Introduction

- Origins
  - Historical Influences
  - Cambridge Economic Growth Project
  - Godley & Lavoie
- Quadruple Accounting & the Balance-Sheet Approach
  - Stock-Flow Consistency
  - Transactions Tables, Balance Sheets and Flow-of-Funds
  - ‘Horizontal’ and ‘Vertical’ Transactions
- Monetary Issues
  - Marx and the Monetary Circuit
  - Uncertainty and the Endogeneity of Money
  - Tobin-style Asset Market Equilibrium
  - The 3-Step Approach to Modelling
  - Open and Closed Economies
- A Starting Point – the Chapter 3 SIM Model

For largely *strategic* reasons,

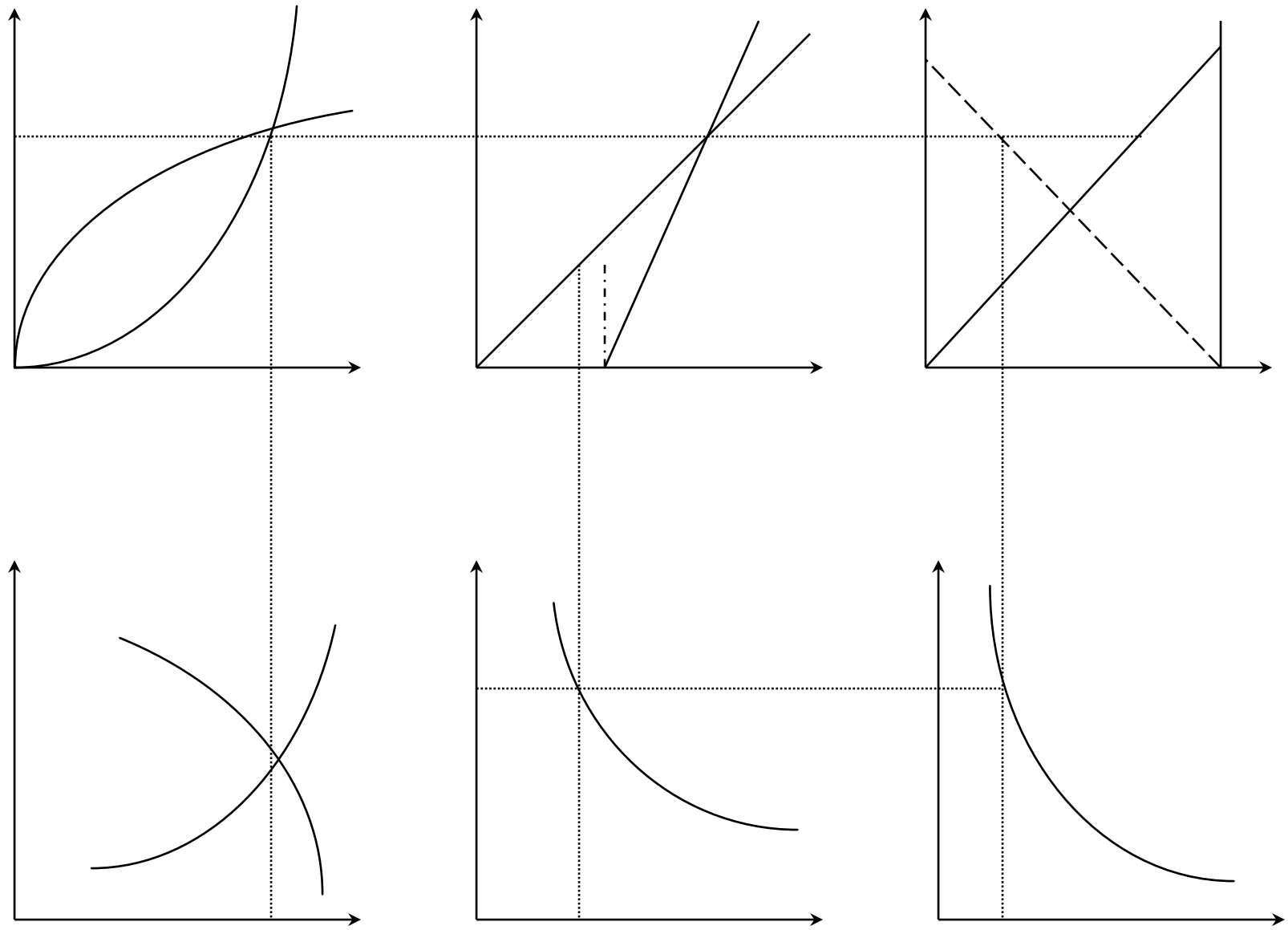
Two Paradigms in Macroeconomics (G&L, Chp.2)

