

Structure and Agency in the Dynamics of Growth: A monetary macroeconomic equilibrium perspective on growth imperatives and stagnation

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Abstract. We consider explanations for the persistence of growth by exploring a system-inherent growth imperative. Our analysis of the credit economy detects two axioms (liquidity preference, marginal propensity to save) and two key principles (investments create savings, maturity transformation) of a functioning credit economy. We choose a structure–agency perspective explaining growth dynamics as the interplay of microeconomic behaviour and aggregate system characteristics. We find that developed economies tend to stagnate at underemployment equilibrium. This implies a growth imperative in order to overcome stagnation. We conclude that microeconomic analyses need to account for macroeconomic structure. Further, we point to possibilities and limitations of different actors to mitigate and overcome the growth imperative.

1 Introduction

Ecological Economics has convincingly demonstrated that absolute decoupling of economic growth from its environmental consequences is difficult to achieve. Decoupling has been theorized and observed as temporarily possible (Silveria and Luken, 2008; Spangenberg et al., 2002). In the long run, however, increases in productivity and improvements in energy intensity are ultimately limited by the laws of thermodynamics (Daly, 1974; Georgescu-Roegen, 1971). Research on the ecological footprint and socio-metabolic regimes reveal that current economic activity heavily conflicts with ecological and resource sustainability (Haberl et al., 2011; Wackernagel et al., 2002). On the other hand, the rate of economic growth in industrialized countries reveals a pattern of secular decline that is likely to continue (Duval and de la Maisonnette, 2010). What explains the persistence of the growth as a paradigm, despite its ecological consequences and its secular decline? Our contribution focuses on exploring macroeconomic growth imperative hypotheses to find possible explanations for the observed economic growth dynamics.

If we are to reduce economic growth, or at least the materially intense part of it, it is often assumed that at the core we need to understand and explain the consumer, with her individual preferences, so as to derive prescriptions that mould preferences in a more sustainable manner. As Sanne (2002) has pointed out, the extended utilitarianism approach to the psychology and culture of consumption, such as Veblen's 'conspicuous consumption', positional goods to create social order, or satisfying emotional and aspirational goals, can only very partially explain the dynamics of consumption.

This perspective must be complemented by investigating structural forces resulting in economic growth as a macroeconomic property, or, in the extreme, as an imperative. One explanation is based on credit creation, dating back to the work of Soddy in 1926. This idea was later taken up by Daly and Martinez-Alier and received particular attention in the financial crisis (Kallis et al., 2009). Given the easy possibility of credit creation by the financial system, the obligation to repay debts at compound interest would require either inflation or economic growth and further credit. A very similar idea has been developed Heinsohn and Steiger (2000). A more concrete and problem-oriented growth imperative hypothesis has been developed by Binswanger (2012), inspired by an ecological macroeconomic interpretation of Goethe's Faust (Binswanger et al., 1990). The explanation of growth imperative out of profits necessary to compensate interest and equity is based on the requirement to finance investment in advance, and the entrepreneurial risks attached to it. More fundamentally, a stationary economy becomes impossible, as insufficient growth leads to a downward spiral (Binswanger, 2012).

Schumpeter, and especially Bagehot, outlined the functioning of a credit economy at the end of the 19th century. While mostly known for his work on business cycles, Schumpeter did also explicitly consider the long run and a stationary economy (van Suntum, 2005: 66). In 1930 Keynes published his treatise on money, highlighting the role of credit creation, later also considering long run implications, most obviously when he discussed the 'possibilities for our grandchildren'. Keynesian economic growth models were developed, also highlighting the potential necessity of 'induced investment' (Domar, 1946), but the emphasis was on models of the business cycle. The potential macroeconomic causes of growth had only occasionally been analyzed, although the necessity of 'induced investment' for full employment points into the direction of a growth pressure.

We explore macroeconomic growth imperative hypotheses with a macroeconomic Keynesian credit framework and also explicate, in how far a growth imperative is structurally determined or subject to agency and deliberate choice. Section 2 outlines the structure–agency perspective, from which we investigate the micro-founded macroeconomic framework that is

developed in Section 3. Section 4 analyses the structural determinants of the framework by exploring options and constraints of the private actors, the state, and the central bank. We embed our tentative findings into discourses on problematizing growth. Section 5 derives conclusions and paths for further research.

2 Structure, agency, and critical realism

The structure–agency duality is an implicit topic in any social science and has been addressed explicitly. The question in how far agents are determined in their actions by structure in a given analysed context helps to derive the level of embeddedness (Granovetter, 1985), with important implications for potential agency and deliberation. Different paradigms have emphasized the structural constraints of human action. Highly structuralist accounts involve remarkable insights for critical analysis, but face problems to explain reflexive dynamics and institutional change. Paradoxically, although emphasizing methodological individualism and the study of agents, the rational choice approach dominating in economics is highly structural, as given utilities and automated calculations fully determine choice (Hay and Wincott, 1998). Accordingly, many social theories take a systemic perspective, integrating structure and agency (Bunge, 1998). Hodgson’s work on evolutionary institutional economics (2004) has demonstrated the importance of an explicit analysis of agency and structure and their interdependence, taking into account the downward causation from structure. Critical realism emphasizes the distinction between events, empirical regularities, and the causal mechanisms underlying events and regularities, highlighting the importance of explaining properties emerging from their interaction.. While some authors aim at transcending the structure-agency dualism, Hodgson and many critical realists highlight the ontological distinction between both to prevent conflation (see e.g. Archer et al., 1998). As will become visible in the following section, the macroeconomic accounting framework exerts a downward causation on agents.

