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Secular stagnation or stagnation policy? Steindl after Summers

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Abstract

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JEL code: B22, E11, E12, E65, O11

Keywords: secular stagnation, stagnation policy, distribution and growth, Steindl

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1. Introduction

After the financial crisis and the Great Recession of 2008/09, the EU and Euro area in particular, but also Japan and even the US, have seen only weak recoveries. Therefore, the issue of long-run stagnation, or of 'secular stagnation', that is low or even negative growth over a prolonged period of time, seems to be on the agenda (again), for academic economists, economic policy advisers and policy making institutions. Commonly, the start of the debate is associated with the contribution by Summers (2013) to the IMF Economic Forum and a follow-up paper, in which he argues that 'the trend in growth can be adversely affected over the longer term by what happens in the business cycle' (Summers 2014a, p. 66). The Great Recession might therefore have caused a 'secular stagnation' for the years to come. This has triggered a debate on a tendency towards secular stagnation in developed capitalist economies, as has recently been documented by the contributions to Teulings/Baldwin (2014a), for example. This debate has forwarded both demand and supply side arguments regarding the pros and cons of secular stagnation. However, as Teulings/Baldwin (2014b) point out, a 'fairly strong consensus' has emerged, according to which secular stagnation may be defined as a state of the economy in which negative real interest rates in the capital market are required in order to establish an equilibrium of saving and investment. This makes it much harder for central banks facing the zero lower bound for nominal interest rates under their control to achieve full employment with low inflation.

What is puzzling in the current debate on secular stagnation is the almost complete absence of any references to the history of economic thought on this issue, as Backhouse/Boianovsky (2015) have reminded us recently. Of course, tribute is usually paid to Hansen (1939) who discussed the tendencies towards secular stagnation against the background of the Great Depression in the US of the 1930s and who identified three fundamental causes for stagnation: declining population growth, changes in the character of technological progress and the falling availability of new territory in the US.[1] However, whereas Hansen (1939) had at least referred to the works of Smith, Ricardo and Malthus, in the modern contributions there are no longer any such references or discussions. Consequently, it comes as no big surprise that contributions by heterodox authors on stagnation tendencies in modern capitalism, as for example by Hobson (1902), Luxemburg (1913), Sweezy (1942), Keynes (1943), Steindl (1952), Kalecki (1954, Chapter 15, 1971, Chapter 13) and Baran/Sweezy (1966), are completely ignored as well.[2] The same holds true for modern interpretations and applications of these approaches.

This is a problem, because the theoretical foundations of modern secular stagnation debates are vague and can be challenged on several grounds. First, as is clear from the consensus proclaimed by Teulings/Baldwin (2014b) mentioned above, at the very foundations, even of the presumably more Keynesian work by Summers (2014a, 2014b, 2015), Krugman (2014) and others, in principle, we have an equilibrium real or natural rate of interest equalising saving and investment in the capital market at full employment output levels, which, however, may not be feasible. This constellation is vulnerable to critique from

[1] Gordon (2014) has pointed out that the term 'secular stagnation' had already been invented by Hansen (1934).

[2] For overviews see, for example, Bleany (1976) on the history of underconsumption and stagnation theories, Foster (1987, 2014) and Foster/McChesney (2012) on Marxian theories of monopoly capitalism and stagnation, and Hein (2014, Chapter 5) on Kalecki's and Steindl's contributions.

the 'Cambridge controversies in the theory of capital', questioning an interest rate-inverse and continuously downward sloping capital demand curve in a more-than-one-good economy, as well as the Keynesian critique with respect to the causalities between and adjustments of saving and investment in a monetary production economy. Second, most of the mainstream literature on secular stagnation seems to assume that the natural or potential rate of growth is more or less independent of aggregate demand dynamics, thus ignoring potential feedback and endogeneity channels. And third, in the modern discussion on secular stagnation changes in institutions and power relationships between social classes, as witnessed in the rise of finance-dominated capitalism over the last three decades or so, does not seem to have an important role to play at all. Therefore, some of the policy recommendations on how to deal with secular stagnation proposed in the recent literature can also be considered to be highly problematic or at least incomplete.

Given the shortcomings in the current debate on secular stagnation, this paper will provide the foundations of an alternative view on stagnation tendencies based on the works of Josef Steindl, which is not exposed to the problems mentioned above – in a sense 'Steindl after Summers'. However, from what has been said so far, the purpose cannot be to re-interpret and improve Steindl's approach against the background of Summers's and other more recent contributions. We hope, rather, to present a theoretically more solid alternative perspective on stagnation, stagnation policy and requirements for anti-stagnation policy, acknowledging that the contributions by Summers and others have opened the door for debate.[3] In Section 2, we will review the current debate on secular stagnation and its economic policy implications in more detail. Section 3 will then turn to Steindl's (1952) 'maturity and stagnation' approach and Section 4 will provide a simple model of distribution, growth and stagnation based on Steindl's contributions. Based on this model, Section 5 will then address the role of institutions, power relationships and economic policies, explaining why stagnation in the 1950s and 1960s did not materialise, but why stagnation tendencies have become more prevalent again since the 1980s, in particular because of 'stagnation policy' and the rise of finance-dominated capitalism, and to what extent stagnation tendencies will have to be faced in the future. Section 6 will briefly address economic policy implications and Section 7 will conclude.

2. The current debate on secular stagnation and its shortcomings

Teulings/Baldwin (2014b) have conveniently structured the current (mainstream) debate on secular stagnation and we can follow their structure in our brief outline here. First, they distinguish approaches which rest on those factors which are supposed to affect the economy's long-run potential growth rate. Second, they have those approaches which focus on the deviation of actual growth from potential growth. Third, there are those approaches focusing on one-off changes in the level of GDP, shifting the long-run growth path downwards.

The first approach towards secular stagnation, arguing that potential growth has come down, refers to lower growth of factor inputs and/or lower growth in innovations and technological knowledge about the combination of factor inputs. Regarding the latter, there

[3] The general purpose is thus different from Ian Steedman's (1977) *Marx after Sraffa*, which has inspired our subtitle.

seems to be some agreement that there is no good reason to assume a secular decline in the creativity of mankind and the ability to innovate.[4] And regarding the former, there seems to be broad agreement that developed capitalist economies are facing stagnant and aging populations, which reduces labour supply growth. Furthermore, Gordon (2012, 2014) has argued that for the US the mass education revolution is complete, and therefore no further increase in the average US education level boosting productivity growth is to be expected. This might also hold for several other advanced capitalist economies.[5]

The second approach argues that growth is and will be below potential growth. This is, in particular the core of Summers's (2013, 2014a, 2014b, 2015) argument.[6] And the main reason for this is a substantial decline in the 'equilibrium', 'normal', 'natural', or 'full-employment' real interest rate equilibrating saving and investment:

> 'I shall argue three propositions. First, as the United States and other industrial economies are currently configured, simultaneous achievement of adequate growth, capacity utilization, and financial stability appears increasingly difficult. *Second, this is likely to be related to a substantial decline in the equilibrium or natural real rate of interest.* Third, addressing these challenges requires different policy approaches than are represented by the current conventional wisdom.' (Summers 2014a, p. 66, my emphasis, E.H.)
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> 'I would suggest that in understanding this phenomenon, it is useful at the outset to consider the possibility that changes in the structure of the economy have led to a significant shift in the natural balance between savings and investment, *causing a decline in the equilibrium or normal real rate of interest that is associated with full employment*.' (Summers 2014a, p. 69, my emphasis, E.H.)

Low or even negative equilibrium real interest rates make it much harder for central banks, facing the zero lower bound for short-term nominal interest rates under their control, to achieve full employment under the conditions of low inflation applying traditional inflation targeting interest rate policies, as advocated by new consensus macroeconomics before the crisis. Furthermore, extremely low interest rates, plus central banks applying unconventional measures, increase the risks of financial instability.[7] Policy makers thus seem to face the choice between stagnation or highly unstable bubble growth, as in the 2003-07 period in the US (Summers 2014b).

In the current debate the causes for low or negative equilibrium real interest rates are related to the demand for and the supply of loanable funds, as well as to changes in risk assessments and an overall higher preference for safe assets.[8] Summers (2014a, 2014b) has

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[4] As Gordon (2014, p. 52) puts it: 'In my numbers, there is no forecast of a future technological slowdown – productivity growth adjusted for educational stagnation is predicted to be just as fast during 2007-2032 as during 1972-2007'. See also the contributions by Crafts (2014), Glaeser (2014) and Mokyr (2014).

[5] Gordon (2014) also discusses rising income inequality and rising government debt-GDP ratios as 'headwinds' which each constrain the future after tax income growth for the bottom 90 or 99 per cent of the US population.

