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Keynesian Without the Policy: Why the Business Cycle is all about Business Confidence and Finance

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ABSTRACT

Many of Keynes´s ideas and concepts are proven correct in this paper. The demand side, mainly business investments, drives the economy. Business firms steer the business cycle via profit expectations and animal spirits. Injections to and withdrawals from the circular flow of income are multiplied throughout the economy in accordance with Keynes´s multiplier. A sudden and sharp rise in households´ saving rates has a detrimental effect on aggregate demand, in line with Keynes´s paradox of thrift. Finance, not saving in the S=I sense, is the necessary condition for business investments and economic growth to be realized. Keynes´s finance motive thus makes money endogenous, contradicting the textbook result that exogenous money steers aggregate demand, contradicting the mainstream loanable funds theory and putting into question the Keynesian theory of sticky prices as a condition for real growth. However, a crucial omission in Keynes´s productive writings is the lack of an accelerator tying income to investment. Some of his followers such as Paul Samuelson tried to remedy that by developing multiplier-accelerator models. The problem with them is that the accelerator lacks micro foundations, in specific disregarding business confidence. Linking macro accounting identities with empirical national accounts data for five major economies produces the finding that business firms explain more than all aggregate expenditure growth during a 25-year period. Thus, it is concluded that business confidence is the root of the business cycle. Making the accelerator account for business confidence casts new light on the perhaps most well-known Keynesian "truth": active fiscal policy as a main force stabilizing the business cycle. With business confidence being the endogenous and ubiquitous variable driving the business cycle, it turns out that any exogenous factor has the possibility to affect it. Policy needs to be viewed as a competing factor to the factor(s) driving the cycle in the other, destabilizing direction. The more powerful those factors are (e.g., a deadly virus), the tougher it gets for policy to "win" the competition, turning business confidence around. This leads up to the paper´s main conclusion: the worse the economy, the stronger is the case for active fiscal policy, but the lesser is the chance for it to succeed.

KEYWORDS

Keynesian economics; Accounting identities; Sectoral net lending (+) / net borrowing (-); Business confidence; Endogenous money; Micro founded accelerator

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1. Introduction

Keynesian economics being around for about a century is still regarded as mainstream macroeconomics. Why have some concepts stuck while others been rejected or fallen into oblivion? One answer relates to micro foundations. New Keynesian and Classical economists developed Keynes´s and his following (old) Keynesian theories by introducing micro foundations. The approach in this paper is to, while agreeing on the need for a micro founded macro theory in a general sense, use a new and more reality based micro foundation. The mainstream micro foundation, such as DSGE models, lacks empirics and has partly for that reason been less successful in capturing real world events such as the Great Financial Recession of 2008-09, missing out on crucial assumptions such as the role played by finance and debt in a broader macroeconomic context. Mainstream business cycle theories don´t fit the facts well enough, pointing to their apparent focus on internal consistency at the expense of external consistency.

The method in this paper is to approach some of Keynes´s ideas from a new type of micro foundation, departing from macro accounting identities. One reason is to match Keynes´s ideas with empirics such as developed and consistent national accounts data, something which was not available a century ago. This obviously directs the focus to the need for external consistency and the fitting of facts. However, that does not necessarily imply the sacrifice of internal consistency. It is shown that accounting identities are suitable in building consistent few-actor models producing reality-based economic conclusions. When accounting identities, which don´t say anything about actors´ behavior, are coupled with assumptions, scenarios, calculations, the use of empirical as well as fictive data series and economic logic, they have the advantage of showing dynamic, multi-period economic results. The results cast new light on a number of Keynes´s ideas.

The paper starts with a section on some of the major critical views of Keynesian economics. As the main section of the paper applies macro accounting identities to Keynes´s ideas, the background of the paper is a general knowledge of macroeconomics since Keynes´s days, how Keynesian economics has become part of mainstream macroeconomics (assumed to be known to the readers) and some points where Keynesian economics is criticized. The main inspiration to the paper as well as its comparative edge is the author´s knowledge of sectoral and national accounts, especially how the real and financial side of the economy are linked by the net lending (+) / net borrowing (-) identity.

2. Criticism of Keynesian economics

Four areas of often heard criticism of Keynesian economics are listed below: the potency of stabilization policy, Keynes´s view on saving, investment and finance, the accuracy of Keynesian economics in explaining and forecasting business cycles and the role of the accelerator model in Keynesian business cycle theory. How potent is stabilization policy? The list can be made long of why it isn´t very potent. Crowding out, a boost to inflation instead of stabilizing output, a less potent multiplier in bad times, the Lucas critique and time lags to name but a few. Despite all the critique, Keynesian stabilization policy is still at the forefront of mainstream macroeconomics. In the undergraduate macroeconomic textbook by Mankiw (2016), it is shown that changes in GDP are driven by aggregate demand, graphically depicted as a shift of the aggregate demand curve along a horizontal aggregate supply curve. Students are taught that policy is the major exogenous variable behind the shifting demand curve. In other words: policy above all drives the business cycle.

Did Keynes get it wrong on the relationship between saving and investment? From the National Accounts it is an easy exercise to derive the identity that saving is equal to investment: what is not consumed by total income is saved and equal to total investment. Though agreeing on this, Keynes went on to view the equality as being an equilibrium one, with the two variables detached in disequilibrium. The first relationship is an accounting identity

and the second a functional equality. The equality in the functional sense is brought about by the adjusting mechanism of income, as distinct from the classical view of variations in the rate of interest. When investment is higher than saving, income is rising. When investment is lower than saving, income is falling. This double meaning and dual approach to equality between saving and investment has been a source of great confusion.