Thus, structural growth pressure may derive from individualization, infrastructures, technological innovations, and especially from the triangular interplay between consumers, businesses, and the state. Business becomes the creator of wants, and the polity, subordinated to the voter, is the precursor for employment through business growth and consumption, in order to win elections. This is a structure in which the consumer is locked in, but the citizen is not, and may consciously change labour policies and the ‘dogma of economic growth’ (Sanne, 2002).

In their role as citizens, actors can also develop new indicators to measure social and ecological progress, so as to hopefully overcome the narrow focus

on the GDP. While decoupling economic growth from energy intensity has been found to be at least challenging, indicators of happiness and wellbeing are decoupled from economic growth in the long term, as has been clearly observed in both industrialized, but also some developing countries (Easterlin, 1995). Beside a number of longstanding criticisms with regard to the neglect of environmental costs, a narrow focus on GDP can also create information failure (van den Bergh, 2009). Nevertheless, preferential attachment to the GDP indicator has remained persistent, despite its serious shortcomings. Institutionalization and other structural forces seem to reinforce this dominance, and with it the focus on economic growth.

As the review of potential origins of growth dynamics has shown, the prescriptions can be very different according to the level of embeddedness identified. Policy recommendations can be problematic and harmful when systemic interactions are ignored that lead to unintended and even detrimental effects. Several paradoxes in macroeconomic theory exhibit exactly this property. Saving may be considered as a private virtue, but can be a macroeconomic vice (Mandeville, 1732). This directly relates to the unintended systemic consequences of a savings-increasing reduction in consumption or reduced working time implied by sustainability considerations (Rezai et al., 2013). On the other side, keeping up a minimum growth level required to prevent recessions because of an allegedly system-inherent necessity may sooner or later conflict with ecological resilience. What we propose is a systemic perspective modeling disequilibria and suboptimal equilibria as a result of the interaction of a set of behavioral assumptions that enact on structure while the structure at the same time constrains action.

3 From the monetary theory of production to the stagnation theorem

In brief and pointed to our purpose, the monetary theory of production we draw upon (Graziani, 2003; Riese, 2004; Rochon, 1999) includes four aspects: (1) Investments precede savings through credit creation, but attracting savings nonetheless remains crucial for refinancing credits. (2) The decision to save is dependent on income and independent from the portfolio decision to hold wealth in the form of nominal credit or real assets. Nominal and asset markets are thus situated hierarchically above commodity markets. (3) The creditors' liquidity preference induces holding short over long term nominal claims and hence is determining the term structure of interest rates according to the maturity of assets. (4) The necessity of maturity transformation by the banking system finally completes our argumentation

towards a macroeconomic constellation of stagnation implying an imperative of growth. We briefly outline these four aspects.

By referring to the interest rate, we assume that all rates are interdependent so that the interest rate reflects the bundle of all occurring rates of the whole term structure of interest rates. Further, we exclude risk premium as a category of the real sphere. The monetary interest rate is the risk-free rate.

3.1 Credit within the macroeconomic accounting system

While in the General Theory, Keynes embraced notions of an exogenous money stock and the quantity theory of money (Rochon, 1999; Spahn, 2007), in the subsequent discussion he became fully aware of the causalities in a credit money economy. Investments precede savings and investments are credit-financed: “The investment market can never become congested through shortage of saving. This is the most fundamental of my conclusions within this field” (Keynes, 1937: 222 cit. op. Rochon, 1999: 29).

The core of a monetary macroeconomic framework is built by credit relations, manifested in balance sheets. The structure of balance sheets is crucial to understand credit creation and to financial money markets. Unsurprisingly, a whole introductory chapter is dedicated to financial balance sheets in a classical book written for financial market managers that has been edited and revised since 1978 (Stigum and Crescenzi, 2007). We deem it necessary to briefly introduce some essential points.

The fact of all financial assets and liabilities in a closed economy adding up to zero is a triviality that has led neoclassical macroeconomics denying its role in growth dynamics. Yet, this triviality can have major implications on a macroeconomic level, explaining financial crises (Bezemer, 2010), and the Great Moderation preceding recessions (Keen, 2013), or, as we suggest, exploring macroeconomic growth hypotheses.

Macroeconomic balance accounting frameworks differentiate four non-financial, namely households, corporations, government, and rest of the world. Financial institutions are monetary financial institutions, but also insurance corporations and pension funds. The most important financial intermediaries are those having a central bank account. These institutions are typically commercial banks.