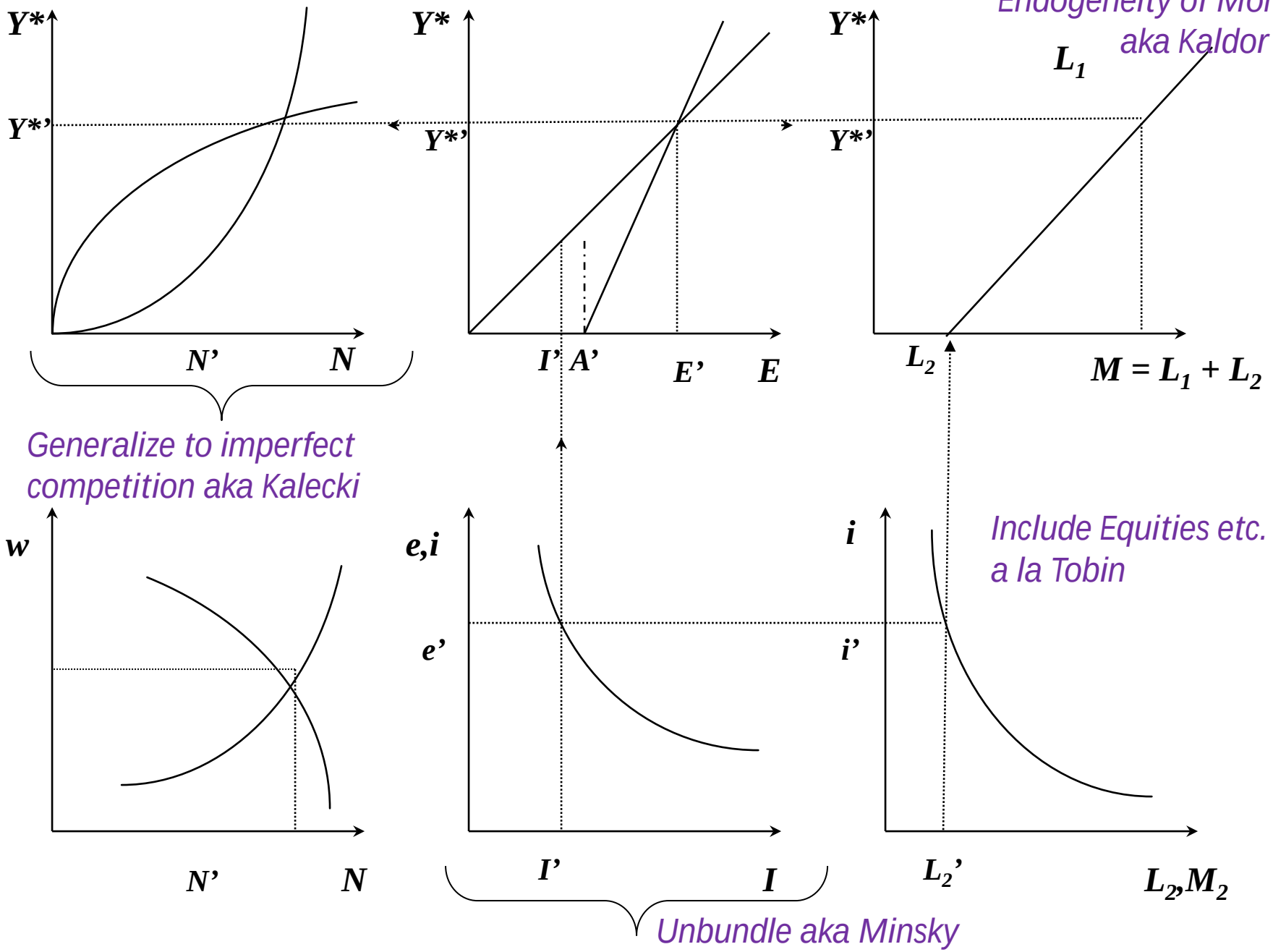
The Neo-classical Paradigm, based on the premise that

- economic activity is exclusively motivated by the aspirations of individual agent
- market-clearing prevented by 'sticky prices'
- no *essential* place for loans, credit money or banks
- Production functions with factor-returns associated with their marginal productivity

Post-Keynesian/Structuralist

- Associated with s Joan Robinson, Richard Kahn, Nicholas Kaldor, and James Meade, as well as Michal Kalecki
- recognizing the manifest existence of institutions, especially firms
- operating under conditions of imperfect competition and increasing returns
- Systematic need for loans provided by institutions outside the firm sector (as production and investment take time while expectations are in general falsified)




Endogeneity of Money
aka Kaldor
Y*
Y*'
N'
N
Y*
Y*'
I'
A'
E'
E
Y*
Y*'
L1
L2
M = L1 + L2
Generalize to imperfect
competition aka Kalecki
w
N'
N
e,i
e'
I'
I
i
i'
L2'
L2,M2
Include Equities etc.
a la Tobin
Unbundle aka Minsky

Godley and Lavoie on Stock-Flow Modelling

Stock-Flow Modelling contd.