If as Keynes argued aggregate demand drives aggregate income, then the causality would run from investment to saving. That would be consistent with Myrdal´s (1939) idea of ex post saving: "Quantities defined in terms of measurements made at the end of the period in question are referred to as ex post; quantities defined in terms of action planned at the beginning of the period in question are referred to as ex ante." This led Keynes (1937) in turn to conflict saving with finance: "While investment can never be constrained by lack of saving, it can be constrained by lack of finance during the interim, as money is hoarded to satisfy the finance motive: unless the banking system is prepared to augment the supply of money, lack of finance may prove an important obstacle to more than a certain amount of investment decisions being on the tapis at the same time. But 'finance' has nothing to do with saving … Surely nothing is more certain than that the credit or finance required by ex-ante investment is not mainly supplied by ex-ante saving." In this regard, Keynes´s theory of liquidity preference contrasted the theory of loanable funds in that the former saw banks as creators of money whereas the latter say banks as intermediary between savers and credit seekers.

Keynes´s view that excessive saving could cause unemployment (paradox of thrift) met with criticism. Feldstein (1981) for instance ties the post-war political efforts in especially the United States and Britain to encourage consumer spending and borrowing to Keynes´s paradox of thrift.

Does Keynesian economics lack an accelerator model? The principle of the Accelerator introduced by Carver (1903), Aftalion (1909) and Clark (1917), though not a Keynesian concept, is an important and parallel concept to Keynes' multiplier. Or in specific, they are inverse to each other as the multiplier runs from spending to income and the accelerator from income to investment. Thus, it can be argued that a major criticism of Keynes´s business cycle theory is the omission of the accelerator. The Samuelson (1939) multiplier-accelerator model is a business cycle model in that changes in investment is multiplied to changes in aggregate income. The income changes in turn affect positively the investment changes via the accelerator coefficient (also called the capital-output ratio). The accelerator model has been criticized, for instance for being too mathematical, mechanical and deterministic. Tsiang (1951) writes that "most of the multiplier-accelerator models have one characteristic in common in assuming that there is a constant, exogenously given accelerator…but the assumption of a constant accelerator dependent solely upon exogenous factors and independent of the endogenous process of the system is without any statistical foundation. What statistical evidence we have points rather in the opposite direction." He concludes: "In my humble opinion, the assumption so frequently made by macro-economic theorists of a constant accelerator, is one which is obviously not based carefully upon the fundamental analysis of the rational behavior of individual firms. In other words, Tsiang criticizes older Keynesian accelerator models for a lack of microeconomic foundation. We will revert to the deficiency in more detail later on in the paper.

How good has New Keynesian economics been at explaining business cycles and macroeconomic events? The great financial recession of 2008-09 exposed flaws in the way economists, policymakers and others had looked upon macroeconomics and business cycles for a long time. As one main actor of the time, the then ECB Governor Trichet, put it: "…in the face of the crisis, we felt abandoned by conventional tools." Which are those conventional tools, which macroeconomic / business cycle theories lay behind them and most importantly: why were they deficient in capturing the events of 2008-09?

The British economist Charles Goodhart (2009) makes a convincing answer in the paper The Continuing Muddles of Monetary Theory: A Steadfast Refusal to Face Facts. According to Goodhart: "The current dominant consensus money/macro model, the standard DSGE model, abstracts from any possibility of failure or default and

thereby largely eliminates any rationale for banks, financial intermediaries and even money. That this is strictly insufficient and inappropriate has been all too clearly illustrated by the events of 2007-08." It is necessary to look deeper into the functioning of the DSGE model which Goodhart calls a "fair weather model" that may work only in periods of stable economic developments.

The New Keynesian economist Mankiw (1989) is pessimistic on the inclusion of Classical ideas into the New Keynesian business cycle theory. He points out that a good theory needs to be both internally and externally consistent, at the same time admitting that there is often a tradeoff between the parsimonious beauty of a theory and how well a theory fits facts. According to Mankiw, "indeed, new Keynesians sometimes suggest that to understand the business cycle, it may be necessary to reject the axiom of rational, optimizing individuals, an act that for economists would be the ultimate abandonment of internal consistency."

3. Accounting Identities

Underlying the accounting identities presented later is the circular flow of income, which is a model concept for better understanding the real national economy. In its most basic form, it considers a simple economy consisting solely of businesses and individuals. In this simple economy, individuals provide the labor that enables businesses to produce goods and services. The businesses provide the individuals with income. The income is used as expenditure on the goods and services that the businesses produce. The income the businesses receive in the form of the individuals´ expenditure is used to pay income to the individuals in return for their labor. The circular flow of income keeps continuing in this way. The National Income and Product Accounts (NIPA) capture these flows in the form of the National Income Identity, which states that the value of GDP is equal to total income which is equal to total expenditure.

3.1. The Sectoral Balance Identity

Starting from the most well-known national accounting identity, the GDP demand side equation GDP=C+I+G+X-M, and then using the fact GDP as total income is the sum of sectoral income and lastly rearranging, the sectoral balance identity can be written as:

$$(\Pi - I) + (W - C) + (T - G) + (M - X) = 0$$

The first variable within each parenthesis is an income variable; the second one after the minus sign is an expenditure variable. The first term denotes the balance of non-financial and financial corporations, the second term that of households and non-profit organizations, the third term that of general government and the fourth term that of the foreign sector. The sectoral balances are equal to the European System of Accounts (ESA) concept of net lending (+) / net borrowing (-), also labeled NL/NB onwards, see for instance European Commission (2010). If a sectoral balance is positive, i.e., income exceeding expenditure, then the sector is a net lender. If a sectoral balance is negative, i.e., income trailing expenditure, then the sector is a net borrower.