As Figure 1 depicts, all financial assets and liabilities of non-financial sectors are mirrored in the assets and liabilities of financial institutions. An asset of a non-financial sector is a liability of the financial sector and vice versa. Any financial transaction between two sectors involves also the financial sector (Graziani, 1989). Any financial transaction thus leads to changes in the balance sheets of each of the three.

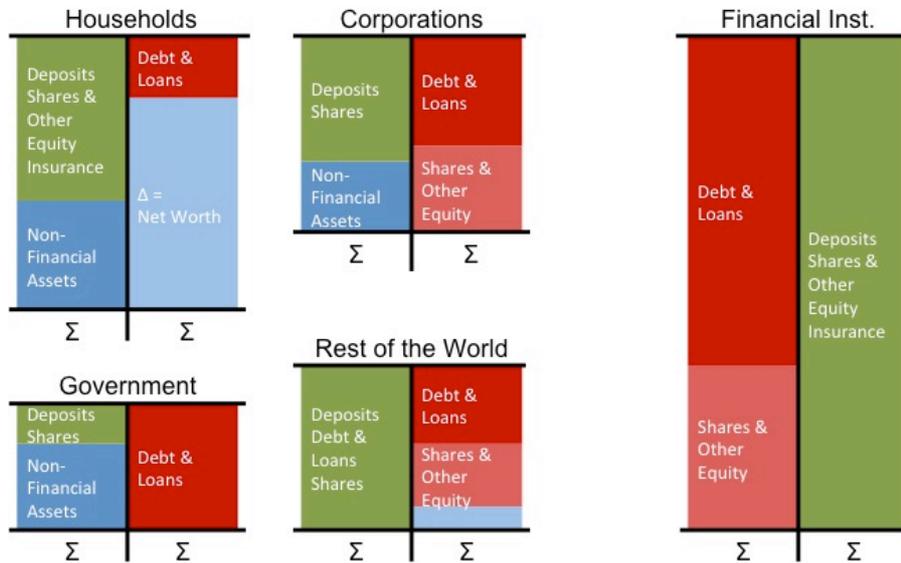


Fig. 1. A macroeconomic perspective on balance sheets.

Credit creation is the process of providing liquidity to one of the non-financial sectors and creates simultaneously an asset and a liability in the balance sheet of both the non-financial and the financial sector. The non-financial sector, utilizing its asset, provides another part of the non-financial sector with this asset to pay for an investment. The financial sector has to provide its liability, but can attract this as a new deposit from the new holder to refinance the credit. All nominal assets and liabilities thus must necessarily balance out. If we take a definition of investments and savings as nominal assets and liabilities, this necessarily also leads to the fundamental principle $I := S$.

Principle I: *Investments precede savings (loans create deposits), but attracting deposits (savings) is required to refinance loans.*

Most interpreters of Keynes share the attitude, that "Keynes's intellectual revolution was to shift economists from thinking normally in terms of a model of reality in which a dog called *savings* wagged his tail labelled *investment* to thinking in terms of a model in which a dog called *investment* wagged his tail labelled *savings*." (Meade, 1975: 82). The *reverse causality* (Moore, 1989; Rochon, 1999) is a cornerstone for Keynesian macroeconomic thought, but is by far not the whole essence of the Keynesian revolution, as argued subsequently.

3.2 Income and saving

Within the ‘old’ causality from saving to investments in neoclassical economics, the interest rate adjusts savings and investments. As long as demands for investments are higher than offered savings, capital remains scarce and the interest rate remains positive. In Keynesian economics, not the interest rate, but the national income adjusts in order to equilibrate savings and investments. Before we fully develop the Keynesian perspective, we explain the problem with the neoclassical conception of savings sensitive to the interest rate:

If the share of savings in relation to income were positively correlated to the interest rate, then a low interest rate necessarily implied low savings and low investments, reducing growth. The causal mechanism is assumed from time preference to savings to the credit supply curve, which together with the demand curve for investments determines the interest rate. Empirical research has shown, however, that savings are inelastic to interest rate changes and vice versa (Corbo and Schmidt-Hebbel, 1991; Deaton, 1992; Edwards, 1996; Giovannini, 1985, 1983; Masson et al., 1998, 1995; Schmidt-Hebbel and Servén, 1999). But it is empirically evident, that growth of income and saving rates correlate (Bosworth, 1993). Hence, we follow Keynes, assuming that the share of savings is dependent on the income, with the propensity to consume and a precautionary motive determining savings: “The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income“ (1936: 96). The marginal propensity to consume is a basic assumption in Keynesian economics.

Axiom I: *The relative share of consumption decreases with increasing income.*

This makes the equilibrating mechanism more intricate. In a Keynesian paradigm, the national income equilibrates between saving and investment. Income determines the ex-ante willingness to save, and the interest rate determines investments, through which the actual ex-post savings are realized. If too much income is saved, the level of investments declines in order to meet the lower demand. By this, the level of income is reduced, and at the same time, savings adjust in order to lower investments, as savings are always a proportion of the income level. Income is the dependent equilibrating variable. As Keynes discusses (1936:358ff) the paradox that individual savings do not necessarily raise income via an increase of investments but lower income by reducing effective demand has already been pointed to

(Barbon, 1690; Malthus, 1821; Mandeville, 1732; Robertson, 1892). Today, it is well known as the paradox of thrift (Ahiakpor, 1995; Bryant, 1987).