[6] See also Blanchard et al. (2014) and Krugman (2014) for similar arguments.

[7] Summers (2014b) mentions three reasons why low interest rates raise financial instability: increasing risk-taking; promotion of irresponsible lending as debt services seem to be low and easy to meet; and higher attractiveness of Ponzi financial structures because interest rates look low relative to expected growth rates.

[8] See also Blanchard et al. (2014) and Krugman (2014) on too low equilibrium real interest rates as causes for stagnation. Eggertson/Mehrotra (2014a, 2014b) provide and elaborate on a New Keynesian model with overlapping generations, in which a stagnation is possible without any forces driving the economy back to full

provided the following arguments. The demand for loanable funds has declined because of low inducements to investment, due to deleveraging after the crisis,[9] low real capital stock requirements in order to start business in the growing sectors of the economy, in particular in ICT, and decreases in relative prices of capital goods. Declining population growth and ageing societies have also reduced the demand for loanable funds, in particular for capital stock and housing finance, and have increased the supply of funds in those countries with a capital funded pension system. The supply of loanable funds has also increased because of rising inequality in wealth and income distribution. Increasing shares of income going to high income households with a lower marginal propensity to consume and rising retained earnings of corporations have meant a rise in the average propensity to save for the economy as a whole. Finally, global tendencies to shift accumulated savings to safe havens have further lowered the equilibrium real interest rate in countries like the US. This has been reinforced by tightened regulatory requirements for pension funds, banks, and insurance companies to increase their holdings of safe assets.

The third approach explains a lower growth path after a severe recession. The major reason for this is labour market hysteresis. Empirically, however, this channel seems to be relevant only for the US, but not for other countries, if labour force participation rates are taken as an indicator; some of the European countries suffering most from the euro crisis rather show a cyclical downturn but no ratchet effect in long-run comparison (Teulings/Baldwin 2014b). And theoretically, this approach does not explain a lower rate of growth, usually associated with secular stagnation. Feedback effects of low actual growth on potential growth rates have not been systematically explored in this context – although Summers (2014b, p. 37) indicates this possibility: 'Perhaps Say's dubious law has a more legitimate corollary – "Lack of Demand creates Lack of Supply"'.

Policy implications of the current secular stagnation literature, of course, differ with respect to the main causes of stagnation the authors consider to be important.[10] Authors, who hold that the decline in potential growth is the major problem, advocate measures boosting potential growth without caring much about detrimental effects on demand and actual growth. These measures include policies to raise labour supply and hours worked, as well as policies which are assumed to stimulate innovation and increase efficiency. Teulings/Baldwin (2014b) list the following suggestions: improving the education system, investing in the physical infrastructure, removing barriers for labour mobility between firms by reducing employment protection legislation, increasing incentives for low-skilled workers to participate in the labour market, simplifying procedures for starting up businesses and applying anti-monopoly policies to reduce the profit margins in new ICT industries. Of course, some of these measures

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employment. The trigger in the model is a deleveraging shock, which creates an oversupply of savings. A drop in population growth, an increase in income inequality, and a fall in the relative price of investment can also cause stagnation in the model.

[9] This is Koo's (2013, 2014) argument who relates stagnation to deleveraging of the private sectors which is not compensated for by the required deficits in the public sectors. This constellation then forces economic activity down.

[10] The OECD (2015), for example, suggests a combination of both demand and supply side measures, with a focus on the latter. Accommodative monetary and fiscal policies accompanied by structural reforms are advocated in general. Four main areas for structural reform are singled out: promotion of investment, SMEs and entrepreneurship, trade, and employment activation.

will also be favourable for demand and actual growth, like infrastructure investment or anti-monopoly policies. However, deregulations of the labour markets are likely to increase pressure on labour and to further worsen income distribution, decrease confidence and thus reduce aggregate demand growth.

For those authors, who consider the deviation of actual output growth from potential growth to be the major problem, like Summers (2014a, 2014b, 2015), Blanchard et al. (2010, 2014), Koo (2014) and Krugman (2014), adequate and consistent demand management is of utmost importance. Since a very low or even negative equilibrium real interest rate is the major problem, the room of manoeuvre for central banks to bring real interest rates down would have to be increased. This includes raising the inflation target, which alleviates the zero lower bound problem, and applying extensive unconventional measures aiming at gaining better control over long-term interest rates, which are relevant for saving and investment, according to this approach. The downside of this strategy, according to Summers (2014a, 2014b), however, is rising financial instability. Alternatively, Summers (2014a, 2014b, 2015) advocates increasing investment and reducing saving, which will then raise the equilibrium real interest rate. This would include the increase of public investment, prolonged counter-cyclical fiscal policies and a reduction of barriers for private investment, promotion of business confidence, commitment to basic social protection and an extension of pay-as-you-go pension and health insurance systems in order to stimulate private consumption spending, and income redistribution towards lower income households with a higher propensity to consume. Finally, export promotion, via trade agreements etc. is recommended. Teulings/Baldwin (2014b) briefly mention further measures which are said to be in this line, like raising the retirement age in capital funded pension systems in order to reduce saving, revising regulations that force institutional investors to invest in triple A assets, and further globalising financial markets in order to export excess savings from mature to emerging market economies.

In particular the latter measures seem to be quite dubious regarding their effects on sustainable demand growth. However, what is acknowledged in the current debate, particularly by those authors focusing on the deviation of actual growth from potential growth as a cause for stagnation, is the requirement of a complete reform of macroeconomic policy making. Economic policy tools and strategies, based so far on new consensus macroeconomics, with the central bank interest rate as the main or even only stabilisation tool, would have to be rethought completely. On the one hand, inflation targets would have to be lifted and central banks would have to apply further measures, like quantitative easing in order to bring long-term interest rates down. On the other hand, fiscal policies would have to gain tremendously in relevance in comparison to new consensus macroeconomics, which have ignored the stabilising role of fiscal policies and have imposed some balanced budget over the cycle rules and constraints. Implementing these new recommendations would have major implications for the coordination of fiscal policies in the Euro area, which is to date obsessed with balanced or even surplus public budgets and the reduction of government debt-GDP ratios.

Although the contributions by Summers (2014a, 2014b, 2015), Blanchard et al. (2010, 2014), Koo (2014) and Krugman (2014), and others have reopened the gate for a discussion of the Keynesian problem and some of the policy implications are consistent with more Keynesian or post-Keynesian works, the current debate struggles with several problems:

First, even in the presumably more Keynesian works by Summers (2014a, 2014b, 2015) and others, in principle, we have a real or natural rate of interest equilibrating saving and investment in the capital market at full employment output levels, although this mechanism is currently blocked by the unfeasibility of very low or negative equilibrium real rates of interest. In other words, we have a long-run (notional) equilibrium in which 'a dog called savings wag(s) his tail labelled investment' (Meade 1975, p. 62), and the equilibrating variable is the real rate of interest. This ignores the challenge of the very existence of a uniquely interest rate-elastic and downward sloping capital demand curve in a more-than-one-good economy, as put forward in the 'Cambridge controversies on the theory of capital' (Harcourt 1969, 1972, Lazzarini 2011, Hein 2014, Chapter 3.6). Furthermore, it ignores the Keynesian challenge that in a monetary production economy 'a dog called investment wags his tail called saving' (Meade 1975, p. 62). In such an economy, saving adjusts to investment, initially financed independently of aggregate saving through a developed financial sector generating money and credit out of nothing. And this is not only true for the short run but also for long-run growth, as Joan Robinson (1962, pp. 82-83) has famously summarised: 'The Keynesian models (including our own) are designed to project into the long period the central thesis of the *General Theory*, that firms are free, within wide limits, to accumulate as they please, and that the rate of saving of the economy as a whole accommodates itself to the rate of investment that they decree'. And these long-run macroeconomic adjustments of saving to investment occur via changes in output growth and capacity utilisation, the Kalecki/Steindl mechanism, and/or through changes in functional income distribution, the Kaldor/Robinson mechanism.

Second, the natural or potential rate of growth in the modern discussions about secular stagnation seems to be more or less independent of aggregate demand dynamics. The only exception is an indirect effect of aggregate demand failures on labour market hysteresis and thus on the level of potential output and on the growth path, but not necessarily on the potential output growth rate. Also, other more direct effects of aggregate demand growth on productivity and hence potential output growth, as suggested by Kaldor's (1957, 1961) technical progress function or Kaldor's (1966) Verdoorn's law are disregarded.

And third, potential stagnation tendencies caused by changes in institutions and power relationships between social classes, such as those associated with the rise of finance-dominated capitalism over the last three decades or so (Hein 2012a, Foster/McChesney 2012, Palley 2012, 2013), do not seem to have an important role to play at all in the modern discussions on secular stagnation.

