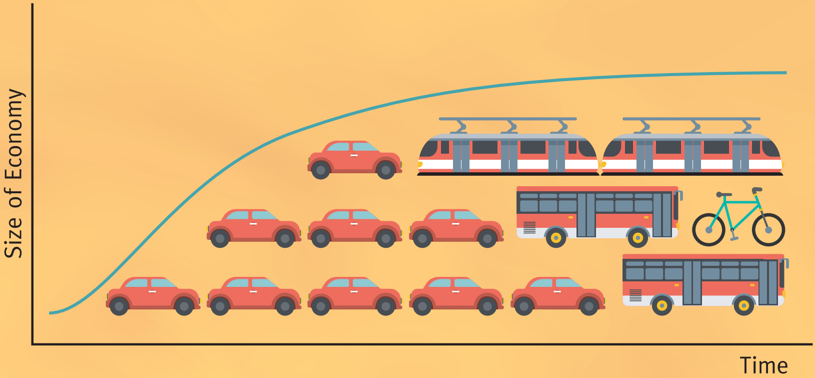

Steffen Lange

Macroeconomics Without Growth

Sustainable Economies in Neoclassical, Keynesian and Marxian Theories

Wirtschaftswissenschaftliche Nachhaltigkeitsforschung Band 19

metropolis

Steffen Lange

Macroeconomics Without Growth

Wirtschaftswissenschaftliche Nachhaltigkeitsforschung

Band 19

Editorial

In economics and management studies, sustainability is increasingly being discussed from various angles representing an impressive plurality of methodological and conceptual approaches. Advancing these approaches and critically reflecting traditional views of economics are the aims of this book series. It is an outlet for excellent research in sustainability-related economics and management studies with recognition in teaching and research contexts. Through a peer-review process, high quality standards are met to ensure visibility for forward-looking concepts and findings in the respective communities. The series seeks to contribute to the solution of pressing social and ecological challenges for our societies and to instigate debates about them in the academic disciplines as well as in the broader public. Going beyond a singular focus on ecological questions, the series' topics cover a wide spectrum of sustainability issues in all economics and management-related domains analysed with pluralistic methodologies. Building bridges to other disciplines is much welcomed including the social sciences, the humanities as well as the natural sciences..

Manuscript Submission and Review

Book manuscripts can be submitted directly to the publisher or to the managing editor of the book series. The managing editor coordinates the review process. Each manuscript will be reviewed by two reviewers.

Managing Editor

Prof. Dr. Bernd Siebenhüner, Ecological Economics, Carl-von-Ossietzky Universität Oldenburg, phone: 0441/798-4366, Email: bernd.siebenhuener@uni-oldenburg.de

Steffen Lange

Macroeconomics Without Growth

Sustainable Economies in Neoclassical, Keynesian and Marxian Theories

Metropolis-Verlag
Marburg 2018

Hans Böckler Stiftung

Mitbestimmung · Forschung · Stipendien

This book has been facilitated by a PhD scholarship of the Hans Böckler Foundation.

Bibliographic information published by Deutsche Nationalbibliothek

Die Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at https://portal.dnb.de

Metropolis-Verlag für Ökonomie, Gesellschaft und Politik GmbH http://www.metropolis-verlag.de

This book was submitted to and approved by the Faculty of Business, Economics and Social Sciences of University of Hamburg, for the degree of Dr. rer. pol. Day of disputation: 13th February 2017

ISBN 9783731612983 (Printausgabe)
ISBN 9783731662983 (Ebook)

Preface

This is a much needed book. It does not only fill an important research gap, but essentially opens up a vast field for (macro-)economic analysis and theory. Steffen Lange most elegantly visits many influential theoretical concepts in economics with his interest in the conditions for sustainable zero-growth economies. Through his open and unideological approach, he combines power-houses in the economics discipline with concepts that were hitherto considered as heterodox or even outside the economic disciplines.

The particular strength of the book is its unideological and, in the best sense of the word, academic approach to the different schools of thought in the realm of economics. Integrating different approaches such as Neoclassical, Keynesian and Marxian theories in the interest to understand their contributions to the questions at hand makes the book pluralistic in an outstanding way. Lange applies an interesting pluralistic method for his synthesis of the different theoretical findings and contributions that are at times complementary or conflictive.