. The Cambridge UK group, which was known as the Cambridge Economic Policy Group (CEPG) or the New Cambridge school, used the stock-flow consistent framework mainly for forecasting whether an expansion was sustainable, as Godley (1999) still does today, and to discuss the balance

Constructing a SFC Model

The System of National Accounts 2008 says (page 21):

> In principle, the recording of the consequences of an action as it affects all units and all sectors is based on a principle of quadruple entry accounting, because most transactions involve two institutional units. Each transaction of this type must be recorded twice by each of the two transactors involved. For example, a social benefit in cash paid by a government unit to a household is recorded in the accounts of government as a use under the relevant type of transfers and a negative acquisition of assets under currency and deposits; in the accounts of the household sector, it is recorded as a resource under transfers and an acquisition of assets under currency and deposits. The principle of quadruple entry accounting applies even when the detailed from-whom-to-whom relations between sectors are not shown in the accounts. Correctly recording the four transactions involved ensures full consistency in the accounts.
> https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

Signing Accounts

Stock-Flow Modelling contd. - A “Whiff of Monetarism?”

> In retrospect, the confusion [of Dixon, 1982-83; Worswick and Trevithick, 1983] arose, so it seems, as a result of the insistence of New Cambridge School members upon stock-flow consistency and the long-run relationships or medium-run consequences that this required coherence possibly entailed. [xl]
>
> [...] even more recently, as Godley is virtually omitted from King’s (2003) history of post-Keynesianism. By contrast, Hamouda and Harcourt (1988: 23–4) do devote a full page to his work. [fn. 4, xl]

G&L’s Response

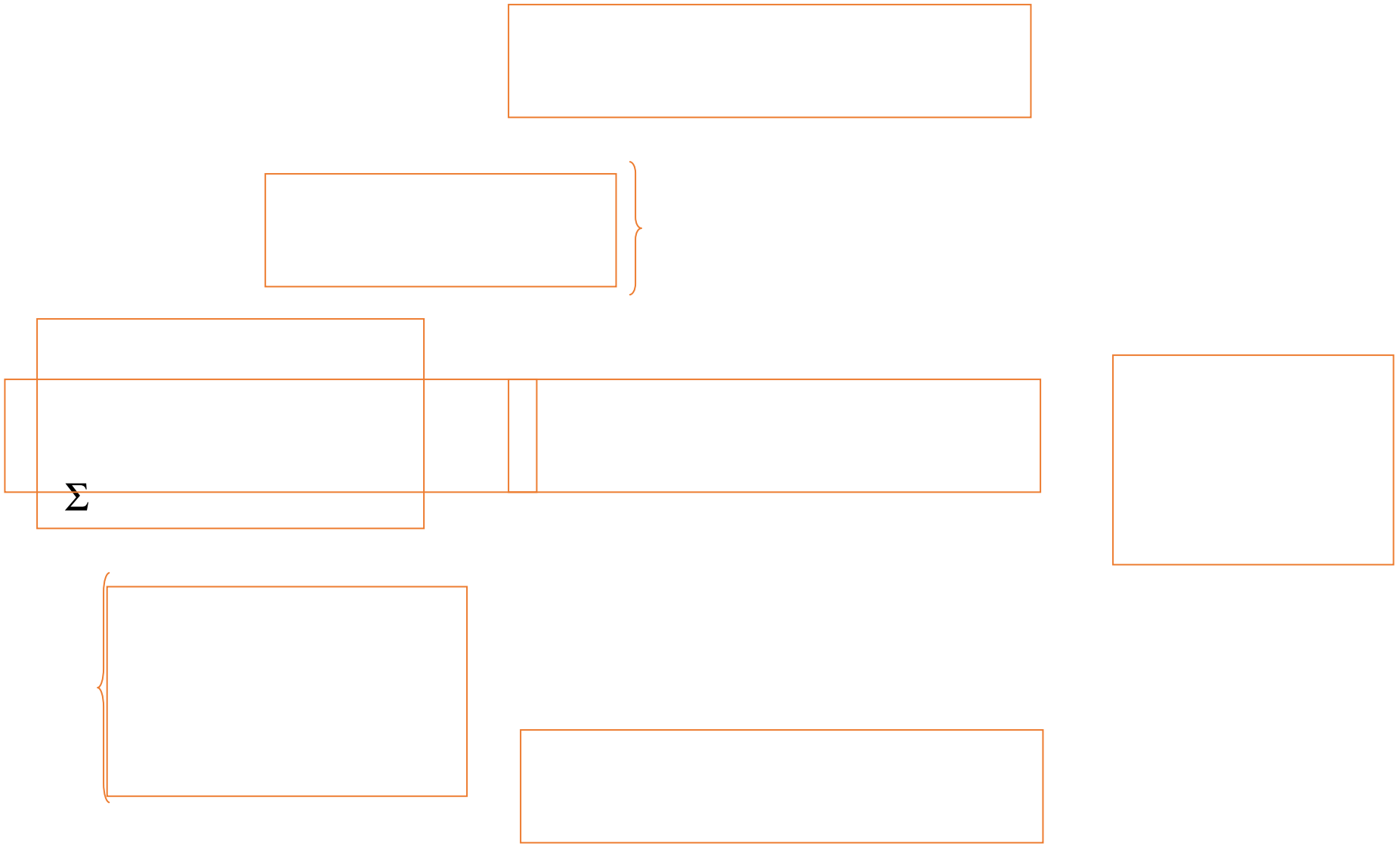
> We conclude that the level and growth rate of the fiscal stance is predetermined if economic growth at full employment is to be achieved. But the government’s budget deficit is equal, by identity, to personal saving plus firms’ net saving (undistributed profits less investment in fixed and working capital) which we call ‘private net saving’. There is no way in which the government can change private net saving measured at full employment, which will normally be positive

