

Macroeconomic Concepts and Applications: Paying Attention to Basic Relationships Through Circular Flow Analysis

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Abstract

In teaching macroeconomic principles at levels 5 and 6, I am struck by the lack of pedagogical attention we give to a number of basic concepts and relationships that have real world significance.

Examples include: the distinction between actual wealth and claims on wealth; the absence of historical claims and household borrowing as explicit sources of expenditure in our circular flow diagrams; the absence of attention to public property rights; supply-side effects of changes to interest rates; the balance of payments implications of exogenous financial flows.

As a result, students often retain an uncritical mercantilist outlook when evaluating real world economic problems: exporting is good, importing is bad; surpluses are desirable, deficits are to be avoided; success is to sell more and buy less; saving is good, borrowing is bad; employment is simultaneously a cost to be minimised and a performance objective to be maximised. New applications of circular flow analysis can assist students to address many of these conceptual difficulties.

Macroeconomic Concepts and Applications: Paying attention to basic relationships through circular flow analysis

One by-product of the de-emphasis of Keynesian macroeconomics since the 1970s has been the reduced emphasis given in textbooks to circular-flow analysis, and the heightened emphasis on the price-based modes of analysis, such as aggregate demand / aggregate supply (AD/AS). Further AD/AS has become highly stylised, with straight line AS curves sloping at 45° removing much of the opportunity teachers have to tell Keynesian or other stories that downplay the importance of price adjustment.

Circular flow analysis, which dates back to Quesnay in 1758, is a quantity-based (ie real) rather than a price-based framework. It is also an extremely effective pedagogical tool¹ in establishing institutional relationships between key participants: households; firms; government; financial intermediaries; the rest of the world. Circular-flow analysis struggles to maintain its place in a curriculum in which the price mechanism – and issues generally relation to prices, such as inflation – takes centre stage.

Circular flow analysis has the potential to make it very clear to students what is meant by a 'closed economy', and can usefully be *introduced* in a global context, without the use of the conveniently exogenous "rest of the world". Further, in this introductory context, government can also be omitted. The result of these simplifications helps students to see the global market economy as essentially a relationship between households and firms, with the financial institutions, not the government, as the principal mediator. Such a diagram is Figure 1.

