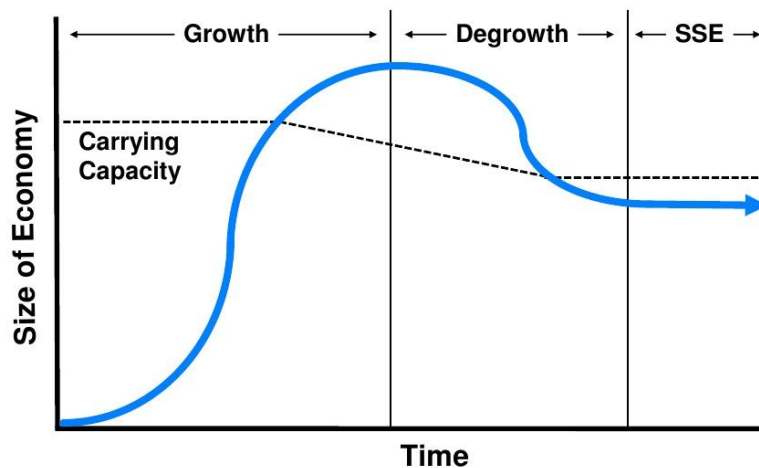


Macroeconomics of Degrowth

The Degrowth Transition to a SSE



2

Dr. Steffen Lange
IÖW – Institut für ökologische
Wirtschaftsforschung, Berlin

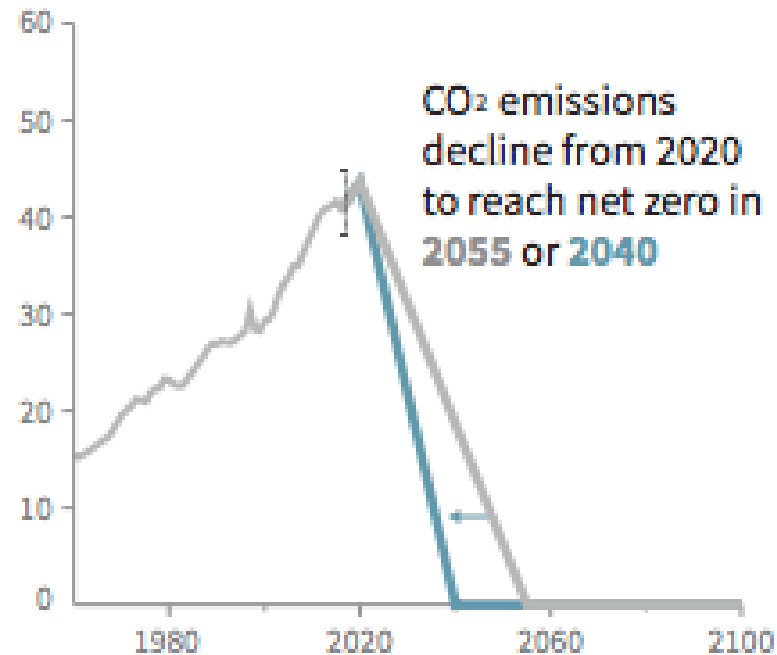
Content

Part I: Different strategies: Green Growth, A-Growth, Growth Independence, Degrowth

Part II: Macroeconomics of Zero Growth

Part I: Different strategies:
Green Growth, A-Growth,
Growth Independence, Degrowth