3.2. The Quadruple Entry Principle

National accounts are based on quadruple entry accounting meaning that using a quote from the UN Systems of National Accounts (SNA) 2008 "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." We can apply the principle of quadruple entry accounting to the sectoral balance identity. Assume for example that a household buys a good from a non-financial corporation for 10 euro. If we also assume that nothing else happens

in the economy such that the household does not have an income, then household expenditure (i.e., C) would rise by 10 euro. At the same time the income of the non-financial corporations (i.e., Π) also rises by 10 euro. That ensures that the sectoral balances identity holds. By this real transaction, the household has become a net borrower and the non-financial corporation a net lender. We assume that the household financed the purchase by currency, which here represents a balance sheet asset, which ends up in the counter of the non-financial corporation. The whole deal with its four entries is shown in table 1. Note that both actors end up with identical financial balance (-10 and 10 respectively) regardless of whether it is calculated from the real or financial side of the economy. The financial balance calculated from the real side is called net lending (+) / net borrowing (-). The financial balance calculated from the financial side as the difference between financial asset and liability transactions is also called net lending (+) / net borrowing (-) but also takes the name net financial investments.

Table 1. Example of quadruple entry accounting with the four entries in bold.

	Income	Expenditure	Net lending (+) / net borrowing (-)
Household	0	10	-10
Non-financial corporation	10	0	10
	Financial asset transactions	Liability transactions	Net lending (+) / net borrowing (-)
Household	-10	0	-10
Non-financial corporation	10	0	10

3.3. The Equation of Exchange

The equation of exchange, stemming from work by Fisher (1922) and Pigou (1927), states that MV=PY where M is the total nominal amount of money supply in circulation, V is the velocity of money, P is the price level and Y is an index of real expenditures. It may not be obvious to everyone that the equation of exchange is an accounting identity. The reason is that there exists a theory, the quantity theory of money, usually associated with the monetarist school of economics, which is derived from the identity. The theory´s assumptions of V and Y being constant in the short run imply that the value of money is determined by the amount of money available in the economy.

4. Accounting Identities Applied to some Keynesian Key Concepts

We begin by showing two of Keynes´s key concepts, the animal spirits of entrepreneurs and business firms and the finance motive, within the context of income statements and balance sheets for a three-actor economy composed of a buying company, a selling company, and a commercial bank. The aim is to show the crucial importance of business confidence and finance for generating economic growth. Period T is assumed to have zero GDP, thus making the T+1 flow values equal to growth.

The animal spirits of business firms are depicted in the upper, right part of table 2. The starting point of period T+1 is rising profit expectations of the buying company. This is equal to rising business confidence and animal spirits and shows up as a willingness to invest in a capital good. The buying company does two things in the first step of period T+1: it tells the selling company about its investment plans and applies for a credit at its local bank. This shows up as production of the capital good in the selling company´s balance sheet in the form of real asset balances of 100 units in step 1 in period T+1. It also shows up as financial assets and liabilities of 100 units in both the buying company and the commercial bank in step 1 of period T+1. These cells correspond to total economy money = credit = finance as seen by the green field in the period T+1 outcome table. The money course of events needs to be specified more clearly. First, the buying company´s money demand coincides with its demand for the capital good.

Table 2. A three-actor economy with income statements and balance sheets in period T+1.

Period T+1 Step 1				Opening		Closing
	Income Statement		Balance Sheet	Balance	Transactions	Balance
Buying Company	Income	0	Real Assets	0	0	0
	Expenditure	0	Financial Assets	0	100	100
			Liabilities	0	100	100
	Net lending (+) / net borrowing (-)	0	Net lending (+) / net borrowing (-)		0	
Selling Company	Income	0	Real Assets	0	0	100
	Expenditure	0	Financial Assets	0	0	0
			Liabilities	0	0	100
	Net lending (+) / net borrowing (-)	0	Net lending (+) / net borrowing (-)		0	
Commercial Bank	Income	0	Real Assets	0	0	0
	Expenditure	0	Financial Assets	0	100	100
			Liabilities	0	100	100
	Net lending (+) / net borrowing (-)	0	Net lending (+) / net borrowing (-)		0	
Period T+1 Step 2				Opening		Closing
	Income Statement		Balance Sheet	Balance	Transactions	Balance
Buying Company	Income	0	Real Assets	0	100	100
	Expenditure	100	Financial Assets	100	-100	0
			Liabilities	100	0	100
	Net lending (+) / net borrowing (-)	-100	Net lending (+) / net borrowing (-)		-100	
Selling Company	Income	100	Real Assets	100	-100	0
	Expenditure	0	Financial Assets	0	100	100
			Liabilities	100	0	100
	Net lending (+) / net borrowing (-)	100	Net lending (+) / net borrowing (-)		100	
Commercial Bank	Income	0	Real Assets	0	0	0
	Expenditure	0	Financial Assets	100	0	100
			Liabilities	100	0	100
	Net lending (+) / net borrowing (-)	0	Net lending (+) / net borrowing (-)		0	
Total Income = GDP					100	
Total Expenditure = GDP					100	
Total Production value = GDP					100	
Total Money (M) = Credit = Finance					100	
Total Velocity (V)					1	
Total Net lending (+) / Net borrowing (-)					0	

Note 1: The economy is assumed to have value zero in period T.

Note 2: From table 1 we know that NL/NB is the same as net financial investments. Two consequences of this financial nature on the balance sheet are that money ties to finance and that the NL/NB value is calculated as financial asset transactions minus liability transactions.