Figure 1

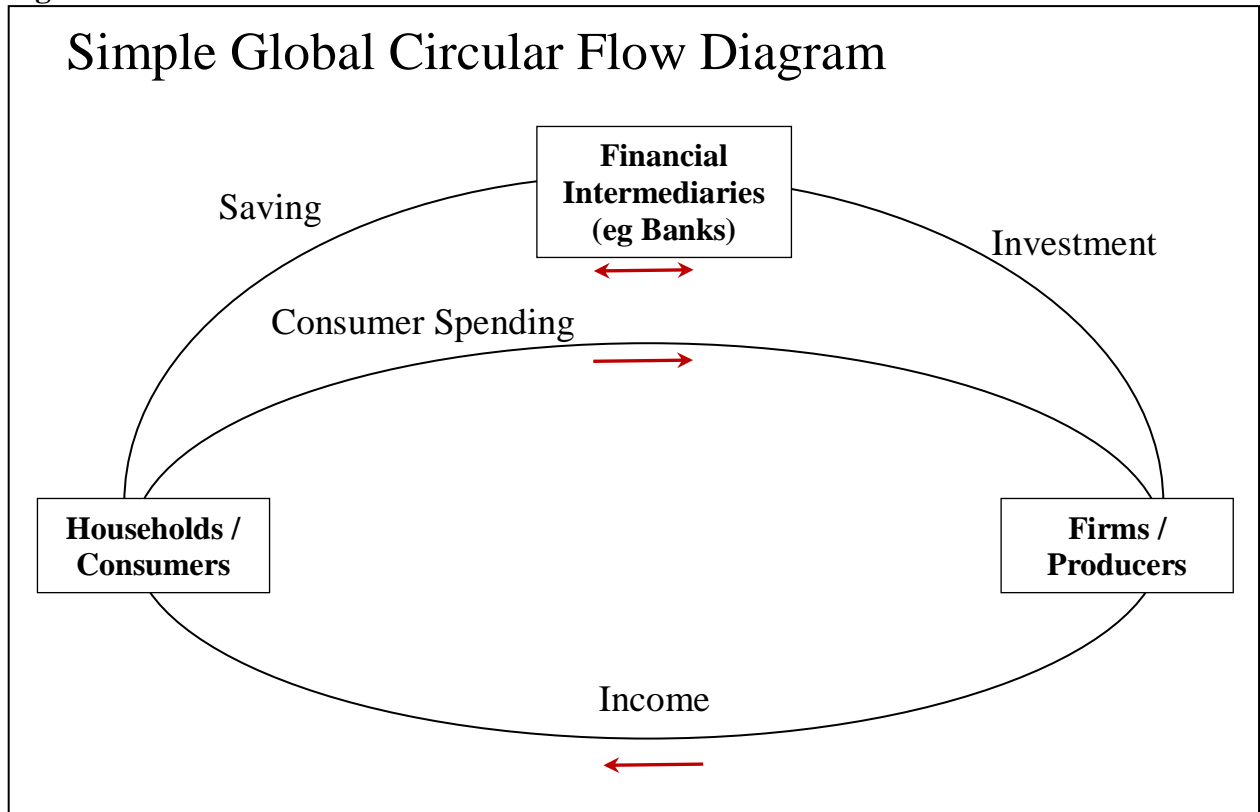
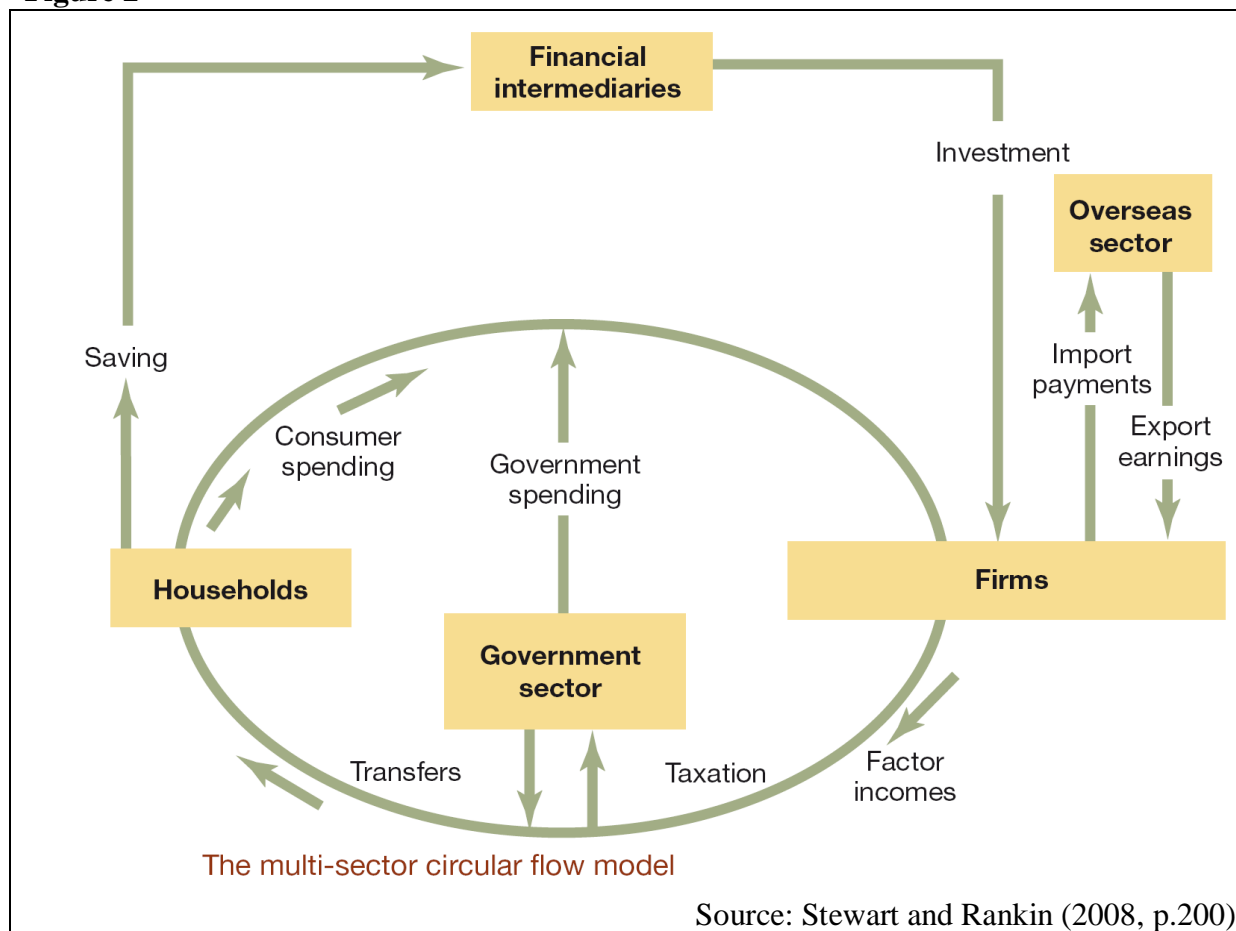


