g_{I_h} + \frac{h_{t-1} \cdot \gamma_u (u - u_N)}{1-\omega-h_t}$$

Equilibrium rate of growth:

$$g = \overline{g}_{I_h}$$

Model Solution II

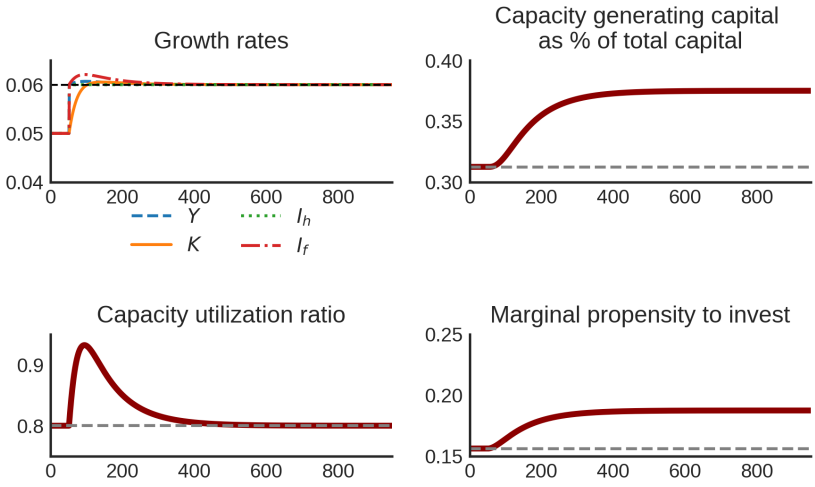
Firms investment share:

$$h^* = \frac{g_{I_h} \cdot v}{u_N}$$

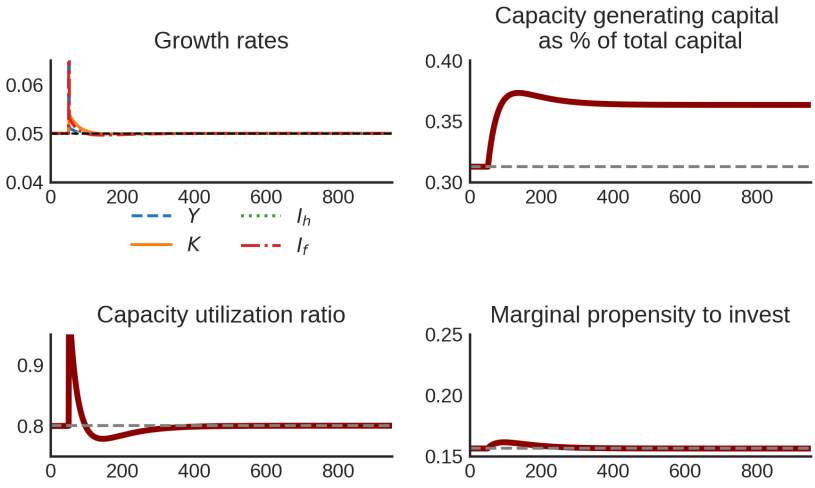
Share of firms capital on total capital:

$$\frac{K_f}{K} = \frac{h^*}{(1-\omega)}$$

Numerical Simulations: increase of g_Z



Numerical Simulations: increase of ω



Final Remarks

- Our model preserves Sraffian Supermultipier main results
- Increase of the wage-share does not increase long run growth rate
  - No paradox of costs
- A greater rate of growth of residential investment reduces houses share of total capital
- Further research: to investigate the determinants of residential investment

Main References

Brochier & Macedo e Silva (2018): A supermultiplier Stock-Flow Consistent model: the "return" of the paradoxes of thrift and costs in the long run?

Leamer (2007): Housing **IS** the Business Cycle

Serrano (1995): Long Period Effective Demand and the Sraffian Supermultiplier

Teixeira (2015): Crescimento liderado pela demanda na economia norte-americana nos anos 2000: uma análise a partir do supermultiplicador sraffiano com inflação de ativos

THANK YOU!

Next steps I

- Including housing bubbles

$$g_{I_h} = \phi_0 - \phi_1 \cdot \overbrace{\left(\frac{1 + \bar{r}_m o}{1 + \dot{p}_h} - 1 \right)}^{\text{own}}$$

- Split between two classes and including more autonomous expenditures

$$Z = I_h + C_k$$

Next steps II

- Estimating a time series model (VEC)

$$g_{I_h} \sim \text{own}$$

- Inputing real data (own observable series) in the model

Next steps III