Given these theoretical shortcomings, the policy implications outlined above will also have to be considered as either misguided, in particular those exclusively focusing on stimulating potential growth, or as incomplete. In the following sections we will therefore provide an alternative view on stagnation tendencies in mature capitalist economies based on Josef Steindl's contributions. In particular Steindl (1952) can be viewed as a pioneering work in the area of stagnation theories in modern capitalism. We hold that Steindl's work is not prone to the problems detected in the current debate on secular stagnation: It does not rely on a dubious notion of an equilibrium real interest rate equilibrating saving and investment at full employments levels, in principle. It is based on the notion that modern capitalist economies face aggregate demand constraints in the long run, and that saving adjusts to investment also in a growth context. It allows for potential growth to become endogenous to actual demand

driven growth. And it seriously considers the role of institutions, power relationships and economic policies for long-run growth – and for stagnation.

3. Steindl's 'maturity and stagnation' approach[11]

Steindl's (1952) view on long-run growth and stagnation contained in his *Maturity and Stagnation in American Capitalism*, trying to explain the inter-war US development, is built on Kalecki's work on economic dynamics (Hein 2014, Chapter 4), on the one hand, and on the microeconomic analysis provided in the same book, on the other hand.[12] When the book appeared in the early 1950s, to the disappointment of the author, it did not attract much attention:

> 'The first (1952) edition of this book appeared at a time which could not have been less propitious for its success. Neoclassicism reigned in the economics profession. The advanced industrial countries had begun to establish full employment, rapidly rising living standards, and international cooperation; and in this atmosphere of confidence an analysis of the dismal experience of 1929-1939 seemed to be out of place.' (Steindl 1976, p. ix)

But when the 'golden age' period of post-World War II capitalism faltered, Steindl's approach gained prominence and had a major impact on the post-Keynesian/Kaleckian theories of distribution and growth. But even before, it was well received by Marxian underconsumptionist theorists of crisis in modern capitalism, and some parallels with for example Baran/Sweezy's (1966) *Monopoly Capital* are apparent (Bleany 1976, Chapter 12, Cowling 1982, Lee 1998, Chapter 10).[13]

In contrast to Kalecki (1954), Steindl's (1952, Part I) important distinction is not between demand- and cost-determined prices, but rather between pricing in competitive industries and in oligopolistic industries. In the competitive industries, profit is treated as a differential rent accruing to the more productive firms in the industry, usually the bigger firms because technological progress is embodied in the capital stock. If the industry is hit by a negative demand shock, marginal firms will be squeezed out by downward price adjustments. Similarly, innovations will temporarily increase profits of the innovative firm, but then the diffusion of the innovation will reduce profits towards some normal level, and during the associated increase in output and the lowering of output prices marginal firms will again be squeezed out. These processes in competitive industries will increase the market shares of the innovative and most productive firms and will thus lead to 'absolute concentration' and a tendency towards oligopolistic industries.

In oligopolistic industries, negative demand shocks or technological innovations will not cause prices to fall and marginal firms to be squeezed out, because these firms earn above normal profits, owing to entry barriers given by the minimum capital to be advanced in order to start production in the respective industry, and also to strategic price setting of incumbent firms. Prices remain rigid in these industries, and a decline in demand will mean lower rates of capacity utilisation. Because of downward price rigidities, labour saving technological

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[11] This section partly draws on Hein (2014, pp. 227-234).

[12] On Steindl's approach towards pricing, distribution, growth and other issues, see King (1995), Shapiro (2012) and the contributions in the edited book by Mott/Shapiro (2005).

[13] In fact, the second edition of *Maturity and Stagnation in American Capitalism* was published in 1976 with Sweezy's Monthly Review Press.

progress will increase mark-ups or profit margins. Furthermore, other types of competition will be applied, in particular marketing efforts and product differentiation.

The tendencies towards oligopoly discovered at the microeconomic level will cause a tendency towards stagnation at the macroeconomic level (Steindl 1952, Part II). In his new introduction, Steindl (1976, p. xv) neatly summarises his main arguments in *Maturity and Stagnation in American Capitalism* as follows:

> '(1) Oligopoly brings about a maldistribution of funds by shifting profits to those industries which are reluctant to use them. […]
>
> (2) Oligopoly leads to a decline in the degree of utilisation, either by a tendency to increase mark-ups or by a rigidity of the mark-up in face of a decline in investment.'

These two developments generate problems of effective demand for the economy as a whole, which will be self-reinforcing and thus may cause long-run stagnation. Because of excess capacity, oligopolies will be increasingly reluctant to invest in their industries, even if profits are constant or rising ('incomplete re-investment' of retained profits), and firms in competitive industries will lack the internal funds required to expand and to compensate for the stagnative tendencies imposed on the economy by oligopolistic industries.

Any fall in investment and aggregate demand will therefore be self-reinforcing, and cause lower rates of capacity utilisation and a further decline in investment and aggregate demand for the economy as a whole, as in Harrod's (1939) instability process (Steindl 1979, 1985). Recall that Harrod's 'warranted rate of growth' (g_w) is given by the overall propensity to save (s), the normal or target rate of utilisations of productive capacities (u_n) and by the capital-potential output ratio (v), which is considered to be technologically determined and to be independent of growth and the profit rate: $g_w = \frac{su_n}{v}$ (Hein 2014, Chapter 2). As Steindl (1985) explains, lower growth of aggregate demand, falling short of Harrod's 'warranted rate', that is $g < g_W$, would require a lower propensity to save, and thus lower profit margins and profit rates, in order to avoid the rate of capacity utilisation falling below the normal or target rate and hence causing a further slowdown in growth. In other words, it would require redistribution from corporations to households, or from gross profits to wages, assuming the propensity to save out of wages to fall short of the propensity to save out of gross profit. However, this does not happen because of the price rigidity in oligopolistic industries. This is how Steindl (1985, pp. 157-158) describes it:

> 'I have discussed in *Maturity and Stagnation* the conditions for a mechanism by means of which $(1 - \lambda)$ [the share of profits, E.H.] would adapt itself to a lowering of the growth rate. It would work through a competitive struggle with the aim of eliminating high cost producers; this would re-establish a normal degree of utilisation and at the same time lower the profit margin. In an industry dominated by oligopolies, however, this mechanism can not easily work, because the risks and cost of a competitive struggle are much too high. In consequence the oligopolistically organised industry will experience permanent excess capacity if the growth rate falls, with further depressive consequences, since the excess capacity will discourage investment. Using the same assumptions it can be shown that the transition from a competitive to an oligopolistic regime, if it causes an increase in profit margins at a given rate of utilisation, will lead to excess capacity and hence a secular decline in growth.'

In the case of the dominance of oligopolies, a fall in the rate of capacity utilisation can only be prevented by an increase of 'external' sources of demand, hence in the government deficit or the export surpluses, as Steindl (1985) points out.

Steindl (1976, p. xv) acknowledges that the 'maldistribution of funds' argument per se is not a strong argument for lower private investment and growth, in the face of multi-branch activities of larger firms, which could invade competitive industries and invest there. However, low rates of capacity utilisation on a broader scale as a deterrent to investment are considered to be the important argument for the maturity and stagnation hypothesis. Another argument, which Steindl addresses in his later publications (Steindl 1964; 1979; 1985) but is not mentioned in his 1952 book, does not relate to oligopoly in particular but to big business in general and says 'that the preference for safety increases with size, and that profit is bartered for safety, with a resulting reluctance to go into debt and a consequent weakening of the incentive to invest' (Steindl 1976, p. xv). This could be interpreted as a decline in 'animal spirits', the 'spontaneous urge to action rather than inaction' (Keynes 1936, p. 161), with the increasing size of the firm.

What is also missing in Steindl's 1952 book is a role for technological progress and innovations when it comes to the explanation of long-run trends of capital accumulation and growth. The reason for this is, that Steindl wanted to present a theory in which investment is completely endogenous and 'net investment is called forth by the stimulus of economic factors, like internal accumulation of business, a high degree of utilisation, a high profit rate, or low indebtedness. Innovations, to express this view in its most extreme form, affect only the *form* which net investment takes' (Steindl 1952, p. 133, emphasis in the original).

Steindl's (1952) endogenous determination of investment thus includes several arguments which also figure prominently in Kalecki's theories of investment (Steindl 1981a, Hein 2014, Chapter 5.6), like retained profits and indebtedness, referring to the finance constraint implicit in Kalecki's (1937) 'principle of increasing risk', and the rate of profit, capturing the opposing effects of changes in profits and in the capital stock on investment. Unlike Kalecki, Steindl explicitly includes the rate of capacity utilisation, or more precisely the deviation of the realised rate of utilisation from some planned rate, into his investment function. Following Steindl (1952, p. 214), firms' decisions to invest thus depend positively on retained profits (Π_F) relative to the nominal capital stock (pK), the capital stock owned by the firm (pK_F) relative to the total value of the capital stock – this is the inverse of Steindl's (1952, p. 46) 'gearing ratio' (pK/pK_F) – and on the deviation of the realised rate of utilisation of productive capacities given by the capital stock from some planned rate ($u - u_0$).