Figure 1 shows the current flows in simple introductory language – "spending" instead of "expenditure" – with the requisite direction(s) of flow. And Figure 1 shows the financial flows, showing their essential two-way nature. If household spending is less than household income, the net flow of finance is towards firms; otherwise it is towards households. It is also worthy of note that Figure 1 represents a simple balance of Payments framework if "households" become "creditor countries" and firms become "debtor countries". Income and consumer spending together represent a simplified current account, while the financial flow represents a simplified "capital account".

Circular flow analysis, however – as commonly presented – maintains a number of biases that limit its pedagogical value. Figure 2 shows the standard representation for a national economy, taken from the textbook that I co-author.

Figure 2



The first bias to note is that all income is represented as private, with taxation shown as an appropriation of a share of private income. At the centre of our circular flow diagrams is a kleptocratic government. The bias could be removed by drawing an arrow directly from firms to government, representing direct taxation, 'at source'. Students could then easily see two separate income flows: one representing private labour and property income, with the other representing public property income. Income is production, gross domestic product is national income (symbol Y), relationships readily appreciated from circular flow analysis. Income taxes are in fact income, the public return on a production process that utilises substantial public inputs. Let's not hide that reality.

In developed economies in particular, so much of the high levels of productivity achieved are due to enhanced public domain inputs. When production is enhanced through increased free public inputs, acknowledgement of public property rights suggests a higher rate of return to public property in the form of higher taxation.

A portion of public revenues may be distributed – dividends rather than redistributive transfers – enabling all to share directly in the benefits of productivity growth. The term "transfers" in Figure 2 would then read "cash benefits", where cash benefits are understood to mean a combination of redistributive transfers and distributive dividends. In New Zealand, NZ Superannuation can be presented as an excellent existing example of a dividend-type of benefit.

A second set of circular flow biases stems from the netting out of a number of concepts. "Net exports" for example (Stewart and Rankin p.207) has the effect of downplaying the management of imports as a potential policy tool to address problems of under or overspending. "Net taxes" can mean that social security benefits are downplayed when addressing of fiscal policy options. While we simply refer to increasing or decreasing taxes, we rarely discuss an increase in the unemployment benefit as an example of a tax cut.

Arguably the most problematic biases are those contained in the financial flows. First we should note that it's not only savings that pass through banks. In a modern economy virtually all consumer and government spending, as well as investment spending, is intermediated through banks. Funds held in cheque accounts are as much able to serve as banks' reserves as are funds held in savings accounts. Students quickly absorb the incorrect message that the capacity of banks to lend to businesses is determined by the level of household savings.

Investment, in the circular flow model, is in fact "net investment": loans made to businesses less loan repayments.² Further if we are to consider businesses as distinct from their shareholders, it also incorporates business saving (retained earnings not immediately required to fund investment spending), and withdrawals of business savings.