Note 3: Interest rates, drawdowns and the like are for simplicity assumed to be zero.

Then it applies for a loan at the local bank. After the loan is approved, the value of the loan, i.e., 100 units, is both credited and debited on both the buying company´s and the commercial bank´s balance sheets. From the viewpoint of the bank, the loan is an asset and the deposit made to the buying company´s bank account is a liability. The opposite goes for the buying company: the loan is a liability and the deposit an asset. So, by the end of step 1 in period T+1 the buying company has secured the loan now at its bank account and the selling company has produced

the capital good but not yet sold it. That is why the income statements are empty. In step 2 of period T+1 the real transaction takes place. This is seen from the income statements as expenditure of 100 on the part of the buying company and income of 100 on the part of the selling company. The corresponding items on the balance sheets are the buying company´s real asset transaction of 100 units and the selling company´s real asset transaction of -100 units. These two real transactions are depicted as money velocity (V) in the outcome table. The reason is that money depicted in step 1 in T+1 was created and booked within the financial economy. In that sense the money velocity was zero (M=100 * V=0 = PY=0). The red-marked real asset transactions mark the capital good moving from the selling company to the buying company in a real, GDP-affecting economy. Velocity is equal to 1 as the number of real transactions is one (M=100 * V=1 = PY=100); the two real asset transactions mark the double-sidedness of a transaction. Money moves in the opposite direction at the time of the real transaction: the buying company uses the 100 units at its bank account to finance the real purchase. This is seen as a negative financial asset transaction of 100 units. The 100 units end up in the counter of the selling company, showing up as a positive financial asset transaction of 100 units. Note also that the NL/NB values are zero for the whole economy. However, and crucially, from each actor´s point of view, the NL/NB values may or may not change. In step 1 in T+1 all these values are zero. In step 2 in T+1 the buying company becomes a net borrower. This is no coincidence. On the contrary, such a net borrowing property is closely attached to the animal spirits and need for finance. The common denominator is risk. In order to achieve economic growth, it is necessary that actor(s) take(s) risk in the form of net borrowing (either drawing down assets or as here depicted incurring debt). The buying company´s function as a risk-willing growth driver may be easier understood against the background of its period T economy. With zero units of income the buying company needs to access money = finance over the balance sheet in order to finance the growth induced real purchase. The conclusion is that risk willingness and finance are crucial conditions for economic growth. The question whether business firms actually represent such risk willingness needs an empirical answer.

One purpose of showing jointly a buying and a selling company is that business firms normally act as both buyers and sellers. Think of the Keynesian multiplier (not in effect in table 2) coming into play after the buying company´s injection of money into the circular flow of income. The animal spirit of the buying company is likely to feed through to the selling company. With a freshly received 100 units in its counter, it is likely that it also will spend it. Business firms thus take on the dual roles of producing sellers and buyers. From a national accounting perspective, it is not obvious how to separate the dual roles, but that is nonetheless a necessary exercise in order to calculate the business firms´ share of total expenditure growth. We will here repeat the method and empirical results in Bergström (2022). First though, a few words need to be said about the investment-saving identity (S=I). How does it show up in this simple economy? Remember Keynes´s words "finance has nothing to do with saving". As a matter of fact, the two are equal in the above, non-multiplier example, as finance seen as money times velocity (100*1) is equal to saving seen as income minus consumption (100-0). However, it suffices to put the multiplier in play to wreck the equality. Let´s assume that the companies´ roles switch so that the selling company buys a capital good for 100 units from the buying company. Then M*V is (100*2), PY = 200, S = PY-C = 200-0 = I = 200. Finance is the initial injection into the circular flow (i.e., 100 units) whereas saving, here equal to income, depends on how the initial finance feeds into the economy via the velocity factor. Concluding, the saving identity (S=I) has no obvious economic meaning. Finance, however, is an absolute prerequisite for an animal driven business cycle. In terms of accounting identities, the equation of exchange is the relevant identity linking the financing (MV) to the real economic expenditure (PY). Money thus is non-neutral with a clear real economic link when economic activity changes. For an economy to grow, money is needed on top of total income to finance the extra expenditure. For an economy to shrink, the opposite goes as the actor(s) driving the downturn become(s) net lenders spending less than in the previous period.

The sector accounts, a part of the national accounts, provide the NL/NB values for each institutional sector,

which sum to zero for the total economy. The values of the rightmost column in table 3 (here randomly set) are given by the sector accounts and are here shown in growth terms. The challenge is to separate sellers from buyers in the various sectors. Which sectors make up the income side of the GDP equation and which make up the expenditure side? The NL/NB variable is the difference between gross lending (GL) and gross borrowing (GB). GL captures the sell/income side whereas GB captures the buy/expenditure side. By focusing on the two gross variables, the desired separation between buyers and sellers emerges. For the total economy, total GDP is equal to total expenditure (AE) which is equal to total income (AI). Note that the sum of the sectors´ change in GB is equal to the change in aggregate expenditure and the sum of the sectors´ change in GL is equal to the change in aggregate income. In the fictive example in table 3 these aggregate growth numbers are randomly set at 5. The NL/NB values are also set randomly. Note that the random set numbers in the first part of table 3 have corresponding values in the national accounts. Solving out the empty cells in table 3 does not seem possible without further help. The cells are left empty because they do not exist.

Table 3. A fictive economy seen from the national accounts.

Changes in values in period t+1	d GDP	d Gross Borrowing	d Gross Lending	d Net lending (+) / Net borrowing (-)
Non-financial corporations		7	5	-2
General government		-1	0	1
Households & NGOs		1	0	-1
Rest of the world		-2	0	2
Total economy	5	d AE = 5	d AI = 5	0

Source: Bergström (2022).