Technical progress and innovations are absent from this approach, because Steindl held that these are difficult to model and have hence to be treated as exogenous variables. However, in his later publications, Steindl changed his mind, in particular under the impression of Kalecki's work, and argued: 'When I wrote *Maturity and Stagnation*, I wanted to deny all influences of innovations on the accumulation of capital. I think now that this was foolish and I subscribe to Kalecki's view that innovations are capable of generating a trend' (Steindl 1979, p. 7). Consequently, Steindl (1964; 1976; 1979; 1981a; 1989) admits that the exhaustion of a long technological wave can contribute to the explanation of stagnation.

4. A Steindlian model of distribution, growth and stagnation

Steindl (1952, Chapter XIII) provides a mathematical model of his theory with mixed difference-differential equations, which was meant to integrate trend and cycle theory and to explain the sources of stagnation in mature capitalism. However, in his new introduction, Steindl (1976, p. xvi) considers this attempt to have failed, first, because the model does not represent his theory adequately, and second, because of the failure to rely on technological innovations or other exogenous factors to generate a long-run trend. Dutt (2005) has presented a simplified model in order to make the logic of the model more transparent.[14] Here, we will simplify and slightly change Dutt's presentation even further, however, still remaining faithful to the gist of Steindl's approach. It should not come as a surprise that the result will bear close similarities with modern Kaleckian/Steindlian distribution and growth models, as can be found in the current literature.[15]

Let us consider a closed economy without explicitly integrating the economic activity of the state. There is just one type of commodity produced which can be used for consumption and investment purposes. For a given technology or state of technological knowledge the relationship between the employed volume of labour (L) and real output (Y) is fixed so that we get a constant labour-output ratio (a), i.e. there is no overhead-labour. The capital-potential output ratio (v), the relation between the real capital stock (K) and potential real output (Y^p), is also constant for a given technology, and the capital stock is assumed not to depreciate. When further introducing technological progress below, we will assume Harrod neutrality, that is a fall in the labour-output ratio but the constancy of the capital-potential output ratio; capital intensity and labour productivity for a given rate of capacity utilisation will grow at the same rate. The rate of capacity utilisation (u) is given by the relation between actual real output and potential real output and is an endogenous variable in the model.

The goods market is dominated by oligopolies, which set prices (p) according to a mark-up (m) on unit labour costs, which are constant up to full capacity output (equation 1). The mark-up is determined by the degree of price competition in the goods market, by overhead costs and by the bargaining power of workers and trade unions. The profit share (h), i.e. the proportion of profits (Π) in nominal output (pY), is therefore determined by the mark-up (equation 2). The mark-up and the profit share may become elastic with respect to overhead costs, and thus to the rentiers' rate of return on equity and bonds (ρ), which is a composite of the interest rate and the dividend rate, as will be explained further below. Alternatively, a change in the outside finance-capital ratio (γ) with a constant rentiers' rate of return may have the same effect, as will also become clear below. The profit rate (r) relates the annual flow of profits to the nominal capital stock and can be decomposed into the rate of capacity utilisation, the profit share, and the inverse of the capital-potential output ratio (equation 3):

$$(1) \qquad p = [1 + m(\rho,\gamma)]wa, \qquad m > 0, \frac{\partial m}{\partial \rho} \geq 0, \frac{\partial m}{\partial \gamma} \geq 0,$$

$$(2) \qquad h = \frac{\Pi}{pY} = 1 - \frac{1}{1 + m(\rho,\gamma)}, \qquad \frac{\partial h}{\partial \rho} \geq 0, \frac{\partial h}{\partial \gamma} \geq 0,$$

[14] For more elaborated and complicated reinterpretations of Steindlian distribution and growth models, see for example Dutt (1995) and Flaschel/Skott (2006).

[15] See, for example, the overviews in Blecker (2002), Dutt (1990a) and Hein (2008, 2012a, 2014).

(3) $$r = \frac{\Pi}{pK}\frac{Y}{Y^p}\frac{Y^p}{K} = hu\frac{1}{v}.$$

The pace of accumulation and growth in our model is determined by firms' decisions to invest, independently of saving, because firms have access to finance for production purposes endogenously created by the financial sector 'out of nothing' at a given rate of interest. We assume that long-term finance of the capital stock consists of firms' accumulated retained earnings (E_F), long-term credit granted by rentiers (B), and equity issued by the firms and held by rentiers (E_R) (equation 4). Equity and debt are measured at constant issuing prices – capital gains are not considered here. The rentiers' share in capital stock, the outside finance-capital ratio, is given by γ (equation 5), whereas ϕ denotes the accumulated retained earnings-capital ratio or the inside finance-capital ratio (equation 6).[16] Total profits (Π) divide into firms' retained profits (Π_F), on the one hand, and dividends plus interest paid to rentiers' households (R), on the other hand (equation 7). Interest payments to rentiers' households are given by the rate of interest and the stock of debt, and dividend payments by the dividend rate and the stock of equity held by rentiers' households. Following Steindl (1952, p. 217) and Dutt (2005, p. 60) we could assume that the interest rate and dividend rate are equal, such that the rentiers' rate of return (ρ) determining rentiers income (equation 8) would be representing these two rates. However, although we are not interested in considering this here, we can also assume that the interest rate and dividend rate differ and the rentiers' rate of return is then the weighted average of these two rates, with the weights given by rentiers' portfolio choice:

(4) $$pK = B + E_R + E_F,$$

(5) $$\gamma = \frac{B + E_R}{pK},$$

(6) $$\phi = \frac{E_F}{pK},$$

(7) $$\Pi = \Pi_F + R,$$

(8) $$R = \rho(E_R + B).$$

When it comes to consumption and saving decisions, Steindl's (1952) model distinguishes between firms, retaining profits which are saved by definition, and households receiving incomes in terms of wages, dividends and interests, which are partly consumed and partly saved. However, in his later work Steindl (1979, 1985, 1989) follows Kalecki's worker-capitalist-distinction rather than the firm-household classification. Here, we apply the latter distinction and distinguish between firms, workers' and capitalists'/rentiers' households. In order to simplify the analysis, we assume a classical saving hypothesis, i.e. workers do not save. The part of profits retained is completely saved by definition. The part of profits distributed to rentiers' households, the interest and dividend payments, is used by those households according to their propensity to save (s_R). Therefore, we get the saving-capital rate (σ) in equation (9) which relates total saving to the nominal capital stock. Note that an increase in the rentiers' rate of return, *ceteris paribus*, decreases the saving-capital rate because income is transferred from firms with a saving propensity of unity to rentiers' households with a saving propensity of usually less than unity:

[16] This is different from the inverse of Steindl's 'gearing ratio', which includes equity held by rentiers, too.

(9) $$\sigma = \frac{S}{pK} = \frac{\Pi - R + s_R R}{pK} = h\frac{u}{v} - (1 - s_R)\rho\gamma, \quad 0 < s_R \leq 1 .$$

(10) $$g = \frac{pI}{pK} = \alpha + \omega\hat{y} + \beta(u - u_0) + \theta\left(h\frac{u}{v} - \rho\gamma\right), \qquad \beta, \theta, \omega > 0, \qquad \theta < 1 ,$$

(11) $$g = \sigma ,$$

(12) $$\frac{\partial\sigma}{\partial u} - \frac{\partial g}{\partial u} > 0 \quad \Rightarrow \qquad (1 - \theta)\frac{h}{v} - \beta > 0.$$

The investment function (g), relating net investment (I) to the capital stock (equation 10) includes several of Steindl's arguments mentioned in the previous section. Similar to Kalecki's theories of investment (Hein 2014, Chapter 5.6, Steindl 1981a), two major determinants are (expected) demand and internal means of finance. For the former, Steindl takes the deviation of the realised rate of capacity utilisation from the planned rate of utilisation ($u - u_0$) as an indicator. We will return to the role of the planned rate of utilisation in Steindl's model below. The latter determinant is given by retained profits, as a difference between total profits and profits distributed to rentiers in terms of interest and dividends, normalised by the capital stock, and hence by the rate of profit, the rentiers rate of return and the outside finance-capital ratio. Of course, the argument for including internal means of finance into the investment function is provided by Kalecki's (1937) 'principle of increasing risk'. This means that, in imperfectly competitive financial markets, firms need own sources and capital in order to attract outside capital in terms of credit, bonds or equity issues, for investment purposes. Furthermore, under these circumstances, firms constrain their use of external capital for investment purposes in order to minimise the risk of illiquidity and insolvency. An increase in the rentiers' rate of return, i.e. of the interest rate and/or the dividend rate, or the rise in the outside finance-capital ratio each have a negative effect on capital accumulation. We have included a constant (α) into the investment function, which may be taken to capture autonomous investment expenditures, as well as 'animal spirits' of firms or management driving investment decisions. In a more extended model, α may also be taken to represent autonomous and deficit-financed government expenditure growth. Finally, we can include the effects of technological progress and innovations on capital accumulation, which Steindl (1952) had ignored in his model but conceded in his later work, and highlighted in Steindl (1981b). Therefore, we have added a positive effect of innovation and (potential) labour productivity growth ($\hat{y}$), because technological progress is (at least partially) capital embodied. Let us also assume that technological progress is Harrod-neutral and that hence the capital-potential output ratio remains constant. Equation (11) provides the equilibrium condition, i.e. the equality of saving and investment decisions, and (12) the usual Keynesian/Kaleckian stability condition, which requires the saving rate to respond more vigorously to a change in the rate of capacity utilisation than the rate of capital accumulation.