We emphasize that the paradox of thrift is explained by separating the propensity to save as a function of income from the decision how to allocate savings in different forms of wealth. This “analytical distinction between choices affecting the disposition of income and choices affecting the disposition of wealth” (Tobin, 1965: 671) is crucial. The disposition between different forms of wealth “is a portfolio decision” (Rochon, 1999: 292). Forms of wealth can range from holding liquid balances, to holding nominal assets, to holding property rights of enterprises or land. Separating the saving decision from the portfolio decision allows an explanation of the interest rate beyond the hypothesis of absentness from consumption. With a determination of the interest rate we can explain why the interest rate does not equilibrate savings and investments and eventually become zero or even negative. Figure 2 depicts the causal mechanism between income, saving, portfolio decisions, and the recursive effect of saving on income. The other parts will be explained subsequently.

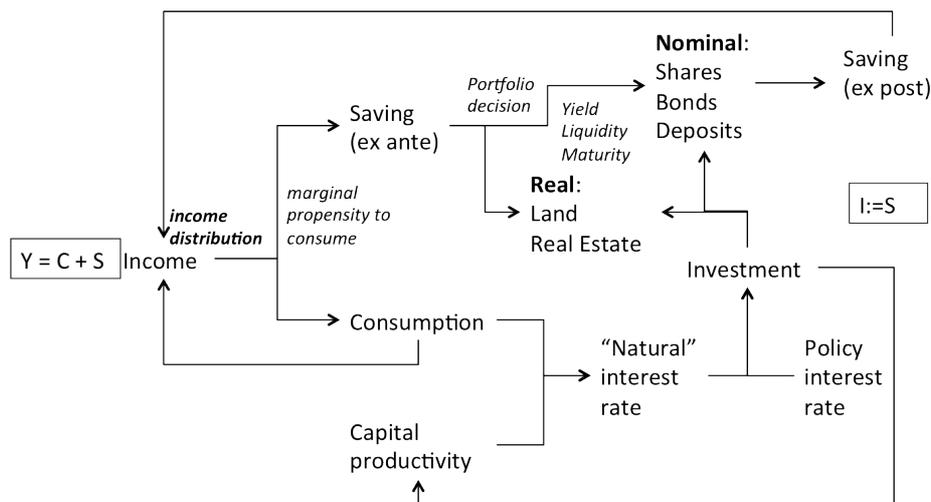


Fig. 2. Causal mechanisms in a credit money economy

3.3 Liquidity preference and the hierarchy of markets

The interest rate is a function of liquidity preference. Keynes (1936) is known for introducing the concept of liquidity preference and has widely discussed the reasons for its existence. While he stated that liquidity preference involves holding an amount of cash given an interest rate (1936:166ff), it is not

important to concern for the quantity of money but for the interest rate resulting from liquidity preference as a *propensity*. Keynes (1936:174) pointed towards that meaning, regarding the concept of hoarding “as a first approximation to the concept of liquidity-preference. Indeed if we were to substitute ‘propensity to hoard’ for ‘hoarding’, it would come to substantially the same thing”. According to our reading of monetary Keynesianism (Betz and Riese, 2001; Riese, 2004) liquidity preference expresses the interest rate necessary convincing savers holding wealth in the form of nominal assets instead of holding transaction deposits (liquidity). The pecuniary (material) interest rate compensates for the non-pecuniary (immaterial) rate of holding money. The pecuniary interest rate compensates for differing non-pecuniary rates (Lüken-Klaßen, 1993), so that the total rate of any form of wealth is ideally equal. We claim that the main determinant of non-pecuniary rate of holding an asset is its liquidity.

Axiom II: *Liquidity preference determines the term structure of interest rates*

Many scholars embracing the endogenous credit money approach have difficulties to consider a relevance of liquidity in determining the interest rate: “Wray notes that ‘there is no room for liquidity preference in the determination of interest rates.’ [...Kaldor] mentioned that ‘if we regard money as an endogenous factor, liquidity preference and the assumption of interest-elasticity of the demand for money ceases to be of any importance’” (Lavoie, 1992: 191f). Rogers (1989) is discussing further scholars failing to understand or not willing to accept “that the natural rate of interest (the personification of the forces of productivity and thrift) has lost its role as the centre of gravitation in liquidity preference theory.” (p. 222). We claim that the endogeneity of credit money (Principle I) this is only half of the way towards a coherent analysis of growth dynamics.

Rejecting liquidity preference involves the task of explaining the interest rate alternatively. Some propose a political determination of the central bank rate influencing other rates. The structure of interest rates than is not explained market-driven, but as a “conventional rate” (Rogers, 1989). Assuming the exogenous determination by the central bank is a typical way of integrating money into post-Keynesian models (Hein and Ochsén, 2003; Lavoie, 1995). This implicitly implies that the interest rate could be zero. Subsequently we counter this position by arguing for a market determination of the interest rate by drawing on the concept of liquidity preference.