The book is rigorous in its structure and its most systematic discussion of each and every relevant theory. It is a good read and full of interesting perspectives for anyone interested in macro-economic theories of environmentally and socially sustainable zero-growth economies. Even though some of the final results are highly demanding for the current political practice, they guide interesting ways of future political and societal developments.

I hope that this thought-provoking milestone in the Degrowth-debate finds many readers inside academia as well as in actual political and societal practice.

Bernd Siebenhüner (Oldenburg)

Summary of the Contents

Contents

III
KEYNESIAN THEORIES 217

List of Figures

List of Tables

List of Denotations

a	Households' assets	G_{me}	Gov. invest. in energy-intensive capital
A	Abatement	G_n	Government investment in natural capital
b	Ratio of banks' expenditure to revenues	G_s	Gov. cons. of human capital-intensive services
B	Population size	h	Profit share
B^s	Bonds supplied by firms	H	Average working hours per worker
B^d	Bonds demanded by households	i_3	Interest rate on loans
c	Constant capital	i_{m-1}	Interest rate deposits
C	Consumption	I	Investments
C	Productive capital	I_{mc}	Investment in energy-conserving capital
C	Clean goods	I_{me}	Investment in energy-intensive capital
C_A	Autonomous consumption	I_c	Investments in clean sector
C_c	Consumption in clean sectors	I_d	Investments in dirty sector
C_d	Consumption in dirty sectors	I_h	Investments in human capital
C_g	Consumption of energy-intensive services	I_n	Investments in natural capital
C_K	Consumption out of wages	I_t^B	Investments financed out of borrowed capital
C_m	Household investment in consumer durables	I_t^E	Investments financed out of equity capital
C_s	Consumption of human-capital intensive services	i	Interest rate
C_W	Consumption out of profits	j	Prime unit costs
d	Proportion between borrowed and equity capital	J	Investments in Research
D	Dirty goods	k	Capital intensity
D_K	Demand for capital goods	K	Capital stock
D_K^D	Demand for capital goods to replace depreciation	l	Labour coefficient
D_K^N	Demand for net capital goods	L	Labour supply
e	Share of retained savings	L^d	Labour demand
E	Emissions/Pollution	L^s	Labour supply
f	Share of additional investments saved	m	Mark-up
g	Rate of economic growth	M	Materials used in production process
g_hat	Rate of economic growth per capita	M	Money capital
g_B	Rate of population growth	n	Influence of the average price on individual prices

g_E	Growth rate of emissions/pollution	N	Quality of nature/environment
$g_H(t)$	Growth of average working hours per worker	NCR	Non-class revenues
g_{IP}	Growth rate of pollution intensity	o	Long-term changes in the inducement to invest
g_K	Growth rate of physical capital	p	Profit rate
g_L	Growth rate of labour supply	p_K	Price of capital goods
g_{LS}	Growth rate of labour supply	P	Prices
g_R	Growth rate of real GDP	P	Production process
g_R	Growth rate of natural resources use	P_B	Price of bread
g_R^{chain}	Growth rate of real GDP, chain-weighted	P_C	Price of computers
g_R^{pres}	Growth rate of real GDP, present year as base	P^e	Expected price level
g_R^{prev}	Growth rate of real GDP, previous year as base	P_F	Price by single firms
$g_Q(t)$	Growth of the employment rate	P_S	Price of shoes
g_T	Growth rate of the state of technology	q	Consumption rate out of profits
g_w	Growth rate of hourly wages	q	Organic composition of capital
G	Government spending	Q	Labour participation rate
G_c	Government spending in clean sectors	Q_B	Quantity of bread
G_d	Government spending in dirty sectors	Q_C	Quantity of computers
G_g	Gov. cons. of energy-intensive services	Q_S	Quantity of shoes
G_h	Government investment in human capital	r	Influence of non-normal profit rate on investments
G_{mc}	Gov. invest. in energy-conserving capital	r_I	Risk of inflation
R	Supply of natural resources	Π_{cb}	Central bank profits
s	Savings rate	Π_f	Entrepreneurial profits
s	Sales	π	Inflation
s	Surplus value	ρ	Time preference
s^{ac}	Surplus value used for constant capital	σ	Elasticity of subst. between production factors
s^{av}	Surplus value used for variable capital	Σ	Influence of changing capital stock on investments
s^c	Consumption out of surplus value	τ	Sales tax
S_K	Supply of capital goods	Υ	Overall effectiveness of research activities
S_K^A	Additional supply of capital goods	Φ	Ratio of abatement to production
$SSCP$	Subsumed class payments	ϕ	Output elasticity of natural resources
$SSCR$	Subsumed class revenues	χ	Intermediate goods