The equilibrium rates of capacity utilisation, capital accumulation and profit are as follows:

(13) $$u^* = \frac{\alpha + \omega\hat{y} - \beta u_0 + \rho\gamma(1 - s_R - \theta)}{(1 - \theta)\frac{h}{v} - \beta},$$

$$(14) \qquad g^{*} = \frac{\left(\alpha + \omega\hat{y} - \beta u_0\right)\frac{h}{v} + \rho\gamma\left[\beta\left(1 - s_R\right) - \theta s_R \frac{h}{v}\right]}{\left(1 - \theta\right)\frac{h}{v} - \beta},$$

$$(15) \qquad r^{*} = \frac{\left[\alpha + \omega\hat{y} - \beta u_0 + \rho\gamma\left(1 - s_R - \theta\right)\right]\frac{h}{v}}{\left(1 - \theta\right)\frac{h}{v} - \beta}.$$

In this paper we will not touch upon the endogenous dynamics of the outside finance-capital ratio and its stability properties, the potential for 'paradoxes of debt' or 'paradoxes of outside finance', and so on. The interested reader is referred to the discussion based on similar models, like for example in Dutt (1995), Hein (2010, 2012a, Chapter 3, 2013), Sasaki/Fujita (2012) and Franke (2015). We shall also not deal extensively with the question of whether an equilibrium rate of utilisation (u*) deviating from firms' target rate of utilisation (u_0) should be considered as an equilibrium. Steindl (1952, p. 12, emphasis in the original) is quite explicit on that issue, when he argues that '(t)he degree of utilisation actually obtaining in the long run, we must conclude, is no safe indication of the *planned* level of utilisation'. Marxian and Harrodian authors, like Dumenil/Levy (1999), Shaikh (2009) and Skott (2010, 2012), however, have argued that such a position should not be considered to be a long-run equilibrium, but would rather trigger responses by firms. Thus 'Harrodian instability' would arise, which would then have to be contained by other mechanisms in the model (changes in distribution or animal spirits, or government and central bank interventions). As has been reviewed by Hein/Lavoie/van Treeck (2011, 2012), Kaleckian and Steindlian authors have put forward different justifications for taking the rate of capacity utilisation as an adjusting and endogenous variable, probably within bounds, nonetheless: Normal or target rates of utilisation cannot be precisely determined in a world of fundamental uncertainty about future events and should thus rather be considered as a range (Dutt 1990b, 2005, 2010). Firms may have multiple goals and accept variations in capacity utilisation and hence deviations from the target or normal rate in the long-run equilibrium to come closer to meeting other targets, for instance dividend payments demanded by shareholders (Dallery/van Treeck 2010). Firms' assessment of trend growth and the normal rate of utilisation may endogenously adjust to actual experience (Lavoie 1995a, 1996). And finally, the target or normal rate as a stable inflation rate of utilisation may itself be endogenous to inflation targeting monetary policies when the interest cost and distribution channels of interest rate policies are considered (Hein 2006, 2008, Chapter 17).

From equations (13) – (15) the effects of changes in α, $\omega\hat{y}$, s_R and u_0 on the equilibrium rates of capacity utilisation, capital accumulation and profit can easily be identified. A fall in animal spirits or in the growth of autonomous investment, also of the growth of autonomous consumption, government deficit spending or exports in more elaborated models, have negative effects on economic activity, growth and the rate of profit. A lower rate of technological progress and innovations, indicated by (potential) labour productivity growth, or a lower responsiveness of investment towards technological progress have contractive effects on all equilibrium values as well. The same is true for a higher propensity to save out of rentiers' income, i.e. the paradox of thrift is also valid for Steindl's

approach. Additionally, a higher target rate of utilisation of firms has depressive effects on capacity utilisation, capital accumulation and the profit rate. For the effects of changes in the profit share and hence in functional income distribution we get the following results:

(13a) $$\frac{\partial u^*}{\partial h} = \frac{-(1-\theta)\frac{u}{v}}{(1-\theta)\frac{h}{v} - \beta} < 0,$$

(14a) $$\frac{\partial g^*}{\partial h} = \frac{-\beta\frac{u}{v}}{(1-\theta)\frac{h}{v} - \beta} < 0,$$

(15a) $$\frac{\partial r^*}{\partial h} = \frac{-\beta\frac{u}{v}}{(1-\theta)\frac{h}{v} - \beta} < 0.$$

A rise in the profit share thus has negative effects on the equilibrium rates of capacity utilisation, capital accumulation and profit. Demand and growth in the Steindlian model are wage-led, and for the rate of profit we have the 'paradox of costs', i.e. a higher wage share and thus higher real unit labour costs trigger a higher profit rate. We will finally take a look at the effects of changes in our financial variables, the rentiers' rate of return and the outside finance-capital ratio:

(13b) $$\frac{\partial u^*}{\partial \rho} = \frac{\gamma(1-s_R-\theta) - (1-\theta)\frac{u}{v}\frac{\partial h}{\partial \rho}}{(1-\theta)\frac{h}{v} - \beta},$$

(13c) $$\frac{\partial u^*}{\partial \gamma} = \frac{\rho(1-s_R-\theta) - (1-\theta)\frac{u}{v}\frac{\partial h}{\partial \gamma}}{(1-\theta)\frac{h}{v} - \beta},$$

(14b) $$\frac{\partial g^*}{\partial \rho} = \frac{\gamma\left[\beta(1-s_R) - \theta s_R\frac{h}{v}\right] - \beta\frac{u}{v}\frac{\partial h}{\partial \rho}}{(1-\theta)\frac{h}{v} - \beta},$$

(14c) $$\frac{\partial g^*}{\partial \gamma} = \frac{\rho\left[\beta(1-s_R) - \theta s_R\frac{h}{v}\right] - \beta\frac{u}{v}\frac{\partial h}{\partial \gamma}}{(1-\theta)\frac{h}{v} - \beta},$$

(15b) $$\frac{\partial r^*}{\partial \rho} = \frac{\gamma(1-s_R-\theta)\frac{h}{v} - \beta\frac{u}{v}\frac{\partial h}{\partial \rho}}{(1-\theta)\frac{h}{v} - \beta},$$

$$(15c) \quad \frac{\partial r^*}{\partial \gamma} = \frac{\rho(1 - s_R - \theta)\frac{h}{v} - \beta \frac{u}{v}\frac{\partial h}{\partial \gamma}}{(1-\theta)\frac{h}{v} - \beta}.$$

Let us first discuss the case of interest- and dividend payments-inelastic mark-ups and profit shares. In this case, a rise in the rentiers' rate of return, hence in the interest rate and/or the dividend rate, or an increase in the outside finance-capital ratio, will re-distribute income from firms which do not consume to rentiers who consume at least a part of the income. This will boost consumption demand and through the accelerator in the investment function also investment demand and hence capital accumulation. However, the drain of internal means of finance of firms will have a partially negative effect on capital accumulation. The overall or equilibrium effect will thus depend on the relative strengths of each of these partial effects. Table 1 summarises the potential cases.