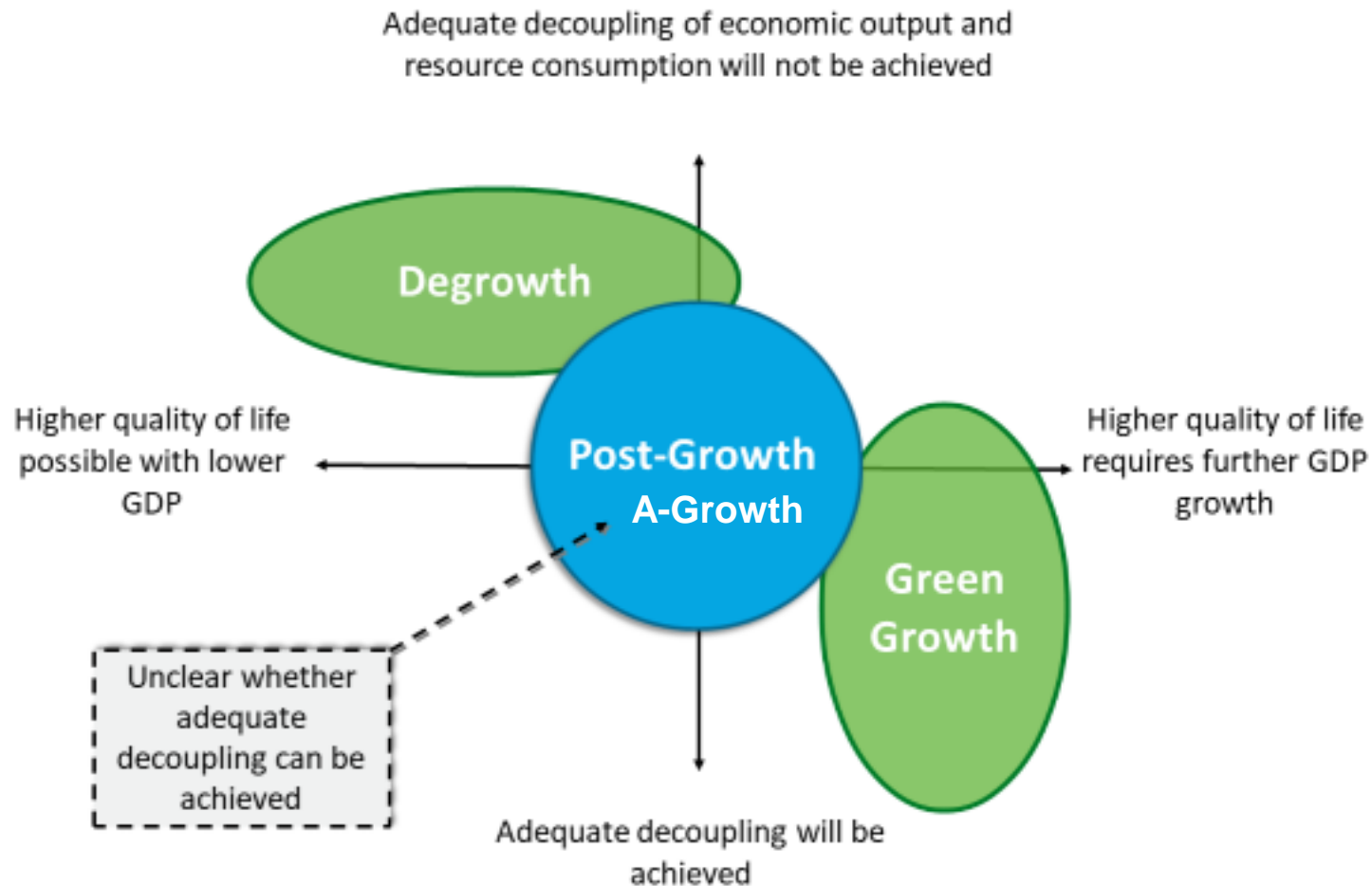
Motivation



Faster immediate CO₂ emission reductions limit cumulative CO₂ emissions shown in panel (c).

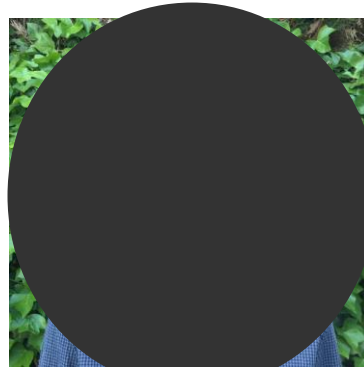
IPCC Special Report on Global Warming of 1.5°C (2018).