T	State of technology	Ψ	Interest payments by firms
T_P	State of technology regarding pollution	ψ	Credit constraints from banks
u	Rate of unemployment	Ω	Average pollution per unit of production
U	Difference between clean and dirty investments	ω	Point in time when dirty sector has disappeard
v	Capital coefficient	$\mathit{\Gamma}$	Share of profits earned by new investments
v	Variable capital	ε	Elasticity of substitution between the two goods
V	Velocity of money	ε	Influence of former income on expected income
w	Wage rate	$\mathit{\Theta}$	Normal rate of profit
w	Value of production	ϑ	Probability that research leads to invention
W	Wages	$\mathit{\Lambda}$	Influence of firms' savings on investments
x	Intermediate goods	$\mathit{\Xi}$	Preferences
X	Difference between clean and dirty consumption	$\mathit{\Pi}$	Influence of a change in profits on investments
X	Expenditures to secure monopoly revenues	ϖ	Productivity of research activities
Y	Level of production	ϱ	Factors influencing investments
Y^A	Production used for abatement	$\mathit{\Sigma}$	Number of investors
Y_c	Aggregate demand in the clean sector	ς	Rate of natural regeneration
Y_{Cum}	Sum of production over time	$\mathit{\Upsilon}$	Money capital
Y_d	Aggregate demand in the dirty sector	$\mathit{\Upsilon}_t^B$	Money capital financed out of borrowed capital
Y_D	Aggregate demand	$\mathit{\Upsilon}_t^E$	Money capital financed out of equity capital
Y_r	Realized income	$\mathit{\Phi}$	Ratio between equity and borrowed capital
Y_R	Real GDP	$\mathit{\Omega}$	Size of sectoral change
Y_R^1	Real GDP with base year 1	Б	Taxes
Y_S	Aggregate supply	Д	Wealth
z	Factors influencing the wage setting	д	Real wealth
Z	Second type of prod. factor besides labour	е	Real government expenditures
α	Parameter with changing meaning	Ж	Advances from the central bank
β	Parameter with changing meaning	З	Loans
γ	Parameter with changing meaning	И	Inventories
Γ	Resource-augmenting state of technology	и	Real inventories
δ	Rate of capital depreciation	Й	Firms revenues

η	Inventories to sales ratio	Л	Government debt
η^T	Target inventories to sales ratio	ф	Real Consumption
θ	Intertemp. elast. of subst. for consumption	Ц	Interest paid on borrowed capital
κ	Influence of abatement on pollution technology	Ч	Sales
Λ	State of environmental regulation	ч	Real sales
μ	Material costs per unit	Щ	Dividends
ν_e	Influence of investments on overall productivity	Ъ	Bills
ν_p	Influence of investments on single productivity	Ь	Bonds
Ξ	Potential output	Э	Production costs
ξ	Costs of intermediate products	Ю	Firms expenditures
Π	Profits	$Я_e$	Expected future demand
Π_b	Bank profits	я	Rate of capacity utilization

Chapter 1
Introduction

> Above all, there is an urgent need to develop a resilient and sustainable macro-economy that is no longer predicated on relentless consumption growth (Jackson, 2009b, p. 12).