Most egregious of all is "saving" – more correctly "net saving" – which represents a netting out of saving³ (+), withdrawals⁴ (-), personal loans⁵ (-), repayment of personal loans (+). Further, it is never clear where house mortgages belong. The national accounts treat home ownership as a business. It is more realistic in the twenty-first century to treat a house mortgage as a personal loan than as a business loan.⁶ Thus saving, treated in the simple model as a withdrawal from the circular flow, represents netting out two major withdrawal items and two major injections. Issues relating to consumer finance – a big issue in the 2000s' decade – and the large scale cashing in of financial assets in the foreseeable future need to be easily addressed through the circular flow models that are presented to students. These require an arrow flowing from financial intermediaries to households; a line of flow that I've yet to see in any textbook.

There is no necessity for finance to flow from households to firms. Certainly firms, as entities, will generally be debtors, given that business earnings are generally passed on to shareholders. Collective business growth can be sustained without any additions to debt⁷. If new business loans are funded solely from repayment of other business loans, productivity gains arising from new technology embodied in new capital goods may be able to generate normal economic growth. At any point in time, some businesses will be in deficit mode (adding to their overdrafts), while others will be in surplus mode (reducing their overdrafts). Business, in the aggregate, may be, but need not be, in deficit mode.

Household saving is important, but the most important reason why the saving of some households is important is to fund the withdrawal of other households' savings. Savings can be understood as the accumulation of financial assets (including money as a store of value), and dis-saving (withdrawing) as the realisation of historical claims (exchanging financial assets for goods and services). Indeed the social contract between the generations is all about the working-age generation (especially the generation aged 45-65) saving (earning more than they spend) so that the 65+ generation can dis-save (spending more than they earn). We are net savers at certain stages in our life-cycles so that we can maintain an intergenerational social compact, so that we can become net spenders at other stages of our lives. We do not

save so that business can indefinitely borrow more than they repay, which is what traditional circular flow diagrams suggest.

A by-product of this approach is that students readily come to think of saving as an accumulation of wealth, whereas in reality indefinite saving represents an accumulation of "claims" on wealth. It's actually the debtor firms that become wealthier (as they acquire increasingly productive capital goods). Households accumulate wealth by buying goods and services; not by not spending. Actual wealth is output, not claims. Investment is spending on durable goods, and services such as education. While investment and saving are antonyms – which standard circular flow diagrams do imply – students continue to treat the two words as close synonyms.

This becomes particularly problematic when we move into balance of payments analysis – which we generally treat as a quite separate topic from circular flow analysis. Here "international investment" means to acquire foreign assets, especially foreign financial assets such as bank deposits, bonds or shares. Further, if saving is seen as an accumulation of wealth (as opposed to claims on wealth) then students' minds are being prepped for a mercantilist interpretation of finance, which makes the running of surpluses as good *per se*, and the running of deficits as bad *per se*. That opens up the idea that a competitive economy is much like a sports event, in which surplus-creditors are the winners and deficit-debtors are the losers. The reasoning is no more sound than a claim that the head-side of a coin is good, whereas the tail-side of a coin is bad. A well-presented circular-flow analysis should make it clear to students that debt and credit are like two aspects of the same thing, "joined at the hip" (Atwood 2008).

We can learn more about both the circular flow process (and the relationships between the institutions between which payments flow) and the balance of payments identity, by bringing them together. We never see a circular flow diagram for self-employed people. Likewise we don't see circular flow diagrams between countries. This latter point is odd, given that the starting point for macroeconomic analysis is the closed economy, and that the global economy is the ultimate closed economy.

A circular flow analysis of the international economy cannot include firms, at least in as much as we focus on nations – as the balance of payments does – and not on transnational firms. A nation in fact is much like a self-employed individual; simultaneously household and firm; consumer and producer. The most plausible way to differentiate nations is as debtor nations and creditor nations (meaning of course external debt and not fiscal debt). A number of candidates are available as semi-permanent creditors (China, Japan, Germany come to mind) while other nations are semi-permanent debtors (New Zealand, Australia are certainly included here). We can use a circular flow analysis to examine the relationships between debtor and creditor nations, much as we can examine the relationships between households and firms.