The second problem evolving from rejecting liquidity preference is to explain why banks pay interest rates on deposits? Fearing the notion of the causality from savings to investments, critics insist that credit is unlimited and independent from savings. But how is the fact of maturity transformation to be explained? With the term maturity transformation we refer to the process

of transforming liabilities from liquid into mid or long-term liabilities. Banks do pay interest rates on their liabilities, even though they do not put their assets (credits for investors and others) and liabilities (deposits from savers and others) into congruent maturities. Bank's management of costs, risk and liquidity leads to a gap concerning the maturities on the liability and asset side. This transformation provides an essential service to the economy: Deposits can be very flexibly used for transactions without constraining the ability to refinance long-term loans.

There is no contradiction as often assumed: Banks do not need to collect deposits (savings) in order to expand the volume of credit (investments). But banks need to refinance given credits by transforming maturities. Hence, banks need to collect deposits and have to pay interest on them in order to convince depositors to hold long-term claims. For this integration of liquidity preference into endogenous credit money we are grateful to Monetary Keynesianism (Betz and Riese, 2001; Riese, 2004). Not only the interest rate gets a market-driven explanation, but also holding nominal assets instead of money balances becomes economically relevant (Lüken-Klaßen, 1995: 177).

Principle II: *Banks need to engage in maturity transformation.*

Several implications towards the hypothesis of a growth imperative are to be drawn. Since liquidity preference is determining the rate of interest, banks have to consider the costs of holding liabilities when calculating their credit rates. While credit expansion is potentially unlimited, investments have to meet the given interest rate, as expressed by Keynes (1936: 212ff): “the prospective yield with which the producers of new investment have to be content cannot fall below the standard set by the current rate of interest”. Investments are held below the potential level, as projects not generating enough surplus in order to meet the interest rate cannot be undertaken (Proudhon, 1849). “It is the rate of interest which keeps the quantity of capital in check. [...] The question why assets are scarce is, therefore, the same question as to why the rate of interest exceeds zero” (Keynes, cit. op. Spahn, 2007: 9).

Being aware that holding wealth in the form of nominal assets is a prerequisite for the ability to use liquidity in commodity markets, leads to the idea of a separation of asset and commodity markets. In neoclassical economics, exchange of commodities and propensity to consume determines the interest rate and asset markets. In Monetary Keynesianism, the nominal asset market together with the market for real assets are thus located hierarchically above commodity markets and enable available liquidity for commodity markets to function. Figure 2 depicts the causal mechanisms outlined so far. We proceed with the implications by outlining a diagnosis of stagnating economies.

3.4 Stagnation and the growth imperative

Keynes (1936: 204) showed theoretically, that “the interest rate may fluctuate for decades about a level which is chronically too high for full employment”. Current developed economies exactly face this state of persistent, involuntary systemic underemployment (Arestis et al., 2007; Stockhammer and Klär, 2008). This state is aptly expressed by the term underemployment equilibrium, while we sharply reject reducing the underemployment to “rigid wages” as proposed by Modigliani (1944: 65ff), Tobin (1972) with his “grease rate” and others pressing Keynesian analysis into rather neoclassical traditions of thought.

An interest rate exceeding zero alone would not constitute a macroeconomic problem, if people had a neoclassical time preference for consumption. The fundamental psychological law alone is not a problem either. If the interest rate could drop to zero, the negative effect of the psychological law would fade out since capital income is absent and all income is labour income. Hence, only both axioms together can constitute the underemployment equilibrium.

This is equilibrium in the sense that this state serves the functionality of the credit money economy. Basically, macroeconomic equilibrium in the narrow sense means that savings and investments are equilibrated through maturity transformation, but they are equilibrated at a suboptimal level at the cost of the income level. The contraction of income and employment to a level below the economy’s potential operates as the equilibrating mechanism of the economy. The appreciation of the market process from its tendency leading to equilibrium unites the Monetary Keynesian perspective with rather orthodox perspectives. On the contrary, post-Keynesian and other heterodox approaches reject the working hypothesis of the equilibrating market process. We do not at all neglect bounded rationalities, imperfect markets or disturbing institutions. However, these perspectives implicitly assume that there would be an optimal equilibrium if markets would be perfect. Our suggested theoretical perspective is systemic (Bunge, 1998), deriving an underemployment equilibrium even under perfect markets. Our perspective is distinct from both neoclassical and non-equilibrium perspectives, by founding a systemic constellation of suboptimal equilibrium. The latter is also expressed by the term stagnation.

In classical political economy, the *stationary state* is defined as a state of full employment and zero rates both of interest and growth, while *stagnation* is characterized by over-cyclical, chronic and involuntary unemployment (Mikosch, 1989; Spahn, 1986). Some scholars refer to stagnation only as a temporary phenomenon. Following Palley (2012), the coming stagnation has to be seen in the context of the financial crisis. We instead argue for an endogenous tendency towards stagnation in credit money economies (Spahn,

1986; Zinn, 1989). On the contrary, in the following analysis we conclude financial crises as a possible reaction to the inherent tendency of stagnation.