The theme of this book is to provide a substantiated macroeconomic analysis of the conditions for sustainable economies without growth. There are good reasons to investigate how high-income economies can be organized without growth in the 21st century (1.1). The central question is not only how economies can be organized without growth, but also how this can be done in a sustainable manner (1.2). The present work investigates this question by applying theories from three macroeconomic schools of thought: neoclassical, Keynesian and Marxian (1.3).

1.1 Research Topic

The most prominent debate regarding an end of economic growth is on how this growth affects the environment. There are two opposing views on this issue. The first points out that further economic growth is compatible with the required level of emission reductions. The basic argument is that economic growth is growth in value (measured in GDP) rather than growth of a material magnitude, resource use or even emissions. Therefore, there is no categorical connection between economic growth and the state of the environment. Sometimes it is also argued that economic growth is necessary for environmental sustainability. The reasoning behind this points out that investments in clean production are required to achieve large reductions in emissions. Such investments also lead to economic growth.[1]

Adversaries point out that continuous economic growth is incompatible with environmental sustainability. The most common rationale argues that it is technically infeasible to sufficiently decouple the two. Another central point is that decoupling economic growth from one environmental problem leads to other environmental problems.[2]

Empirical scenarios show that reductions in emission-intensities have

[1] These and further key arguments of this perspective are summarized in section 2.2.2.

[2] Key arguments from this perspective are covered in section 2.2.3.

to be of a tremendous magnitude, which would be without precedence in economic history. One plausible, even obvious possible strategy is to reduce – or at least stop increasing – the level of production. From this perspective, it makes sense to investigate negative, zero or less economic growth as one component of a strategy to remain within planetary boundaries:[3]

> The conclusion shows that key climate targets are unlikely to be reached if economic growth continues on a global scale. Therefore, even a minimal consideration of the precautionary principle requires being open to stringent climate policies that may result in low or even negative growth (Antal and van den Bergh, 2016, p. 7).

One possible objection to investigating economies without growth out of regard for the environment is that economic growth should be seen as having no importance: When the objective is to achieve environmental sustainability, why talk about economic growth at all? Why not instead determine which changes are needed for environmental sustainability and implement them?[4]

There is a reason for discussing concepts for economies without growth nonetheless, namely that environmental effects are not the only relevant issue with regard to economic growth. The literature[5] presents multiple arguments for an end of growth. Four reasons are – in addition to environmental issues – central to the debate:

1. Economic growth is found to be insignificant for, or even detrimental to, social welfare. Studies on subjective well-being challenge the positive connection between well-being and growth in consumption. While it questions the significance of economic growth, this literature emphasizes the importance of low economic inequalities for high levels of economic welfare.[6] Sociological and cultural studies find relations between diverse social and individual problems on the one hand

[3] See section 2.2.5 for a more detailed discussion on decoupling from theoretical and empirical perspectives.

[4] This position is often called *a-growth*. See section 3.2 for a discussion.

[5] The discussion on economies without growth is grouped around four concepts: *steady state economies*, originating from Herman Daly's work in the 1970s; *degrowth*, with major contributions from the research group *Research and Degrowth*; Anglophone contributions from the central authors Tim Jackson and Peter Victor on *prosperity and managing without growth*; and *Postwachstum*, advocated by a diverse group of German-speaking proponents. These concepts are discussed in detail in chapter 3.

[6] This literature is discussed in more detail in section 2.1.3.

and activities and attitudes related to economic growth on the other.[7] From this point of view, organizing economies without growth has the potential to improve social welfare.

2. It is argued that economic growth is necessary for social and economic stability within the existing economic system and its institutions. Economic growth is related to several types of stabilities. First, growth is regarded as necessary to prevent large-scale unemployment. As employment is important for individuals both economically as well as socially, high unemployment constitutes a reason for social instability.[8] Second, growth is also argued to be necessary for stability in society as a whole because it appeases distributional conflicts between different social groups.[9] Third, macroeconomic stability, in particular regarding monetary aspects, supposedly depends on economic growth.[10] If environmental policies lead to zero or negative growth rates, it is essential to address these issues. In other words: When zero growth is introduced due to environmental reasons, it is necessary to also address how issues of social and economic stability can be taken into account.
3. Proponents of economies without growth argue that an end of economic growth in early industrialized countries can contribute to alleviating global inequalities and injustices. One reason is the impact on global climate change: Early industrialized countries bear a major responsibility for climate change, while low-income countries suffer disproportionately from the consequences. Reductions in the level of production in the former could help to prevent climate change and therefore reduce the consequences for the latter. Another reason regards the access to global resources, i.e., mineral resources, agricultural land, water, etc. Less demand by the global north would facilitate access by the global south.[11]
4. A different set of research discusses whether the economies of early industrialized countries are characterized by diminishing rates of economic growth. If economic growth further declines in the future, it