When debtors' debts are increasing (meaning also that creditors' credits are increasing) we see an orthodox circular flow diagram (Figure 2 above), with the financial flow (savers to borrowers via intermediaries) in the orthodox direction (capital/financial account), and the expenditure flow (balance of trade) in the reverse direction (as deficit debtors buy from surplus creditors). The income flow is orthodox, representing "investment income" in the balance of payments (eg interest), flowing from debtors to creditors. The balance of payments constraint is a simple circular flow constraint, which means these three flows must balance.

For debtors to repay their debts – a process known today as deleveraging – financial and expenditure flows must reverse. Debtors are now running surpluses, and creditors must now run deficits. Indeed a debt problem must be solved this way, yet we can barely conceive of creditors as being anything other than surplus countries (we often use the words "creditor country" and "surplus country" as if the same thing). Indeed the most convincing accounts of the 1930s' Great Depression (e.g. Eichengreen, 1992) relate to the failings of creditor nations to allow debtor nations to ease their debts through exports, exactly as Keynes himself predicted when huge war-reparation debts were imposed upon Germany (Keynes 1920).⁸

One book that does attempt to address a number of these conceptual issues is Moss (2007). Touted as "What managers, executives and students need to know", it addresses a "practical understanding of macroeconomic questions" and the "basic relationships between various macroeconomic phenomena". It contains an excellent section on "the pension dilemma and the centrality of output". It describes the important basics of reading the national accounts, and balance of payments' statements. It does not adequately answer the age-old question – "Daddy, where does money come from?" – and does not use circular flow diagrams. Its purpose is to fill the conceptual gaps that textbooks tend to skate over (or take for granted). It helps students to understand how a tightening of monetary policy causes countries to experience larger current account deficits (or smaller surpluses) than they would otherwise have, and why such countries tend to have appreciating currencies most of the time despite having the very balance of payments problems that should be causing their exchange rates to fall.

Conclusion

To reform macroeconomic teaching at levels 5 and 6, I would like to see macroeconomic textbooks start at the global level, where the economy is closed, where there are governments but no government, where countries are analogous to self-employed producer/consumers, and where some participating economies tend to be creditors while others tend to be debtors. At this level, balance of payments and circular flow analysis morph into one, financial flows are easily understood as two-way, and students can get to see the circumstances of their country in relation to other countries. At this global level, students can easily catch on to the effects that policy and other changes in other countries can have on the global economy as a whole, and through that, on their own national and local economies in particular.

In my experience students maintain an essentially mercantilist outlook on the world – surpluses good, deficits bad; exports good, imports bad; selling good, saving good, consuming bad; lending good, borrowing bad – and that economics' education fails its purpose if students do not emerge from their education with a cosmopolitan view that reveals that disturbances in one part of a closed system necessarily impose adjustments elsewhere in that system. A global circular flow model with three flows (ie finance, expenditure, and income) has just two degrees of freedom. Price-based mechanisms – such as AD/AS – are often important in explaining how economies move from one equilibrium state to another. Circular flow analysis explains why they must move.

¹ We might note the hydraulic Moniac machines Bill Phillips built in the 1950s, through which he simulated many of the variations of the circular flow processes. This approach has been termed "hydraulic Keynesianism" (Millmow, 2007).

² Interest can be a problem to represent, as it generally passes through intermediaries, and is often bundled with repayments (as in fixed payment lending). It is best understood as income to both fixed interest savers and shareholders of banks and other financial intermediaries.

³ Purchase of financial assets.

⁴ Sale of financial assets.

⁵ Arguably including mortgages on residential properties.

⁶ Further, the Reserve Bank and Government (e.g. Budget 2010) make a key distinction between investment in housing and investment in business expansion. The former is seen as crowding out the latter, distorting the "playing field between housing and other investment" (TVNZ, 7 February 2010).

⁷ Noting that investment is traditionally represented as net additions to business debt, as if businesses never repaid debt.

⁸ The problem is compounded by our failure to teach both the "price-specie flow mechanism" (Economics New School) – the mechanism of current account adjustment under the gold standard – and its more modern floating exchange rate equivalent. It turns out that in both cases, financial flows thwart the self-correction mechanisms that underpin global monetary systems. This is easy to see through the use of international circular flow analysis.

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