A fact used as a starting way to fill the empty cells is that not all sectors are sellers. Households for instance do not engage in real market sales as a means of receiving income. Neither does the rest of the world and the general government in Sweden does this only to a very insignificant extent. The income to these sectors is almost totally redistributed from other sectors. This means that for the three sectors a zero is inserted in the column growth of GL. Non-financial corporations increase GL by 5 (5-0-0-0) and GB by 7 (5 - -2). The general government decreases GB by 1 (0-1), the households increase GB by 1 (0- -1) and the rest of the world decreases GB by 2 (0-2). So out of total growth of 5, non- financial corporations account for 7 or 140 percent seen from the expenditure side.

In table 4 the method shown in table 3 is applied to actual nominal GDP values for five economies during 1994-2019. A clear pattern emerges that business firms drive short-term nominal GDP growth quite in line with the fictive 3-actor economy. From this we can conclude that the same goes for real GDP growth given the low and stable global inflation during the measured period. Why do business firms drive economic growth? Many firms need to take risk in order to stay in business. The relative high level of risk is tied to high expected profits. Other sectors of the economy have much lower volatility of incomes why a risky growth model does not suit them. For instance, households receive wages and salaries from their employers and the general government taxes from the private sector.

Table 4. Median sectoral contribution to Swedish, US and UK changes in nominal GDP 1997-2019, German ditto 2000-2019 and Japan ditto 1994-2018.

	Sweden	US	UK	Germany	Japan
Non-financial corporations	105	128	111	109	110
Financial corporations	0	1	3	1	2
General government	-8	-12	-16	-10	-15
Households & NGOs	-7	-11	2	-10	-1
Rest of the world	11	-7	0	10	3
Total economy	100	100	100	100	100

Source: Statistics Sweden, BEA, ONS, Statistisches Bundesamt, Statistics Bureau of Japan and own calculations in Bergström (2022). Note. Contribution is calculated as the change in gross borrowing (GB) divided by nominal GDP change (i.e., change in aggregate expenditure).

Table 5. A three-sector, 8-period, domestic economy with business firms driving growth (being net borrowers), a public sector with fixed expenditure and net lending households increasing their saving rate in period 3.

t=0	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	30.0	34.5	-4.5	
Public sector	25.0	25.0	0.0	
Households	45.0	40.5	4.5	10
SUM	100	100	0	
t=1	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	30.8	36.0	-5.2	
Public sector	25.6	25.0	0.6	
Households	46.1	41.5	4.6	10
SUM	102.5	102.5	0	
t=2	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	31.5	37.5	-6.0	
Public sector	26.3	25.0	1.3	
Households	47.3	42.6	4.7	10
SUM	105.1	105.1	0	
beginning t=3	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	32.3	39.1	-6.8	
Public sector	26.9	25.0	1.9	
Households	48.5	43.6	4.9	10
SUM	107.7	107.7	0	
end t=3	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	27.5	39.1	-11.6	
Public sector	26.9	25.0	1.9	
Households	48.5	38.8	9.7	20
SUM	102.9	102.9	0	
beginning t=4	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	27.5	37.4	-10.0	
Public sector	25.7	25.0	0.7	
Households	46.3	37.0	9.3	20
SUM	99.5	99.5	0	
t=4	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	27.5	30.0	-2.5	
Public sector	18.2	25.0	-6.8	
Households	46.3	37.0	9.3	20
SUM	92.0	92.0	0	
t=5	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	28.2	31.4	-3.2	
Public sector	18.7	25.0	-6.3	
Households	47.5	38.0	9.5	20
SUM	94.3	94.3	0	
t=6	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	28.9	32.8	-3.9	
Public sector	19.2	25.0	-5.8	
Households	48.6	38.9	9.7	20
SUM	96.7	96.7	0	
t=7	Income	Expenditure	Net lending (+) / net borrowing (-)	Households´ saving rate, %
Business firms	29.6	34.2	-4.6	
Public sector	19.6	25.0	-5.4	
Households	49.9	39.9	10.0	20
SUM	99.1	99.1	0	

Source: Own assumptions and calculations.

Was Keynes right claiming the paradox of thrift? We´ll again use accounting identities to cast light on the question. Consistent with the above results and Keynes´s animal spirits, the two main assumptions made are that 1) business firms are given the role as growth drivers and 2) households are net lenders starting with a saving rate

of 10 percent followed by a sudden, sharp and permanent increase to 20 percent in period 3. The public sector´s role is merely a reactive tax- collecting one.

The demand side is highlighted in the table 5 economy with the income side more reactive. Until the beginning of period 3 the dynamics of the economy is given by a set growth rate, 2,5 percent, a set saving rate for households, 10 percent, and a fixed expenditure number for the public sector. The residual value then becomes the business firms´ expenditure value, satisfying both the aggregate income equal to aggregate expenditure identity as well as the NL/NB identity. In period 3, households raise their saving rate from 10 to 20 percent. The rise in the saving rate decreases per se GDP by 4,5 percent. This withdrawal of income is multiplied throughout the economy in the beginning of period 4 as the income of the public sector and households decreases and the households´ expenditure decreases so as to satisfy the new higher saving rate. The business firms´ expenditure decreases from 39,1 to 37,4 to satisfy the accounting identities. It is only in the end of period 4 that the major adjustments to the sharp rise in the households´ saving rate show up on the part of the other two sectors. In the end of period 4 it is shown red marked that business firms cut down on expenditure from 37,4 to 30,0 and that the public sector finds its tax revenues decrease from 25,7 to 18,2. So what is the economic rationale behind the dramatic shift in business and public sector´s NL/NB numbers? First, the business firms´ animal spirits are not affected by the rise in the households´ saving rate. So, something has to give and this something is the public sector. Given that the sum of sectoral NL/NB numbers are zero is the reason why the public sector becomes a net borrower in period 4 and onwards given the above made assumptions. The economic mechanism in play is that slower private demand feeds into lower tax revenues.