7 These issues play important roles in existing concepts on economies without growth, see chapter 3.

8 The relationship between economic growth and employment is an important topic throughout this work. See in particular sections 3.6.5 and 22.6.

9 See section 3.4 for a further discussion.

10 See in particular section 3.6.7 and the discussions in part III.

11 This issue is particularly present in the debate on degrowth, see section 3.2.

> is necessary to start finding solutions now to the potential resulting economic and social problems.[12]

Discussions on economies without growth attempt to analyse and find solutions to these (and sometimes additional) issues. In other words, they discuss how economies can be organized so that they are environmentally sustainable, facilitate a high level of social welfare, reduce or abolish global inequalities and cope with the new situation of declining rates of economic growth.[13] This has been attempted by other strands of literature as well.[14] The unique feature of the discourse on economies without growth is that economic growth is regarded as a connecting link between these issues. More precisely, it is argued that an end of economic growth is regarded as necessary or at least helpful to achieve these goals.

In principle, one could also investigate these issues without talking about economic growth. One could study how the economy has to be redesigned in order to be environmentally sustainable, lead to high social welfare, be socially and economically stable, promote global justice and cope with the circumstances that currently cause low growth rates in the early industrialized countries. But such an analysis is in the very least extremely challenging and maybe even impossible. This is because the issues are so diverse and complex. A researcher would not know where to begin with her analysis, as there are a countless number of possible sets of conditions that could solve the problems.

The issue of economic growth constitutes an analytical link between these issues that allows them to be connected. If the analyses are correct that zero growth would help to achieve these environmental and social goals, then it makes sense to link the issues via the aspect of zero growth. In other words: The major motivation to investigate economies without growth is to facilitate an integrated analysis of and combined solutions to these issues.

Another motivation to question economic growth is that it facilitates new analytical perspectives. Often discussions on these issues assume economic growth (sometimes explicitly, sometimes implicitly) and try to find solutions based on this assumption. Questioning economic growth triggers new types of questions and opens up new combinations of solutions to the issues. As Giorgos Kallis puts it:

12 See section 2.1.2 for a discussion on the empirical relevance and section 2.3 for theoretical explanations of declining growth rates.

13 These discussions are summarized in chapter 3.

14 A recent historical example are critical analyses of economic globalization, which refer to a similar set of social and environmental problems.

> [The] persistence to defend degrowth is productive: it forces to research questions that no one else asks. Sure, we can in theory use fewer materials; but then why do material footprints still grow? What would work, social security, money, look like in an economy that contracts? One who is convinced of green growth won't ask these questions (Kallis, 2015b).

The subsequent question is, then, what contribution can be expected from a macroeconomic analysis. There are many sophisticated books, research articles, reports and other publications on how economies without growth can function. But the number of contributions from macroeconomic perspectives is very limited. The economics profession in general has been comparatively silent on the topic (Pollitt et al., 2010). Many of the existing analyses rest on the theoretical framework of ecological economics, which has contributed greatly to understanding the economy-environment relationship but is less insightful regarding macroeconomic analyses, or as Spash and Schandl (2009b) put it, "[e]cological economics has no specific macroeconomic approach" (p. i).

The present work is intended to help fill this gap of analyses from macroeconomic perspectives. By applying it to three prominent schools of economic thought, it connects discussions on economies without growth to important macroeconomic discourses. Due to the width of the topic, various central macroeconomic aspects are discussed – aggregate supply and demand, investments, employment, technological change, ownership structures, market conditions and many others.