Horizontal and Vertical Transactions

Vertical transactions between the government and non-government sectors.

These transactions must be clearly distinguished from their Horizontal counterparts: those between banks, households, and firms.

The basis for this distinction is that only vertical transactions give rise to *net financial assets* or increases in real wealth, whereas horizontal transactions net out to zero.


Σ

Current Transactions Matrix (Dos Santos & Zezza)

The Sources and Uses of Funds

- Can be determined by reading the entries in each of the cells in any given column of the matrix
  - For the household sector, the sources of funds include wages, interest on deposits, and distributed dividends from banks and firms
  - Uses of funds

By summing across the rows for the transactions accounts of banks, households and firms, it is apparent that all transactions cancel out with the exception of the interest paid on bank bills by government, the payment of taxes by firms and households, and the receipt of revenue by firms for the sale of goods and services to the government

However, these components are all vertical transactions between the government and non-government sectors

The bottom row of the Current Transactions Matrix indicates that government savings

Keynes on Uncertainty (1937) QJE, Vol. 51

By ‘uncertain’ knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty; nor is the prospect of a Victory bond being drawn. Or, again, the expectation of life is only slightly uncertain. Even the weather is only moderately uncertain. The sense in which I am using the term is that in which the prospect of an European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealth-owners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know.

(1) We assume that

Godley and Lavoie on Money and Uncertainty

With no need to make the strange assumption that there is a given, fixed, exogenous stock of money in order to obtain a solution for any kind of general equilibrium (market clearing or otherwise), we can freely restore to money its natural attributes. We have a plausible story about how money enters and leaves the system. And money is the vehicle via which people receive income, settle their debts, pay their taxes and store their wealth, thus linking each period to the next. In a world of uncertainty, money permits glitches and mistakes. So far from being fixed, money is as volatile as Tinker Bell – as any book of monetary statistics will immediately reveal. Add finally that money in the stock-flow model, unlike 'money' in the mainstream model, is an asset which does, and always, must have a counterpart liability. [G&L, 2007: 91]

Firms require revolving finance from banks, not only because production and distribution take time while wages have to be paid in advance of sales being made, but also because they cannot know exactly what their sales are going to be

Marx and the Monetary Circuit

Merchant Capital:

$$\xrightarrow{\text{trade}} \quad \xrightarrow{\text{trade}}$$

Industrial Capital:

$$\xrightarrow{\text{purchase MoP}} \quad \xrightarrow{\text{production}} \quad \xrightarrow{\text{distr}'\text{n \& exchange}}$$

Sraffa ‘s Multi-sectoral Approach

- Undermines equilibrating role of both rates of return and price adjustment
- Undercutting (loanable funds theory) as well as any resort to aggregative ‘Robinson-Crusoe’ Models of producer-consumer-investor agents
  - So corn uneaten (Savings) ≠ ‘seed corn’ (Investment) planted in ground