Table 1: Effects of a change in the rentiers' rate of return or the outside finance-capital ratio with interest- and dividend payments-inelastic mark-up and profit share

	'normal case' 'debt-burdened' economy	'intermediate case'	'puzzling case' 'debt-led' economy
	$1 - s_R < \theta$	$\theta < 1 - s_R < \theta \frac{\frac{h}{v}}{\beta + \theta\frac{h}{v}}$	$\theta \frac{\frac{h}{v}}{\beta + \theta\frac{h}{v}} < 1 - s_R$
$\frac{\partial u}{\partial \rho}, \frac{\partial u}{\partial \gamma}$	–	+	+
$\frac{\partial g}{\partial \rho}, \frac{\partial g}{\partial \gamma}$	–	–	+
$\frac{\partial r}{\partial \rho}, \frac{\partial r}{\partial \gamma}$	–	+	+

Note: Assuming the stability condition (12) for the goods market equilibrium to hold implies $(h/v)/[\beta + \theta(h/v)] > 1$, because from $(1-\theta)(h/v) - \beta > 0$, we get $(h/v) - \theta(h/v) > \beta$, and hence $(h/v) > \beta + \theta(h/v)$.

If the rentiers' propensity to consume $(1 - s_R)$ falls short of firms' investment responsiveness towards internal funds (θ), we are in the 'normal case' (Lavoie 1995b), and an increase in the rentiers' rate of return and/or in the outside finance-capital economy will trigger lower equilibrium rates of capacity utilisation, capital accumulation and profit. In this case, the economy will also be 'debt-burdened' (Taylor 2008, p. 275), because a higher debt-capital ratio will cause lower rates of capacity utilisation, capital accumulation and profit. If the rentiers' propensity to consume exceeds the firms' investment responsiveness towards internal funds, but the effects of capacity utilisation on firms' investment (β) is low, we are in the 'intermediate case', with positive effects of higher rentiers' rates of return and/or outside finance-capital ratios on capacity utilisation and the rate of profit, but negative effects on

capital accumulation. Finally, if the conditions for the intermediate case hold and the effect of capacity utilisation on investment is high, we may even obtain the 'puzzling case' (Lavoie 1995b), in which a higher rentiers' rate of return and/or a higher outside finance-capital ratio have expansionary effects on the rates of capacity utilisation, capital accumulation and profit. In this case, the economy is also uniquely 'debt-led' (Taylor 2008, p. 275); a higher debt-capital ratio will cause higher rates of capacity utilisation, capital accumulation and profit.

Table 2 presents the properties of our simplified Steindlian distribution and growth model and summarises the responses of the equilibrium rates of capacity utilisation, capital accumulation and profit towards changes in the exogenous variables and parameters. Our Steindlian model economy would hence enter into periods of low capacity utilisation, low growth and also a low profit rate, and hence into a period of stagnation, under the following conditions:

- a fall in autonomous investment growth (or autonomous consumption, government expenditures, or exports) and/or a fall in 'animal spirits' of firms,
- a fall in the rate of productivity enhancing innovations driving investment,
- a rise in the target rate of capacity utilisation of firms,
- a rise in the rentiers' propensity to save (or in the workers' propensity to save set equal to zero in the current model version),
- a rise in the profit share,
- a rise in the rentiers' rate of return, hence the interest rate and/or the dividend rate, and/or the outside finance-capital ratio, hence the debt- and/or the rentiers' equity-capital ratio, if the economy is in the 'normal case' and in a 'debt-burdened' regime, or a fall in the rentiers' rate of return and/or the outside finance-capital ratio if the economy is in the 'puzzling case' and in a 'debt-led regime'.

Table 2: Responses of equilibrium rates of capacity utilisation (u), capital accumulation (g), profit (r) towards changes in exogenous variables and parameters

	u*	g*	r*
α	+	+	+
$\omega\hat{y}$	+	+	+
u_0	–	–	–
s_R	–	–	–
h	–	–	–
ρ	?	?	?
γ	?	?	?

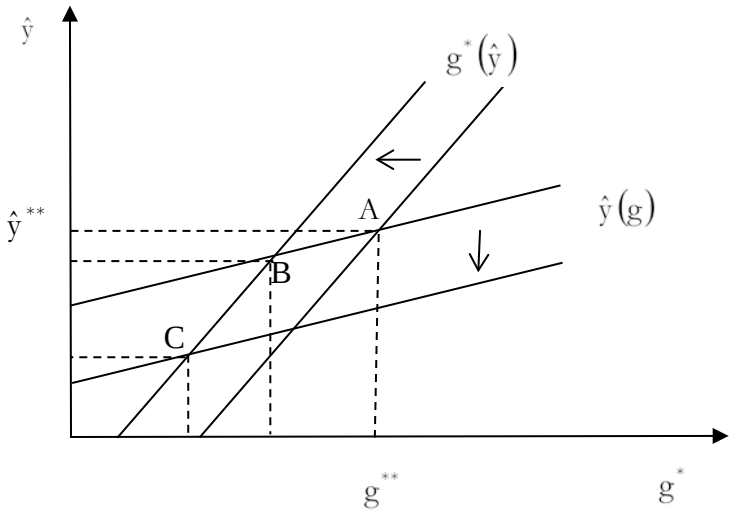
So far, we have only discussed the demand side of the Steindlian distribution and growth model and have introduced innovations and technological change as an exogenous variable driving investment and growth. However, starting with Rowthorn (1981), Dutt (1990, Chapter 5), Taylor (1991, Chapter 10) and Lavoie (1992, Chapter 6) post-Keynesian authors have introduced endogenous technological change and labour productivity growth into Steindlian/Kaleckian distribution and growth models, as reviewed and elaborated on in Hein 2014, Chapter 8). Relying on Kaldor's (1957, 1961) technical progress function and/or on

Kaldor's (1966) Verdoorn's Law, labour productivity growth is assumed to be positively affected by capital stock growth, due to capital-embodied technological change, and/or demand growth and hence the rate of capacity utilisation, due to dynamic returns to scale. And following Marx (1867) and Hicks (1932), several authors have integrated a wage-push variable into the productivity growth function of the model, arguing that a higher real wage rate or a higher wage share induces capitalists to speed up the implementation of labour augmenting technological progress in order to protect the profit share. If we add a summary variable (η) representing the effect of 'learning by doing' and/or basic innovations, we get the following function for labour productivity growth:

(16) $\hat{y} = \eta + \varepsilon g - \psi h, \qquad \eta, \varepsilon, \psi > 0$.

As can be seen in Figure 1, which shows the long-run endogenous growth equilibrium generated by equations (14) and (16), any fall in the goods market equilibrium rate of capital accumulation, that is a leftwards shift in the g* function, will also cause a lower long-run equilibrium rate of productivity growth and hence of potential growth. The economy will move from the equilibrium in point A to the one in point B. And if the fall in capital accumulation is caused by a higher profit share, the directly negative impact on productivity growth has to be included as well, and the economy will move to the long-run equilibrium in point C with even lower capital stock, output and productivity growth. Of course, further effects could be discussed here, as, for example, a change in the nature of technical progress, as a decline in the capital-potential output ratio. If the implementation of technical progress required less investment in the capital stock, the coefficient ω in the investment function (equation 10) would be lowered, the g* function in Figure 1 would rotate counter clockwise and the long-run equilibrium growth rates of capital stock, output and productivity would fall even below point C (Hein 2012b).

Figure 1: Stagnation with endogenous productivity growth



5. The role of institutions and policies – or why stagnation did not materialise in the 1950s and 1960s but has become more likely since the 1980s – and after the Great Recession in particular[17]

Let us next follow Steindl's (1976, 1979, 1989) explanations, on why his postulated tendencies towards stagnation did not materialise in the golden age period of mature capitalism from the 1950s until the mid 1970s. In Steindl (1979) we find four reasons for high growth in the post-World War II period, reversing the inherent stagnation tendencies. In terms of the model of the previous section stagnation tendencies were mainly reversed through those factors causing a rise in α and $\omega\hat{y}$ or a fall in h:

- Public spending increased tremendously after World War II, financed to a great extent by taxes on profits. This increased capacity utilisation and fed back positively on firms' decisions to invest in capital stock.
- Technological competition between East and West, the 'competition of the systems', had a strong impact on expenditures on R&D and education by the governments, which spilled over to the private sector, boosting investment and productivity growth.
- The post-war tensions triggered close cooperation of the Western countries under the leadership of the USA. This included the world financial system of Bretton Woods with fixed but adjustable exchange rates, the Marshall Plan and American lending to Western European countries, which stabilised and provided the conditions for an increase in international trade. A higher level of international trade kept profit margins within limits and contributed to stabilising wage shares.
- European countries benefited from technological backwardness with respect to the USA and could make use of technological knowledge which had been generated and applied in the USA, thus making use of the 'catching-up' factor in economic growth.

In other publications, Steindl also adds factors operating through lowering the propensity to save of households and through improved internal finance conditions of firms, obviously assuming the 'normal' and 'debt-burdened' case conditions to prevail. For example, Steindl (1976) mentions as a further growth enhancing factor that big corporations spread their activities to several industries reducing impediments to the flow of funds between industries, which favoured aggregate investment. In addition, the shortening of construction periods and the introduction of consumer credit on a larger scale were favourable for growth. Steindl (1989) also adds the low indebtedness of corporations right after World War II as a factor which was favourable to investment in capital stock and to GDP growth, as well as the increasing bargaining power of workers and trade unions associated with full employment, which held mark-ups and profit shares in check and allowed real wages to grow in step with productivity thus providing the required demand growth.