The investigation leads to sets of macroeconomic conditions for sustainable economies without growth. These are initially developed for each school of economic thought. An initial contribution is therefore to point out whether and how sustainable economies without growth are possible within each macroeconomic paradigm.[15] Furthermore, the results are compared and integrated across the paradigms in order to come closer to a comprehensive set of conditions for sustainable economies without growth.[16]

1.2 Research Object

How economies can be organized without growth is a large and complex issue. In order to be able to conduct the investigation, economies without

[15] The results can be found in chapter 9 for neoclassical, chapter 14 for Keynesian and chapter 19 for Marxian theories.

[16] This is done in part V and leads to a synthesis of conditions in chapter 23.

growth are defined, followed by differentiating the research question and specifying the specific research contribution of this work.

1.2.1 Economies Without Growth: Definitions and Restrictions

The research object is narrowed and clarified in three ways: (1) economies without growth are defined; (2) the kinds of economies that are investigated are specified; (3) population growth and international considerations are excluded from the analysis.

(1) In existing concepts for economies without growth, there are multiple notions on what the aspired transformation implies for the development of gross domestic product (GDP). The concepts differ in their analyses on whether economies have to shrink before they can become environmentally sustainable. When they reach this state, authors of all of these concepts argue that the economies will be characterized by a relatively stable level of production. At the same time, GDP does not need to stay exactly constant but can plausibly fluctuate somewhat over time.[17] This is what is meant by economies without growth. Hence, *economies without growth are defined as economies with a constant level of production – as measured by GDP – in the long run, while allowing for short-term fluctuations.* The term *zero growth economies* is also used frequently and interchangeably with economies without growth.

Economies without growth and zero growth economies are *not* equal to the following terms: *a steady state in economic growth theories* (constant relations between macroeconomic variables) *steady state economies* (economies with a constant level of material throughput); *economies in a stable steady state* (economies with constant stocks and flows); *economies in a stationary state* (where no macroeconomic variable changes at all); or *degrowth economies* (where production declines).

(2) The present work is intended to improve the understanding for high-income, early industrialized countries in the 21st century, because the motivations for an end to economic growth may not apply to other country groups[18] and because the applied macroeconomic theories, were intended for industrialized countries. The analysis focusses on the early 21st century because it is refers to the current economic and environmental situations of such economies. [19]

(3) Finally, the analysis is restricted to zero population growth and closed economies. The assumption of zero population growth seems to be a reasonable simplification, as the populations in most early industrialized

[17] See chapter 3 for a more nuanced discussion of the four concepts.

[18] See sections 2.1.3 and 2.2.

[19] See section 2.3.

countries are not expected to change significantly in the 21st century (United Nations, 2015).[20] The assumption of closed economies is more problematic, as many early industrialized countries are deeply integrated into the world economy. Both simplifications have been made to narrow down the research topic to a manageable level of complexity.

1.2.2 Research Question(s)

Organizing economies without growth is not an end in itself. As Kallis (2011) puts it: “None in the degrowth research community has argued in normative terms for ‘striving for negative GDP growth’ ” (p. 874). As argued above, the perspective is rather that an end of economic growth is a common prerequisite to achieving diverse social and environmental goals. Five goals were highlighted above: environmental sustainability, social welfare, social and economic stability, global justice and coping with declining growth rates.

Of these five goals, the first three are explicitly discussed in the analysis. They are slightly reformulated in order to be able to investigate them within macroeconomic theories. Instead of social welfare, the goal of low economic inequalities is used, based on the arguments in section 2.1.3. Social and economic stability are reduced to economic stability.

Global injustice is not taken into account in the analysis, due to the restriction to a closed economy. The issue of coping with declining growth rates is taken into account in a different manner than the other issues, because its relation to economies without growth is different. Zero growth implies that the economies are transformed from the current situation of declining growth rates to economies with zero growth. The analysis therefore takes into account the reasons for declining growth rates in the first place and connects the conditions for zero growth to them.