Stagnation finally implies that only higher growth rates would help to overcome stagnation. In this sense, the economy is subject to a *growth imperative*. The latter never means that the economy necessarily grows, but that it would have to grow in order to overcome stagnation. But since the effective demand in a constellation of stagnation does not allow growth, the economy is subject to a *growth brake* (Kimmich and Wenzlaff, 2012). We suggest interpreting this tension between not growing enough but having to grow as *the theorem of stagnation*.

3.5 The role of the central bank

The analysis of the functionality of the credit economy has been simplified so far in order to detect its basic axioms [propensity to save, liquidity preference] and principles [investments precede savings, maturity transformation]. Without violating any argument made until now, Principle II will be enriched with complexity by introducing the central bank. Before coming to the argument of the central bank's role for maturity transformation, few paragraphs develop the meaning of a central bank more generally.

Riese is taking a look back into the history of economic thought by discussing the debate of the currency and banking school more than 150 years ago. According to Riese, the currency position fails to explain endogenous credit, while the banking position fails to distinguish between money and credit. Riese draws on Bagehot (1878) for synthesizing the banking and currency position. The banking moment of the credit money economy is that only loans can create money [Principle I]; the currency moment is that banks create credit, but only central banks can create money. However, central banks alone cannot create money, since money is only created via the credit channel. Accordingly, Riese (2004) subtitled his essay "Why central banks need commercial banks". So far, we did not distinguish between money and credit, as it is not necessary for understanding the functionality of a credit money economy. We have presented an analysis of a mono-banking system where credit is money. Now, we differentiate our analysis by considering a two-tiered banking system making a separation of money and credit possible.

In a mono-banking system, a single bank may have the incentive of expanding credit in order to maximize profit without transforming maturities. Banks can simply print their own notes. It is certainly true that there cannot be 'too many notes' since every note is covered by debts (this was exactly the argument of the banking school favoring unlimited credit). However, a potential problem of inflation occurs if debts are long-term, but all the claims on them are short-term. A mono-banking system would lead to a high degree

of liquidity of the claims on long-term debts. The principle of maturity transformation would be violated and the danger of inflation is high.

Creating a central bank can overcome this problem. Having the monopoly of issuing money (the medium of deferred payment), a central bank can keep money scarce in order to prevent any danger of inflation. The money stock is kept scarce not through a quantitative restriction policy; scarcity results indirectly by setting the costs at which commercial banks can take credit. In the following we use the terms discount rate or central bank rate for the rate at which commercial banks can get money from the central bank. Discount rate policy as the main instrument of central bank policy has been labeled as the new monetary consensus (Bernanke and Blinder, 1992; Bernanke and Gertler, 1995; Gnos and Rochon, 2007; Lavoie and Seccareccia, 2004; Woodford, 2003).

What determines the central bank rate and how is it related to the interest rate determined by liquidity preference of wealth owners? Answering this question, we interpret the monetary theory of Wicksell (1898) in a different way. Wicksell is known for distinguishing the natural and the current market interest rate. We have argued above, that there is no natural rate resulting from supply and demand of capital. Accordingly, Leijonhuvd stated that the “denial of the loanable funds mechanism makes a nonsense of the very notion of a “natural rate” of interest. The Wicksellian theme is lost” (cit. op. Rogers, 1989: 22). Yet, Wicksell’s revolutionary idea has been explaining the function of the central bank, which is to adjust the financial market rate to the natural rate in order to keep the price level stable (Spahn, 2007; Woodford, 2003). Inflation indicates a market rate below the natural rate since investments are stimulated and cause excess demand. Vice versa deflation occurs at a market rate above the natural rate and investments decline because of the interest rate being too high to be paid. We suggest replacing the natural rate with the rate determined by liquidity preference in order to use the Wicksellian framework. We finally approach the argument to be made in this section:

Central banks choose a discount rate, forcing banks to collect deposits and to transform maturities. The higher the discount rate, the more commercial banks engage in maturity transformation. The incentive is explained as follows: a high enough discount rate implies at least potential costs if liabilities are short-term. Since liabilities are to be transformed to (central bank) money in the case depositors withdraw their deposits, the commercial bank would have to provide money by paying the discount rate. If deposits are longer termed (stronger engagement in maturity transformation), the danger of withdrawals is smaller. Hence, there is an optimal central bank rate creating noninflation or optimal inflation, and an optimal degree of maturity transformation. By this, we provide a market-driven explanation of the discount rate. If the central bank may have other options than passively

adopting to the given rate determined by liquidity preference will be addressed in the following Section.

4 Agency versus Structure: Driven by structure, but able to change?

The question that naturally emerges and that we set out to answer is in how far the growth imperative is structurally determined and where deliberate choice may reduce or even remove growth pressure. We therefore need to look at the choices available to agents within the macroeconomic model that we outlined in Section 3. We reflect the gained insights within the structure–agency perspective, taking into account the interdependence of actors and the macroeconomic constraints. As will be shown, agency is involved in many stages, but is often itself highly institutionalized.