The faltering of the post-World War II golden age and the re-emergence of stagnation tendencies starting in the mid 1970s are analysed in detail by Steindl (1979). Here, several causes are related to the factors determining α and $\omega\hat{y}$ in our model:

- The reduction of tensions between the superpowers, an increase in internal rivalries among the capitalist economies, a decay of US leadership and the collapse of the

[17] This section partly draws on Hein (2014, pp. 227-234).

Bretton Woods international financial system, indicated an absence of the willingness and the ability for international co-operation leading to rising uncertainty.

- The fading out of the catching-up potential of Europe towards the USA associated with abnormally high rates of productivity growth in Europe over the post-war period lowered the incentives to invest.
- Increasing environmental and energy problems increased energy prices putting upwards pressure on inflation rates and raised uncertainty with respect to future technological development.

Further factors contributing to the re-emergence of stagnation, according to Steindl (1979), are related to the effects of demand and capacity utilisation on investment and to the propensity to save of households:

- Supposed tendencies towards increasing capital productivity reduced the required amounts of net investment to increase productive capacities, thus lowering β in our model.
- And a trend towards an increasing marginal propensity to save from disposable household income in prospering economies weakened aggregate demand, capacity utilisation, investment and growth.

However, the most important factor which explains the re-emergence of stagnation tendencies, according to Steindl (1979), is 'stagnation policy' in the major capitalist economies, which he had already briefly mentioned three years earlier: '[…] thus we witness stagnation not as an incomprehensible fate, as in the 1930s, but stagnation as policy' (Steindl 1976, p. xvii). In this context, Steindl (1979) refers to Kalecki's (1971, Chapter 12) *Political Aspects of Full Employment*, in which Kalecki argues that, although governments might know how to maintain full employment in a capitalist economy, they will not do so, because of capitalists' opposition. Kalecki (1971, p. 139, emphasis in the original) presents the following reasons:

> 'The reasons for the opposition of the 'industrial leaders' to full employment achieved by Government spending may be subdivided into three categories: (i) the dislike of Government interference in the problem of employment as such; (ii) the dislike of the direction of Government spending (public investment and subsidising consumption); (iii) dislike of the social and political changes resulting from the *maintenance* of full employment.'

Whereas in Kalecki (1971, p. 144), the opposition of the capitalist class towards full employment policies gave rise to a 'political business cycle', Steindl (1979, p. 9) argues that business opposition towards full employment policies generates a 'political trend' causing or contributing to stagnation. In the course of the 1970s, governments, facing full employment and increasing rates of inflation, moved away from targeting full employment by means of active demand management towards targeting price stability by means of restrictive monetary policies and containing public deficits and debt. In terms of our model in the previous section, the major channels through which stagnation policies depress the economy are:

- decreasing α (decrease in autonomous expenditure growth, falling animal spirits),
- falling $\omega\hat{y}$ (lower growth enhancing public investment, lower investment in R&D),
- raising the profit share h (weakening workers' and trade union bargaining power, higher interest and hence overhead costs),

- a rise in the households' propensity to save (rising inequality in the distribution of household incomes, higher uncertainty triggering precautionary saving),
- and through rising real rates of interest, rentiers' rates of return (ρ) and real debt-capital and outside-finance capital ratios (γ) of firms, with 'normal cases' and 'debt-burdened' constellations prevailing.

In his latest contributions, Steindl relates stagnation tendencies and stagnation policy to an increasing dominance of the financial sector in modern capitalist economies. In Bhaduri/Steindl (1985), stagnation policies are associated with 'the rise of monetarism as a social doctrine', because monetarism is inherently linked with restrictive fiscal and monetary policies, which are supported by banks and the financial sector (or the rentiers). The application of monetarist policies thus indicates a shift of powers from industry to banks, or from the non-financial sector of the economy to the financial sector, which occurred in the course of national and international financial liberalisation and rapidly increasing financial activity in the 1970s and early 1980s (collapse of the Bretton Woods international financial system, rise of the Eurodollar market, emergence of oil exporting countries as a class or 'international rentiers', emergence of international commercial banks). In Steindl (1989), it is stressed that, starting in the 1980s, the tendencies towards weak investment and stagnation have then been amplified by a shift of the interest of corporations and their managers from production towards finance and an increasing role of financial investment in comparison to real investment.

The increasing dominance of finance, or 'financialisation', starting in the early 1980s in the US and the UK and somewhat later in other countries, has been analysed extensively applying Kaleckian/Steindlian distribution and growth models. Reviews of models and empirical applications can be found in Hein (2012a, 2014, Chapter 10), Hein/Dodig (2015) and Hein/van Treeck (2010). The major findings have been that, on the one hand, confirming Steindl's latest hypotheses, the increasing dominance of finance has depressed the economy. The major channels have been, first, the re-distribution of income at the expense of the labour income share and the low-income households, which have depressed income-financed consumption demand. Second, the increasing dominance of finance and rising shareholder value orientation of management has depressed investment in the capital stock, mainly through the 'animal spirit channel' and through the 'internal means of finance channel' of our model in the previous section. Management of non-financial corporations increasingly favoured short-run profit maximisation by means of financial investment instead of real investment in the capital stock of the firm generating profits in the long run. And increasing dividend payments and share-buybacks have eroded internal means of finance, partly even increasing the indebtedness of non-financial business, and thus further depressing investment in the capital stock.

However, on the other hand, going beyond Steindl's contributions, it has been argued that the expansion and development of the financial sector and the increasing dominance of finance have also stimulated the economy in the short and medium run. First, regarding consumption, financialisation has generated an increasing potential for wealth-based and debt-financed consumption. In several countries stock market and housing price booms have each increased notional wealth against which households were willing to borrow. Changing financial norms, new financial instruments (credit card debt, home equity lending),

deterioration of creditworthiness standards, triggered by securitisation of mortgage debt, credit card debt etc., and 'originate and distribute' strategies of commercial banks, made increasing credit available to low income, low wealth households, in particular. This potentially allowed for consumption to rise faster than median income, thus stabilising aggregate demand and growth. But, it also generated increasing debt-income ratios of private households. Second, the liberalisation of international capital markets and capital accounts has allowed several countries to run persistent and rising current account deficits, and a corresponding set of countries to have their demand and growth driven by rising net exports generating increasing current account surpluses. Therefore, rising current account imbalances at the global, but also at the regional levels, in particular within the Euro area, have been generated, as well as increasing problems of foreign indebtedness, speculative capital movements, exchange rate volatilities and related potentials for currency crises.

Therefore, against the background of finance-dominated capitalism, two extreme but complementary growth regimes have developed, as has been analysed using different terminologies by Hein (2012a, Chapter 6, 2014, Chapter 10), Hein/Dodig (2015), Hein/Mundt (2012), Horn et al. (2009), Stockhammer (2010, 2012, 2015), UNCTAD (2009) and van Treeck/Sturn (2012), among others. The 'debt-led consumption boom' regimes, as in the US, the UK, Spain and other countries, relied on credit-financed private demand, and private consumption in particular, as the main drivers of demand and growth, accepting increasing current account deficits. The 'export-led mercantilist' regimes, as in Germany, China, Japan and other smaller and more open economies, saw their demand and growth being driven by rising net exports generating rising current account surpluses.

Each regime can be conceived of as a 'profits without investment' regime, because dynamic capital stock growth is either substituted by credit-financed consumption demand or net export growth. Since productivity growth, and thus 'natural' or potential growth, are to a large extent embodied in capital stock growth and also driven by real wage growth, as briefly explained above in our Steindlian model, dampened investment in capital stock and stagnant real wage growth each contributed to low labour productivity growth and thus lower potential growth in finance-dominated capitalism (Hein 2012a, Chapter 4, 2012b). Furthermore, the 'debt-led consumption' regime and the 'export-led mercantilist' regime have suffered from further internal contradictions, with respect to household debt in the first regime and with respect to foreign debt of the corresponding current account deficit countries in the second regime. These finally undermined the sustainability of these regimes and the related current account imbalances, and led to the financial and economic crisis of 2007-09. As is well known, this crisis was triggered by over-indebtedness problems of private households in the leading 'debt-led consumption boom' economy, the US. This crisis quickly spread to the 'export-led mercantilist economies'. First, their export markets collapsed (foreign trade channel). Second, their capital exports into risky and now collapsing financial markets in the current account deficit countries, associated with persistent current account surpluses, were devalued (financial contagion channel). Furthermore, an uncertainty and expectations channel took effect as well. The crisis did neither lead to a collapse of the world economy nor to a prolonged depression at the global level, due to appropriate fiscal and monetary stabilisation policies for the financial and non-financial sectors of the economy. However, more than seven years after the beginning of the crisis, the impression is that the world economy as a whole is facing slower growth, and stagnation has become the rule of the game again in certain

regions, in particular in those which have turned towards stagnation policy again, as the Euro area.