Hence, this work investigates which conditions lead to *sustainable economies without growth*, where sustainability refers to the three dimensions of environmental sustainability, social welfare and economic stability.[21] This main research question is subdivided into four subquestions. The focus on the analysis is on macroeconomic conditions for economies

[20] Large numbers of migrants can alter this situation. But due to the fact that all international aspects are excluded from the analysis, migration is not taken into account either.

[21] The author is aware of the fact that using the term sustainable when taking into account solely environmental sustainability, economic inequalities and economic stability may not do justice to the concept of sustainability. The term is nevertheless used in order to be able to include at least a limited number of relevant social and environmental issues in the analysis of economies with zero growth.

without growth (subquestion 1). As argued above, zero growth is not an end in itself, but a precondition for achieving social and environmental goals. Therefore, the investigation also focuses on what additional conditions facilitate environmental sustainability (subquestion 2), low economic inequalities (subquestion 3) and economic stability (subquestion 4). Based on the results from these four subquestions, the main research question is discussed.

Main research question.
Which macroeconomic conditions lead to sustainable economies without growth?

Subquestion 1. *Which macroeconomic conditions lead to economies without growth?*

Subquestion 2. *Which macroeconomic conditions facilitate improvements regarding environmental sustainability in economies without growth?*

Subquestion 3. *Which macroeconomic conditions facilitate low economic inequalities in economies without growth?*

Subquestion 4. *Which macroeconomic conditions facilitate economic stability in economies without growth?*

1.2.3 Research Gap

Several authors have already investigated economies without growth using macroeconomic frameworks. These investigations take one of the four following forms.

First, there is a large strand of literature within ecological economics on limits to economic growth due to physical considerations, such as entropy laws and the role of energy use for increases in labour productivity. While these contributions are of great importance for the physical side of the economy, their connections to common macroeconomic frameworks are weak (Spash and Schandl, 2009b).[22]

Second, there are various authors who argue for an automatic end of economic growth, including analyses from classical economists and contributions from both supply side and demand side perspectives. They provide a helpful analysis on the current state of affairs in early industrialized countries. Usually, these investigations regard low growth scenarios as undesirable, however. Therefore, they commonly do not ask under

[22] See chapter 3.

what conditions economies without growth can generate positive results concerning social and environmental goals.[23]

A third set of investigations conduct general macroeconomic analyses but do not base them explicitly within macroeconomic theories. In other words: These contributions discuss the central macroeconomic aspects, such as aggregate demand, aggregate supply, technological change, the monetary system, etc., but they do not formulate this analysis by explicitly referring to a comprehensive macroeconomic theory or model. A good example is the seminal book *Prosperity without growth* (Jackson, 2009a). Jackson does an excellent job of combining elements from different schools of economic thought, in particular approaches from ecological, Keynesian and Marxian economics, in order to analyse why the economy grows. He does not use a full-grown theory or model of either of them, though. Another example is the very insightful and concise book *Postwachstum* (Schmelzer and Passadakis, 2011). The book entails a good analysis of the drivers of economic growth. But as this analysis is not explicitly based within a macroeconomic framework, the connections between the analysis and the proposals for post-growth economies remain weak. Similar arguments could be made on various other prominent contributions such as Daly (1991), Victor (2008), Latouche (2009), Paech (2012), Seidl and Zahrnt (2010b), D'Alisa et al. (2014) and several others.[24]

Contributions from a fourth group explicitly base their analyses within well-formulated theories or models, but make use of very specific models and/or examine very specific issues. Two examples illustrate this point. Victor and Rosenbluth (2007) analyse conditions that lead to social and environmental goals and at the same time generate zero or very low growth rates. They do so, however, by using a very specific computer-based model, with all the limitations concerning theoretical comprehensiveness that come along with it. A second example is the sophisticated discussion on the relation between the monetary sector and zero growth economies.[25] Due to their formal approach and very specific issue, such contributions are unable to take into account other considerations apart from monetary flows (these specific models are summarized for each school of economic thought in the introductions of the respective parts – chapters 5, 10 and 15).

In short, there is a lack of research on conditions for economies without

[23] See section 2.3.

[24] See chapter 3.

[25] See section 3.4.4.