4.1 Agency of private actors

Addressing Axiom I, the first relevant choice of households is the choice between consumption and saving. This especially concerns households, but can comprise other sectors such as banks as well (Lavoie 1992). As we have shown, a higher saving rate would require more investments for reaching full employment. Realized investments lead to a higher growth rate. Hence, a stationary equilibrium requires a zero rate of net savings (DIW 1998). Note that a level of zero net savings does not mean that no saving is possible, but rather that saving and dissaving cancel out across the economy. Saving of a young generation could compensate for the dissaving of the older generation. In our model, we assumed a marginal propensity to consume dependent on income. Institutional analysis could likely reveal that income is not the only determinant of saving. Several organized saving plans exist within economies at the national level to influence household decisions. The implications of these saving plans have to be taken into consideration, but this does not necessarily mean that they need to be reduced. As von Weizsäcker (2011) has pointed out, the role of state debts in terms of saving possibilities could be considered. The financial crisis has also revealed differences between saving rates of economies. The US households saving rate reveals that many formal and informal institutions can shape consumption and saving patterns. Note that the idea of promoting less consumption, given the income level, leads to a higher saving rate. Promoting less consumption with reduced work faces the growth imperative that is at the core of this paper. Technological innovations, but also advertisement, even fostering conspicuous consumption, on the other hand, may increase consumption and thus reduce savings. Since Keynes argued that the general motive of saving is safety against an uncertainty about

the future, stabilizing the economy can lead to more optimistic expectations and hence reduce the saving rate. Although macro-institutional frames might have to be reconsidered, we want to take a liberal perspective on the individual rationales for saving and rather focus on scope for agency in other parts of the economy.

Addressing Axiom II, the second choice to be investigated is the structure of holding wealth. The yield structure of assets can be explained by assuming optimizing behavior of agents. Yield may be traded for an environmentally or socially more desirable investment. Ecologically and socially oriented banks and sustainable investment funds are examples in case. As with the saving decision, however, we may abstain from considering further constraining regulations if there is scope for deliberating agency in other parts of the economy.

The third choice concerns business and investment decisions. Corporations are embedded in the credit economy and require equity and leverage through credit, which naturally links them to the asset market. At the minimum, corporations need to yield a return sufficient to serve capital. Non-growing companies, and in this context especially co-operatives have been promoted recently as options to overcome economic growth. Yet, these often face serious capital constraints, which makes their diffusion and comparative growth necessarily difficult, if not impossible. On the other hand, co-operatives can play an important role in sectors where due to immobility and physical properties rents can be extracted, such as those related to utilities, land, and natural resources. Similarly, attracting capital is crucial, but in addition, regulatory governance needs to be appropriately shaped, challenging the interests of rent extractors.

4.2 The state as a collective actor

We suggest a systemic perspective (Bunge, 1998) deriving the phenomenon of stagnation equilibrium, characterized by underemployment, relatively declining wages, but a positive interest rate redistributing wealth. We do not argue that this state is self-equilibrating and in itself persistently stable. The equilibrium is always tuned by varying policies of labour markets, income and wealth taxation, or public debt. This is the outcome of collective decision processes and the political economy governing the state. Macroeconomic policies aiming at raising effective demand may even allow maintaining a high employment level since in the absence of these policies would depress the economy. However, we claim that current instruments are not sustainable enough in order to take the path out of the underemployment equilibrium towards a stationary state.

Inequality has been found to be a major cause of the current crisis (Stockhammer, 2012). Income and wealth inequality is an involuntary feature

of stagnation and a growing body of literature highlights the importance of redistribution. If wealth and income is distributed more equally, and the share of consumption is dependent on the household income, then poorer households will increase spending and the overall demand will increase, reducing savings but increasing consumption. This may actually increase growth, but almost certainly also increase material intensity at the expense of the ecology.

The preferential attachment to accounting for growth in the form of monetary transactions has been pervasive and enduring (van den Bergh, 2009). Yet, despite a long record of criticism, existing and operationally accounted alternative indicators to measure social welfare, and serious information problems caused by the GDP indicator, national GDP accounts remain omnipresent and decisive. The presented analysis argues that attaching primacy to GDP accounts may be intelligible and rational for economic actors as they strive to fulfill debt contracts. As the monetary GDP indicator is a core measure of market transactions, every such transaction can potentially serve to fulfill financial commitments. On a state level, economic growth is an indicator to manage the equilibrium necessary to prevent recessions.