From the Steindlian perspective we can thus conclude that the main constraint a capitalist economy is facing in the long run is sustainable demand generation. Stagnation is thus mainly caused by those factors slowing down sustainable demand growth – i.e. demand growth which is not driven by ever rising debt-income ratios of any macroeconomic sector. Any lack of sustainable demand growth will feedback negatively on potential or 'natural' growth. Reversing stagnation policy is thus the main objective when it comes to fighting stagnation tendencies in mature, finance-dominated capitalist economies.

6. Economic policy implications

Here is not the place to spell out in any detail the economic policy implications of the Steindlian approach towards stagnation presented in the previous sections. We will just touch upon the broad lines of Steindlian anti-stagnation policies and refer to more detailed recent contributions of Steindlian/Kaleckian/post-Keynesian authors. From Steindl's analysis of stagnation policy and the increasing dominance of finance capital as major causes for stagnation tendencies, it follows that anti-stagnation policies would have to focus on the following areas:[18]

- stabilising and raising public autonomous expenditure growth, as well as discretionary anti-cyclical fiscal policies, in order to stabilise effective demand growth, prevent deflation with its negative effects on private demand, and to improve the general climate for private sector investment and consumption,
- raising growth enhancing public investment, focusing on infrastructure, technology, education and R&D expenditures, in order to stimulate private investment and R&D outlays,
- stabilising and raising the wage share by full employment policies improving workers' bargaining power, by low interest rate policies reducing overhead costs, and by the re-regulation of the financial sector reducing the power and income claims of rentiers and shareholders,
- lowering the households' propensity to save by means of redistributing income, both pre-tax via higher wage shares and a more compressed wage structure and after-tax by progressive taxation and social transfers, as well as by removing uncertainty triggering precautionary saving,
- improving international economic and monetary policy coordination in order to avoid severe current account imbalances, 'beggar thy neighbour' strategies, on the one hand, and rising indebtedness in foreign currencies, on the other hand.

Several of these Steindlian elements can be found in economic policy proposals based on the analysis of the contradictions immanent to finance-dominated capitalism and the recent financial and economic crises outlined in the previous section. Since the two extreme types of development under financialisation, the 'debt-led consumption boom' type and the 'export-led mercantilist' type, have proven to be unsustainable, ILO (2012), Lavoie/Stockhammer

[18] See also Guger/Marterbauer/Walterskirchen (2006) for an excellent review of Steindlian economic policy implications in general, as well as an outline of Steindlian policy alternatives for the EU in order to boost aggregate demand, employment and growth, instead of continuing with stagnation policies.

(2013a, 2013b) and Stockhammer/Onaran (2012, 2013), among others, have argued that a sustainable recovery strategy after the crises can only focus on a 'wage-led' or 'mass income-led' type of development and hence on the redistribution of income from profits to wages and from the top to the bottom. Hein (2011, 2012a, Chapter 7), Hein/Mundt (2012) and Hein/Truger (2011, 2012/13) have argued that the focus of such a strategy is too narrow, because, on the one hand, the potential for re-distribution given the current power relationships is over-estimated, as are the potential demand and growth effects of such re-distributions, if they are feasible at all in isolation. Therefore, they have suggested that a wage-led recovery strategy would have to be embedded in a Global Keynesian New Deal, which more broadly should address the main characteristics of finance-dominated capitalism and the main causes for the severity of the crisis: the inefficient regulation of financial markets, the increasing inequality in the distribution of income and the rising imbalances at the global (and at regional) level. The three main pillars of the policy package of a Global Keynesian New Deal are the following: First, it includes the re-regulation of the financial sector in order to increase transparency, to raise incentives to focus on long-term growth instead of short-term profit and to prevent or contain future financial excesses and financial crises. Second, it focuses on the re-orientation of macroeconomic policies towards stimulating and stabilising domestic demand, in particular in current account surplus countries. This includes monetary policies targeting low long-term interest rates, fiscal policies stabilising aggregate demand at non-inflationary full employment levels in the short and in the long run applying a 'functional finance' approach, and wage or incomes policies stabilising income distribution and inflation at some target rate. And third, it has to include the re-construction of international macroeconomic and monetary policy co-ordination and a new world financial order in order to prevent export-led mercantilist and hence 'beggar thy neighbour' strategies. Palley (2012, Chapter 9, 2013, Chapter 12) and UNCTAD (2009), among others, have made similar suggestions. The roles of technology and innovation policies, which have been of utmost importance for Steindl have not been explicitly addressed in the approaches mentioned so far. However, Mazzucato (2013) and Mazzucato/Penna (2015) have recently stressed the role of the government and of state investment bank finance for innovation and technology development. These contributions nicely complement the more general suggestions mentioned above.

Finally, comparing the policy recommendations of the Steindlian approach with the economic policy implications of the current debate on secular stagnation reveals the following. First, the Steindlian policy stance contradicts those approaches which exclusively focus on promoting potential growth through supply side measures. The Steindlian approach does not ignore the supply side; on the contrary, it carefully takes into account supply and demand side determinants of growth, but it acknowledges the endogeneity of many of the supply side determinants of potential growth. Second, the Steindlian approach encompasses those policy suggestions aimed at lifting actual output growth towards a presumably given potential growth through low interest rate policies, expansionary fiscal policies and the stimulation of private investment and consumption. However, the Steindlian view takes into account the required changes in power relationships, institutions, and distribution of wealth and income, both nationally and internationally, as well as the feedback effects on potential growth. The policy implications are thus much broader and richer.

7. Conclusions

In this paper we have briefly reviewed the current debate on 'secular stagnation' and we have found this debate to be deficient in terms of the theoretical foundations and the economic policy implications. First, at the very foundations, even of the presumably more Keynesian works we have an equilibrium real or natural rate of interest, in principle equalising saving and investment in the capital market at full employment output levels, which, however, may not be feasible because of a very low or even negative equilibrium rate. This approach is open to critique from the 'Cambridge controversies in the theory of capital', questioning an interest rate-inverse and continuously downward sloping capital demand curve in a more-than-one-good economy, as well as the Keynesian critique with respect to the causalities between and adjustments of saving and investment in a monetary production economy. Second, most of the current literature on secular stagnation seems to assume that the natural or potential rate of growth is more or less independent of aggregate demand dynamics, thus ignoring potential feedback and endogeneity channels. And third, in the modern discussion on secular stagnation changes in institutions and power relationships between social classes, as the rise of finance-dominated capitalism over the last three decades or so, do not seem to have an important role to play at all. Therefore, the policy recommendations on how to deal with secular stagnation proposed in the recent literature can be considered to be either misguided or at least incomplete.

For these reasons, we have provided an alternative view on stagnation tendencies based on Josef Steindl's contributions. We have argued that this work is not prone to the problems detected in the current debate on secular stagnation: It does not rely on the dubious notion of an equilibrium real interest rate as the equilibrating force of saving and investment at full employments levels, in principle, with the adjustment process currently blocked by the unfeasibility of a very low or even negative equilibrium rate. It is based on the notion that modern capitalist economies are facing aggregate demand constraints in the long run, and that saving adjusts to investment through income growth and changes in capacity utilisation in the long run. Also, it allows for potential growth to become endogenous to actual demand driven growth. Finally, it seriously considers the role of institutions and power relationships for long-run growth – and for stagnation.

We have developed a simple Steindlian model of distribution and growth in order to identify the potential causes of stagnation, namely low capacity utilisation, low capital stock growth, low productivity growth and a low rate of profit. This model has then been used to outline Steindl's view on the golden age period of modern capitalism in the 1950s and 1960s, the reappearance of stagnation tendencies in the 1970s and their reinforcements by stagnation policy and the increasing dominance of finance capital since the 1980s. We have considered further developments of the Steindlian concept by Kaleckian/Steindlian/post-Keynesian authors in order to apply it to the contradictions of finance-dominated capitalism and the recent financial and economic crises. Finally we have drawn some broad economic policy conclusions in order to tackle the current tendencies of stagnation. These include the re-regulation of the financial sector in order to decrease the power of finance, the re-orientation of macroeconomic policies towards the stabilisation of domestic demand and employment, a strong focus of government policies on fostering technology, education and R&D, and the coordination of international economic and monetary policies.

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