While contributing to degree of uncertainty so that

- Monetary policy like “pushing on a piece of string”
- Liquidity preference distorts entire asset spectrum
  - Differentially affecting financial versus real assets
  - Domestic versus foreign assets
- Hence, explaining
  - Gap opening b/n initial & final finance (Inv ↓ ↓)
  - Explaining existence of global/local hierarchy of assets
  - Explaining importance of ‘liability conditions’ for emerging economies
  - Questioning applicability of Modigliani-Miller theorem

Implications for cross-border transactions (interest parity conditions) governed by:

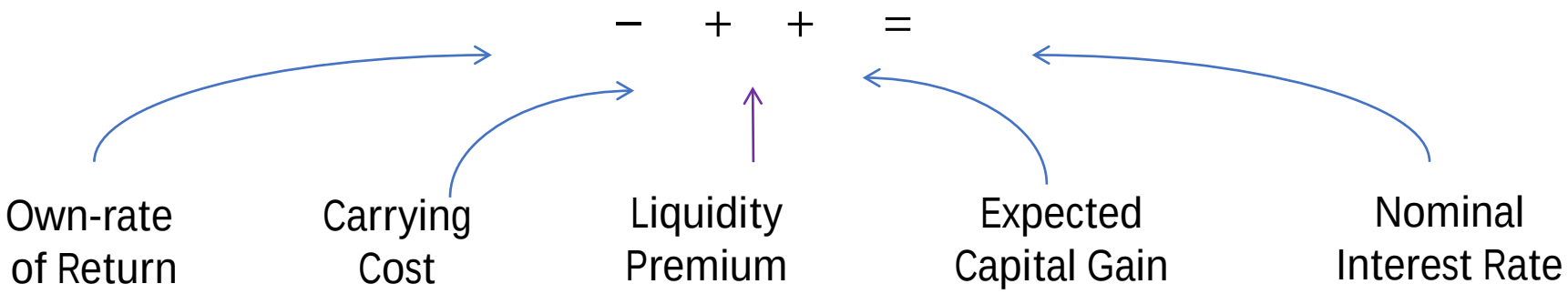
- Equilibrating role of real effective exchange rate questioned wrt productivity differentials for each sector, the monetary expression of labour time (MELT), & nominal exchange rate

Godley and Lavoie on the Capital Controversies

Although elementary and intermediate textbooks often claim that excess demand is always eliminated by rising prices, things are not so simple in a world with several commodities: demand curves may not be downward sloping; they may not be 'well-behaved'. In the world of produced commodities, this problem is included among what are known as the Cambridge capital controversies (Harcourt 1972; Garegnani 1990). In general equilibrium theory, it is known as the Impossibility theorem, or the Sonnenschein-Debreu-Mantel theorem (Kirman 1989); despite starting with all the conditions associated with rational consumers, it is impossible to demonstrate that the market excess demand curve of every good is downward sloping. In other words, the equilibrium may not be stable, and there might be a multiplicity of them. [G&L, 2007, fn. 4: 64]

While neo-classical economists have general equilibrium theory and t ho42

Keynes on Asset Markets—SR-Equilibrium (*GT* Ch. 17)