4.3 The central bank and its dilemma

While elaborating the role of the central bank in Section 3, it turned out, that the central bank is rather passively responding to market forces. We implicitly argued that it is able to serve the market by providing the interest rate appropriate for performing an optimal degree of maturity transformation and price stability. For the sake of illustration, let us assume the conventional rate position criticized above. If the central bank rate is determined politically, what happens if we reduce it to zero? Banks may reduce credit rates in order to meet higher credit demand. Indeed, lowering the central bank rate can lead to a higher credit volume and hence higher effective demand and higher employment. Banks would not see any need to pay interest rates to depositors since the banks get cash at any time for zero percent from the central bank if depositors are demanding it. So depositors would hold liquid accounts instead of holding nominal assets. The banking system would not perform maturity transformation. Some post-Keynesians do not see a problem of holding liquidity instead of nominal assets. On the contrary: “in a credit money economy “hoarding” is socially beneficial. It represents increased “convenience lending” of fiat money to the banking system, and so increased credit to bank borrowers. [...] As a result it necessitates the lowest pecuniary reward to induce more of it to be supplied, and so is the least expensive source of loanable funds” (Moore, 1989: 482f). Wray (2003) goes even further by proposing to create full employment and price stability through a model, where implicitly no maturity transformation is necessary. The post-

Keynesian arguments indeed carry a certain attraction. Finally, this is again the banking position, where all funds created by expanding credit can remain liquid without causing inflation.

We feel uncomfortable with a declining engagement in maturity transformation. A preliminary conclusion from our interpretation of the financial crisis is that central banks face a fundamental dilemma (Kimmich and Wenzlaff, 2012). The first option is to keep the discount rate high enough inducing commercial banks to perform maturity transformation. Maintaining high interest rates reinforce the problems of stagnation. The second option as used by the FED is to lower the interest rate and later raising it. Persistent stagnation than is changed into boom and bust cycles. Understanding the dilemma of the central bank allows us to underpin the macroeconomic growth imperative.

The story does not end here, however. Discount rate policy is asymmetric, as it can anytime break inflation (expectations) by raising interest rates, but cutting the discount rate is impeded by the lower zero bound on nominal interest rates (Bofinger and Flassbeck, 2002; Buiter, 2009). Deflation has a cumulative process character, unable to be healed itself by the market process but only to be stopped by intervention from the “outside” (Spahn, 2007; Wicksell, 1898). Searching for the “outside” since conventional monetary policy is at its end at the zero bound of nominal interest rates has led to an extensive literature (Buiter, 2009; Goodfriend, 2000; Portes, 2012; Yates, 2002). The literature identifies two groups of interests. Unconventional instruments can be grouped into quantitative easing instruments. From the perspective of Principle II, these instruments may help in the short-term, but the high degree of liquidity created may conflict with maturity transformation in the long-term. The second group continuous to think conventional interest policy in the negative scope, e.g. by taxing liquidity or use higher inflation targets in order to drop real interest rates.

5 Conclusions

Our paper aimed at exploring if a credit money economy exhibits a structural imperative to growth and how this structure results from individual behaviour. Drawing on elements of the monetary theory of production, we identified a suboptimal macroeconomic structure resulting from the income-dependent propensity to save and liquidity preference of agents. We characterized this structure as *stagnation* or *underemployment equilibrium*. Put in other words, Axiom I and II lead to the dilemma of *growth brake* and *growth imperative*. Growth would be necessary in order to fight unemployment, raising inequality and other problems occurring in a stagnating economy.

We exposed this diagnosis to a structure–agency perspective, coarsely exploring possible paths out of the dilemma of stagnation. We identified three relevant actors for agency: The private sector, the state, and the central bank. For the private sector we argue that most suggestions have very limited potential as long as the axioms are taken as given. Any alternative model of production is challenged by financing investments at a given positive interest rate; hence, savers accepting lower returns for giving up liquidity are necessary. Alternative banking involving forms of assets with lower or better zero interest rates point into a right direction of solving the growth imperative. However, it remains questionable, if these voluntary practices of a minority can become a principle for the majority and hence become relevant for the whole economy. For the state we have shown that a considerable room for action is available and might be under-exploited until now. However, we fear that the state can only “manage” stagnation but not sustainably solve the growth imperative in the long term.

For the central bank we derive the highest potential for changing the equilibrium and reducing the growth imperative, while maintaining structural conditions. The result on the macro-level may be changed, and interestingly without recourse to changing the axioms or principles. The discourse of overcoming the zero bound on nominal interest rates provides several suggestions of thinking discount rate policy also beyond the zero lower bound. In this discourse instruments are frequently proposed as temporal, in order to escape the current crisis; and the fiction of a long-term positive “natural” interest rate is maintained. We simply have to think of the current crisis as a normal feature of stagnating economies and to consider implementing policies prepared for the long term. We have to highlight that a central bank embedded in an international asset market is itself systemically restricted. While in a closed economy agents cannot substitute the currency by using foreign currencies, open economies with convertible currencies are constrained in experimenting to drop real interest rates.

Our analysis also guides to further research. While an empirically sound microeconomic foundation of macroeconomic models is necessary, a macrofoundation in terms of aggregate balance sheets is of equal importance. Through downward causation, even microeconomic behaviour may have to be macrofounded, as Koo (2009) has pointed out. Further research also needs to embed the Monetary Keynesian framework and the structure–agency perspective on economic growth into the context of international asset markets (Lüken-Klaßen, 1993), considering the relative importance of key currencies with the highest non-pecuniary rates at the top of the hierarchy of currencies. Simultaneously, we propose to develop models that account for both micro- and macroeconomic foundation, and agent-based models seem to be the obvious candidate. Models of the long run as well as existing partial models of liquidity preference need to be further developed.

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