Table 6. A three-sector economy experiencing a negative shock (business fear) and ensuing multiplier-accelerator down-fall.

t=0	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	300	300	0
Public sector	200	200	0
Households	500	500	0
SUM	1000	1000	0
t=1	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	292	290	2
Public sector	196	200	-4
Households	492	490	2
SUM	980	980	0
t=2	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	283	280	3
Public sector	192	200	-8
Households	485	480	5
SUM	960	960	0
t=3	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	275	270	4
Public sector	188	200	-12
Households	477	470	8
SUM	940	940	0
t=4	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	266	261	5
Public sector	184	200	-16
Households	470	459	11
SUM	920	920	0
t=5	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	258	251	7
Public sector	180	200	-20
Households	462	449	13
SUM	900	900	0

*Assumption 1: Investment down by 4 units. Assumption 2: Saving rate 20%. Multiplier: d(GDP) = -I/s = -4/0,2 = -20. Public income: d(GDP) * 20% = -4. Assumption 3: Public expenditure fixed at 200. The system is solved in two steps: 1. The business*

*firms´ income and expenditure decline by 4, the public sector´s income declines by 4 to 196 and the whole economy is set to 980. 2. The remaining values are set according to sectoral shares in t=0. Assumption 4: the accelerator d I(t) = a * (GDP(t-1) – GDP(t-2)) = -4 as a set to the constant 0,2. Source: Own assumptions and calculations.*

The final three periods show how the same business, growth driving, behavior matches the heavier savings households and the budget-strained government. Note that the dynamics of the three-sector economy is the same in the first periods as in the last. Clearly, the sharp rise in households´ saving rate has a very negative effect on both GDP and the public budget balance. But it is a short-term effect, here limited to less than two periods. The overriding long term positive effect on the economy is that the business firms maintain their optimism and risk willingness.

Let us now by the same methodology as above take a closer look at business cycle dynamics, capturing Keynes´s concepts such as animal spirits, demand side origination, the multiplier, the addition of the non-Keynes concept of the accelerator and the economic effect of a fiscal policy boost. We start with a simple base case in table 6 involving a negative investment shock, the multiplier and an accelerator with a fixed coefficient.

With the assumptions made, it is obvious that the economy is set for a perpetual down-fall, shrinking every quarter with 20 units. The private sectors are perpetual net lenders as their expenditure fall more than their income, offset by the public sector´s fall in tax revenues. Let us therefore assume that the government tries to turn around the dire situation by means of an active fiscal policy boost, amounting to an injection of 6 units showing up as increased public expenditure in period 3. The boost is added to the already set base case in table 6. We´ll go through the effects and dynamics in greater detail.

It is assumed (table 7) that period 3 starts with the accelerator effect bringing down both the income and the expenditure side of business firms by 4 units.

Table 7. The first effects in period 3.

t=2	Income	Expenditure
Business firms	283	280
beginning t=3	Income	Expenditure
Business firms	279	276

Source: Own assumptions and calculations.

Now, and before the multiplier has started to run its course, the government steps in and injects 6 units to the economy ending up as extra household income. The result is shown in table 8. The increase in GDP compared to end of period 2 (962-960=2) is solely due to the injection (6 units) exceeding the withdrawal (4 units). The multiplier will decide the final outcome of period 3. The new multiplier is d(GDP)=(-I+G)/s which is equal to (-4+6)/0,2 = 10.

Table 8. The second effects in period 3.

mid t=3	Income	Expenditure
Business firms	279	276
Public sector	192	206
Households	491	480
SUM	962	962

Source: Own assumptions and calculations.

So instead of a continued down-turn from 980 to 960 in the end of period 3 the fiscal boost has the positive effect of lifting the whole economy by 10 units to 970 (table 9). Note that the fiscal boost is confined to period 3 buts its positive effect on the overall economy continues thanks to how the accelerator is specified. The increase in GDP by 10 units feeds into an investment change of 2 which is multiplied to a 10 unit increase in the overall economy well beyond period 3.

Table 9. The effect of a fiscal boost in period 3.

t=3	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	281	277	4
Public sector	194	206	-12
Households	495	487	8
SUM	970	970	0

Source: Own assumptions and calculations.

A constant accelerator was however not based carefully upon the fundamental analysis of the behavior of individual firms. Or in other words, it is simply not micro founded. What makes this specific criticism relevant within a multiplier-accelerator framework is the connection between the result in table 4 and the specification of the accelerator. The empirical result that business firms drive economic growth goes beyond the perceived exogenous nature of animal spirits. That is why it is correct to conclude that business cycles are all about business confidence. Business confidence, synonymous to animal spirits, risk willingness, profit expectations and the like, is ubiquitous and endogenous to the business cycle. A micro founded accelerator cannot be constant but needs to capture business confidence. We will end the section by assuming a virus-vaccine driven business cycle keeping the period 3 fiscal boost. Remember that the one-period fiscal boost was the necessary and sufficient condition to turn around the cycle thanks to the assumption of a constant accelerator. Such a strong effect hinges on the assumption that business firms´ investment behavior is mechanically determined by the change in GDP. This may well be reasonable in normal, calmer economic times. But not in exceptional economic times. Keynes´s ordination of boosting policy to stabilizing the economy had its origin in the very exceptional US depression of the 1930´s. An exceptional virus-vaccine business cycle is therefore relevant as an assumption when assessing the potency of active fiscal policy. Surely, governments around the globe did their utmost in 2020-21 to boost the pandemics-ridden economies with a hefty dose of fiscal policy.