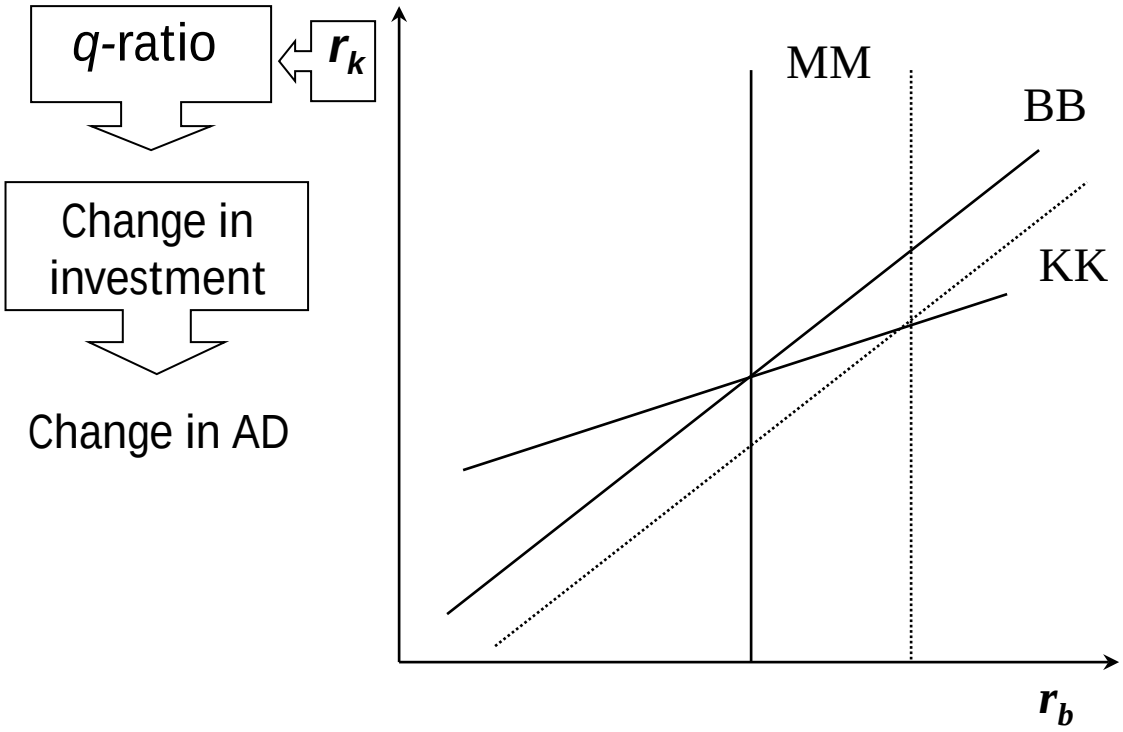


Keynes

- Transmission mechanism
  - uncertainty → regressive 'money love' → liq.pref.↑ → spot prices on illiquid assets↓ s.t. exp. cap gain ↑ to compensate

Tobin's Asset Demand System

- For each asset demand is a function of:
  - Wealth & Income (exp. disp. Income in G&L, 2007: Sect. 4.4)
  - Own- & Cross-Rates of Return (no liq. Pref. by assumption)
- Portfolio Demand framework



OMO (↑B^s)
MM right (r_k ↑

:

- Presumes equity markets are major source of external funds (?!)
- A higher r_k implies lower *q*-ratio (*q* = internal rate of return/cost of funds) implies lower investment implies lower effective demand!

Tobin's q-ratio

Let r_k = the marginal efficiency of capital

$$P_t K_t = \frac{C_{t+}}{(+\not{I}_k)} + \frac{C_{t+}}{(+\not{I}_k)} + \frac{C_{t+}}{(+\not{I}_k)} + \ldots$$

Let r_k = the required rate of return on equity

$$V_t = \frac{C_{t+}}{(+r_k)} + \frac{C_{t+}}{(+r_k)} + \frac{C_{t+}}{(+r_k)} + \ldots$$

If C's are constant, then the q-ratio equals the following:

$$q = \frac{V}{P_k K} = \frac{\not{I}_k}{r_k}$$

$$I = f(q) \qquad f(\ ) = \ , \ f'(q) >$$

Godley and Lavoie's Discussion of Tobin & Money

Davidson underlines the fact that that Tobin does not introduce an independent investment function, which is the hallmark of Keynesian analysis, so as to avoid Say's law, thus assuming that households choose between money balances and real capital, whereas their choice ought to be between money balances and placements, that is, securities or equities. [21]

Tobin's approach really does not deviate significantly from the exogenous approach, in which "deposits make loans". In contrast the post-Keynesian endogenous money approach insists that "loaequip miss.]

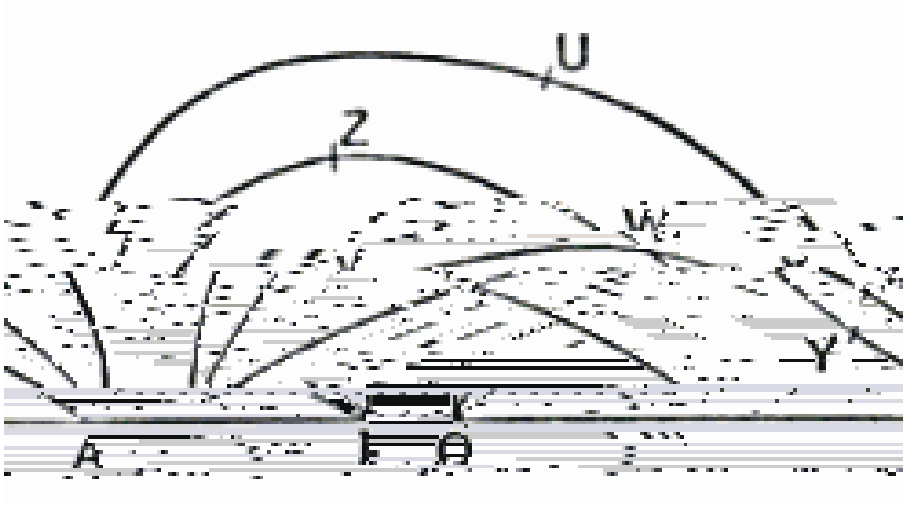
Godley and Lavoie on Uncertainty

With stock-flow norms, the exact way in which expectations are formed generally is not crucial. In addition, except in the simplest models, agents will be assumed to know only the values taken by the various key variables of the previous period, and not those of the current period. This information about the past will allow them to make predictions about future values, but in a world of uncertainty. [G&L, 2007: 16]

Model SIM used the strong assumption that consumers have perfect foresight with regard to their income – something which is inconceivable in a world dominated by uncertainty, where the future states of nature are themselves uncertain, and where agents have unreliable knowledge and limited capacity in processing information. (fn. 13, those two aspects of uncertainty are respectively called ontological and epistemological uncertainty). [78]

Our model is rooted in a solid, comprehensive and realistic accounting framework and, as we believe, accords with many stylized facts backed up by a lot of theory well grounded in the post-Keynesian tradition. In short, our conjecture is that subject to admitted major simplifications, the model does indeed provide important insights regarding the evolution of a modern industrial economy through historical time and the way in which the financial system fulfils an essential role, given that production takes time and all decisions have to be taken under conditions of uncertainty. [441]

Keynes' view of degrees of belief in probability



1. O represents impossibility, I certainty, and A a numerically measurable probability intermediate between O and I;
2. 2. U, V, W, X, Y, Z are non-numerical probabilities, of which, however, V is less than the numerical probability A, and is also less than W, X and Y. X and Y are both greater than W, and greater than V, but are not comparable with one another, or with A.
3. 3. V and Z are both less than W, X, and Y, but are not comparable with one another, U is not quantitatively comparable with any of the probabilities V, W, X, Y, Z (J.M. Keynes 1921, CW VIII, p. 42).

Keynes and ‘weight’ in the Urn Problem

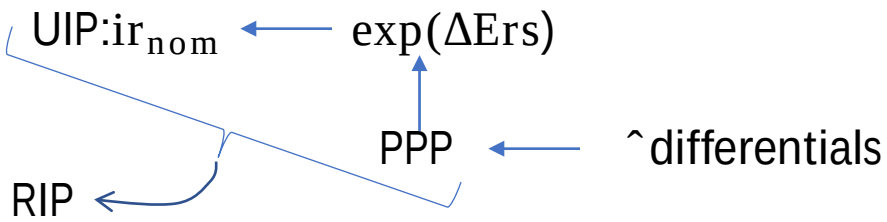
"The typical case, in which there may be a practical connection between weight and probable error, may be illustrated by the two cases following of balls drawn from an urn. In each case we require the probability of a white ball; in the **first case** we know that the urn contains black and white in equal proportions; in the **second case** the proportion of each color is unknown, and each ball is as likely to be black as white. It is evident that in either case the probability of drawing a white ball is 1/2, but that the weight of the argument in favor of this conclusion is greater in the first case." (Keynes, 1921, pp. 75-76)

i. In advance of Ellsberg
ii. Never referred to by Ellsberg

It was a shocking truth that Ellsberg failed to refer to Keynes in the 1961 paper, but showed much respect to Keynes in the 1962 dissertation. (Sakai, 2018: 10)

Interest Parity Conditions in more detail

- However, forward rate not a good predictor of
  - Future spot rates
  - Differences in interest rates
- Latter can explain differences b/n forward & spot but not converse
- UIP presumes perfect substitutability of assets, but not perfect capital mobility
  - Quite possible some rates are determined by monetary authorities as adjustment occurs in proportions of wealth accounted for by various assets
  - For imperfect asset substitutability UIP cannot prevail!
  - Uncovered positions carry currency risk
  - But can't be observed directly due to role of expectations
- CIP? Forward rate as predictor of spot "falsified time and time again"
  - Large econometric models perform no better than
  - But causality from L to R, not R to L
- RIP theorem



Open Economy: Sectoral Balances

The three accounting Identities:

(−) + (−) − ≡ 0

If one sector is going to run a surplus, at least one other sector must run a deficit. In order for one sector to accumulate wealth, at least one other sector must be in deficit. It is impossible for all sectors to accumulate net financial wealth by running surpluses.