The new accelerator is specified as d I(t) = k *[GDP(t-1)] with k varying in percentage terms around 0. Positive values of k are linked to positive confidence and animal spirits; negative values to caution and fear. For simplicity k is set to values that mimic the old accelerator up until period 2. The reason is to compare the subsequent periods with the Keynesian boost example. It is assumed that a virus hit the economy in period 3, a vaccine was found in period 4, the Keynesian boost as well as the baseline case is the same as before only that the new accelerator is applied on top of the baseline / Keynesian boost scenario.

The advent of the virus in period 3 has the effect that business confidence k falls from -0,4 percent to -0,8 percent of the previous GDP level. Tables 10 and 11 show this effect on the income of expenditure of business firms as well as the known fiscal policy boost.

Table 10. The joint of effect of a fiscal boost and falling business confidence in period 3 before multiplication.

t=2	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	283	280	3
Public sector	192	200	-8
Households	485	480	5
SUM	960	960	0
mid t=3	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	275	272	3
Public sector	192	206	-14
Households	491	480	11
SUM	958	958	0

Source: Own assumptions and calculations.

Table 11. The joint of effect of a fiscal boost and falling business confidence in period 3 after multiplication.

t=3	Income	Expenditure	Net lending (+) / net borrowing (-)
Business firms	273	269	4
Public sector	190	206	-16
Households	487	475	12
SUM	950	950	0

Source: Own assumptions and calculations.

Table 11 shows that falling business confidence outweighs the fiscal boost driving the total economy down in period 3 by 10 units. This is a pure model result depending on the relative values of the business confidence coefficient k and the fiscal policy boost. A higher value of the boost / a higher value of the confidence would easily have produced a rising economy in period 3. The aim of this example is not so much such relative, set values as to show the dynamics between the two sectors. From the circular flow of income, one sector is withdrawing from and the other sector injecting to the flow of income during a given period. Now think about how period 4 will unfold. Absent good news in terms of the pandemics, business confidence is set to remain gloomy. But will there be more fiscal policy boosts? If not, then we would expect another period of bad GDP outcome. If on the other hand there is another fiscal boost, the GDP outcome will again be the result of the tug of war between two contradicting forces. Two factors more important than the very short-term GDP outcome need to consider: 1) fiscal policy boosts risk being very costly (in terms of net borrowing) given that 2) the boost does not affect and turn around the depressive business confidence.

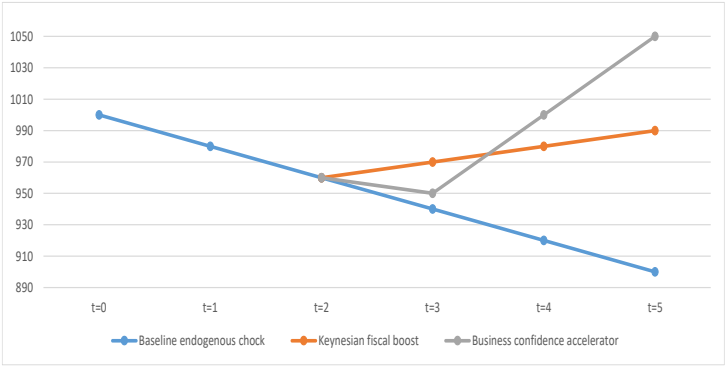

Figure 1. GDP development under three scenarios.

Source: Own assumptions and calculations.

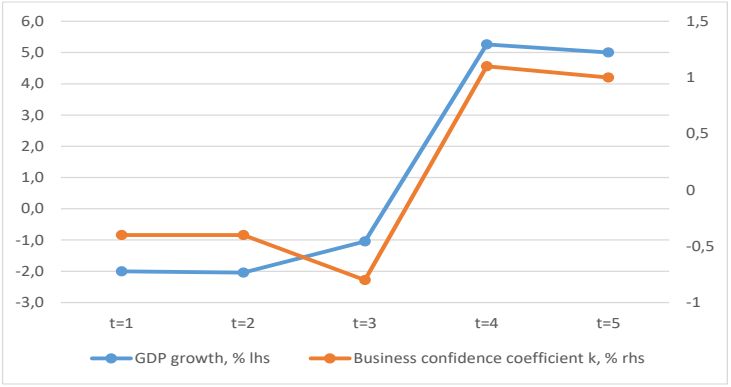

Figure 2. GDP growth and the Business confidence coefficient.

Source: Own assumptions and calculations.

Let´s assume that period 4 instead brings the very good news of a vaccine showing up as a sharp turnaround in business confidence accelerator coefficient from -0,8 to +1,1 percent. This would by itself (i.e., no fiscal or other boost) set off a GDP increase of 50 units from 950 to 1000. In period 5 the animal spirits continue with business confidence continuing at a very high 1,0 percent. Figure 1 shows how GDP evolves over the course of six period under three different scenarios. Figure 2 shows the close relationship between GDP growth and the business confidence coefficient.