(−) = = (−) +

=

= +

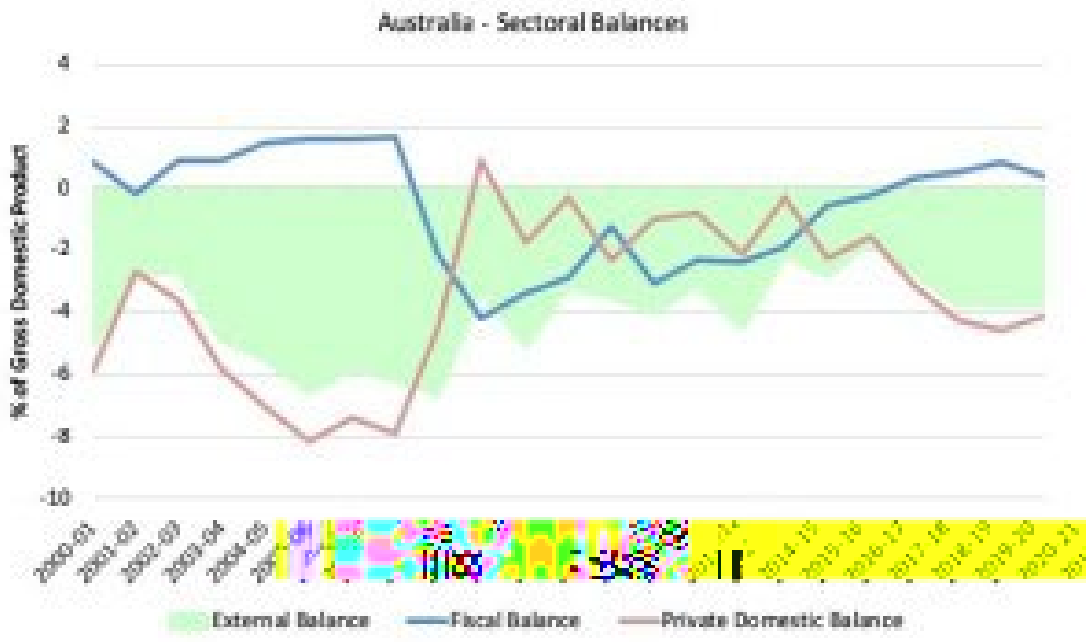
i.e. government sector deficits and current account surpluses generate national income and additional net financial assets for

Current Transactions Table (Godley & Izurieta)

	Income & Expenditure	Production	Government	Foreign Sector	Σ
Private Expenditure	-PX	+PX			0
Exports		+X		-X	0
Government Expenditure		+G	-G		0
Imports		-M		+IM	0
GDP	+Y	-Y			0
Taxes, factor payments…	-TP		+T	-TF	0
		Balances			

Source: Godley and Izureita (2004: Table 1, 132)

Foreign sector column shows that imports minus exports and transfers paid by the external sector, *TF*, equals the balance of payments deficit. . GDP: *Y* = Private expenditure, *PX* + government expenditure, *G*, + exportsSa015 Tc 0.00W( )7 (e)13e:


Australia - Sectoral Balances
% of Gross Domestic Product
4
2
0
-2
-4
-6
-8
-10
External Balance
Fiscal Balance
Private Domestic Balance

The Chapter 3 SIM Model (see Excel File)

- The economy is closed to the outside world: there are neither exports nor imports, nor foreign capital flows
- Production is carried out by labour alone –there are no private banks, no firms and no profits
- Supply of labour assumed not to be a constraint on production
- every component of the transaction-flow matrix must have an equivalent component, or a sum of equivalent components, elsewhere
- any sector's financial balance – that is, the difference between inflows of income and outflows of expenditure – must be exactly matched by the sum of its transactions in stocks of financial assets
- Total production (Y), which is *not* a transaction between two sectors and hence only appears once, in the production column
- Every row and every column sum to zero, thus describing the identities that must be satisfied in every solution to the mode

The SIM Model contd.

How do we arrive at the equality between sales and purchases ((services, taxes and labour)?

- Mainstream: variations in prices clear the market
  - For goods and labour—counterfactual, inappropriate and misleading!
- Rationing: adjustment is done on the short side of the market
  - However, , it is still the case that prices and nominal wages give the signals and what happens to unsold commodities is waived aside
- Inventories are always large enough to absorb any discrepancy between production and demand
  - Must first introduce private money; in Chapters 8–11, production will be equal to sales plus changes in inventories
- Keynesian, or Kaleckian quantity adjustment mechanism
- The issue of money by the government and the additional amount of money which people decide to hold must be equal
  - $\Delta_h = \Delta_S$
  - a "quasi-Walrasian principle" (redundant equation)

SIM Model contd.

The Steady-State

– = ratio of government expenditure to its income share

determines GDP in the steady state in all models

in the stationary state there is no change in financial stocks (i.e. no saving) $\Delta_h \equiv \quad - \quad = 0$

Equations (3.5)–(3.7), (3.11A) and (3.15) $\quad = \quad = \frac{(1- \quad)}{\quad}$

i.e. the change in disposable income responds to the addition to government expenditure; and how consumption responds to disposable income, eventually converging onto it

Stationary value of the stock of household wealth

$= \left\{ \frac{\quad}{\quad} \right\}$

A simple SFC example :-

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