5. Conclusions – Keynesian Without the Policy

The analysis starts from Keynes´s concepts of the demand side as the driving side of the economy and the animal spirits of business firms and investors. When animal spirits run high, business firms spend more on capital goods than in the previous period. For this to happen money/finance is needed. Why? Because a higher overall expenditure than in the previous period cannot be financed solely by income. Why? Because the accounting identity tells us that total income is equal to total expenditure in each and every period. Therefore, total income in the previous period is less than total expenditure in the current period. The gap has to be bridged by means of money/finance on the part of the buying actor(s), either in the form of a drawdown of assets or the taking on of debt. This extra money/finance amounts to a risk. Why? Because the act, whichever it is, to access money/finance happens over the balance sheet shows up as a net borrowing position. Net lending (+) / net borrowing (-) is a crucial variable in the paper. It connects the real with the financial side of the economy. If the buying firm borrows 100 units to buy a real capital good with, it turns out the net borrowing is 100 both calculated from the real side (100 as expenditure) and from the financial side (100 as liability transaction). This identity can in turn be explained more broadly by the equation of exchange. MV represents the money/finance side providing the financing of the real purchase, PY. Applying the equation of exchange in this context, something nor Keynes, nor his following Keynesians did, solves the money-investment-saving puzzle that Keynes was criticized of. In specific, it proves Keynes right on the account of the finance motive, that investment requires finance, at the same time as it plays down the macroeconomic equality of investment and saving: "while investment can never be constrained by lack of saving, it can be constrained by lack of finance during the interim, as money is hoarded to satisfy the finance motive."

We conclude that money is endogenous. That rules out money as an exogenous force steering aggregate demand (as undergraduate textbooks in macroeconomics have it). It also puts into doubt one of the bedrocks of Keynesian economics: sticky prices as a condition for real growth via money supply changes. Also, animal spirits and the purchase of the capital good are endogenous. Why? Simply because something is behind the high spirits and the wish to take risks and expand the business. The animal spirits are a permanent feature of the business cycle, contrary to the mainstream term shock. The empirical result that business firms drive economic expenditure growth goes beyond the perceived exogenous nature of animal spirits. The result holds empirically for every year during a 25-year period with low and stable inflation for five major world economies. That is why it is correct from an empirical-inductive sense to conclude that business cycles are all about business confidence.

Keynes´s view that demand drives the cycle made him emphasize spending. His paradox of thrift made him fear that insufficient spending would throw the world economy back to depression after the war. We show that a sudden, sharp increase in the households´ saving rate has a short-term detrimental effect on GDP and the government´s budget balance. But there are other factors at play such as business confidence. If it´s not affected by households´ saving behavior, business firms continue to take risk and drive growth. In that function, they will ensure that the economy returns to and exceeds pre-peak levels both in terms of GDP and the government´s budget balance. The practical question is whether household behavior has the power to influence business confidence. The act of businesses hiring employees suggests otherwise in that business and household confidence go hand in hand. Let´s

say that a government wants to increase the long-term household saving rate as well as the business investment rate. The optimal solution would be to phase out the increase of the saving rate gradually, trying to at least maintain the level of business confidence.

How about active fiscal policy? Its potency hinges on the multiplier. The policy boost is multiplied out to the whole economy, resulting in a GDP effect bigger than the size of the policy boost. Keynes prescribed active fiscal policy when the economy was dire. So, it´s not a fair-weather remedy. In dire times economic actors are fearful. From an accounting perspective such fear may show up as business firms being net lenders, cutting down on investments. This would amount to a withdrawal from the circular flow of income (which affects the whole economy downwards via the (opposite) multiplier). With business confidence driving the business cycle in both up- and downturns, the first question in evaluating the potency of fiscal policy would be to ask how policy affects business confidence. If it doesn´t affect it then the main effect of active fiscal policy would be to offset the negative GDP effect during the period it was implemented. But if it doesn´t affect confidence then, there is no reason to believe that it will affect confidence in the subsequent period. Why is this important? Because the business cycle is all about business confidence. It´s the permanent driver. The endogenous nature of business confidence makes it exposed to whatever external forces that may be around. Fiscal policy thus stands a chance to compete with any other force affecting business confidence but that doesn´t mean that it will succeed in affecting it. One finding in this paper is that economic growth is a risk enterprise. Active fiscal policy thus poses a big risk rather than having a mechanical link to income. If it doesn´t affect business confidence all that is left is a hefty budget deficit.

This leads up to a main conclusion: the gloomier the economy, the stronger is the case for active fiscal policy, but the lesser is the chance for it to succeed. Why? Because the gloomier the economy and thus the stronger the case for active fiscal policy, the worse is the state of business confidence meaning that it becomes increasingly difficult for policy to affect the opposing force(s) making up business confidence. If for instance, the economy is hit by a deadly virus, then the virus poses the exogenous factor affecting business confidence in a very negative way. Can active fiscal policy counter the very gloomy situation? It depends of course on how the pandemics develops but absent a vaccine in sight, logic and recent experiences tell us that economic actors remain cautious in their spending behavior. Connecting this to undergraduate macro textbooks it is clear that the textbook message is more compressed in that exogenous factors affect aggregate demand as shocks and that higher government spending raises aggregate income. The competitive nature, between say fiscal policy and a virus, does not exist in mainstream macroeconomics. One reason for such a deficiency is the lack of a micro-founded accelerator in Keynesian economics, opening up for the possibility of aggregate income affecting business spending via different, endogenous, levels of business confidence.

The conclusion can be illustrated by the same Keynesian short-term demand and supply curve as exists in undergraduate textbooks in macro economy. The demand side steers the economy along a horizontal supply curve. The theoretical set up holds, but the difference is that instead of exogenous policy being THE demand-affecting force, business confidence substitutes it and becomes the endogenous force, which can be a function of whatever exogenous factor.

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