Different strategies

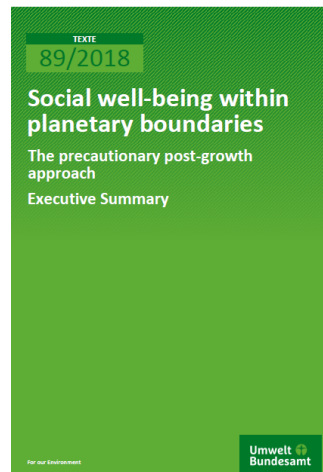


A-Growth and Sufficiency

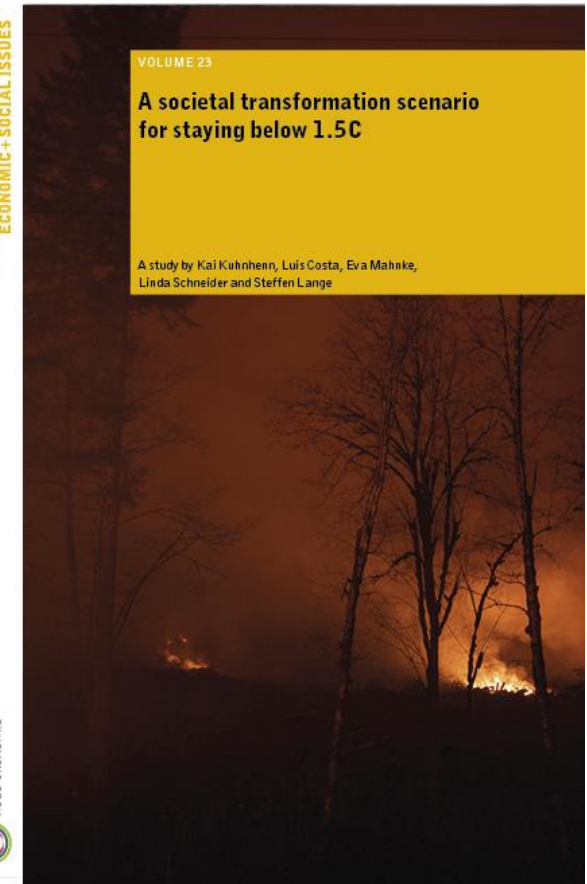
- Simple version: Cap-and-trade system for greenhouse gases
- More complex version: Various policies to reduce emissions
- Whether this leads to positive or negative growth does not matter
- Sufficiency measures part of this?



Jeroen van den Bergh

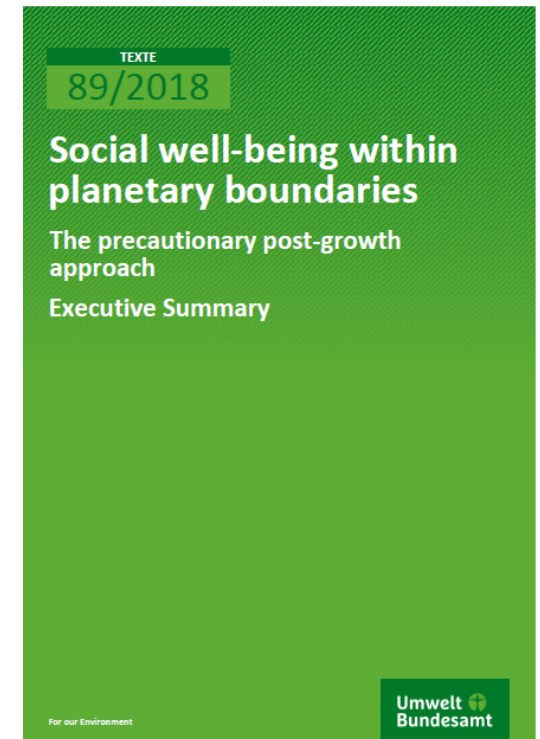


HEINRICH BÖLL STIFTUNG
ECONOMIC + SOCIAL ISSUES



Growth Independence

- Analysis:
 - Certain institutions are growth dependent
 - Strict environmental policies might lead to economic shrinkage
 - This would have strong negative social consequence – which is why the policies are not put into place
- Central examples:
 - Employment and wage income
 - Social security systems



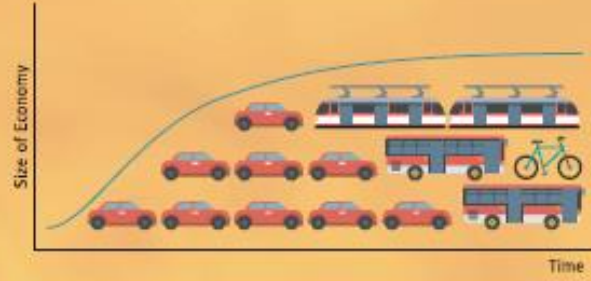
Part II: Zero Growth

m

Lange

Macroeconomics Without Growth

metropolis



Steffen Lange

Macroeconomics Without Growth

Sustainable Economies in Neoclassical,
Keynesian and Marxian Theories

Wirtschaftswissenschaftliche Nachhaltigkeitsforschung **Band 19**

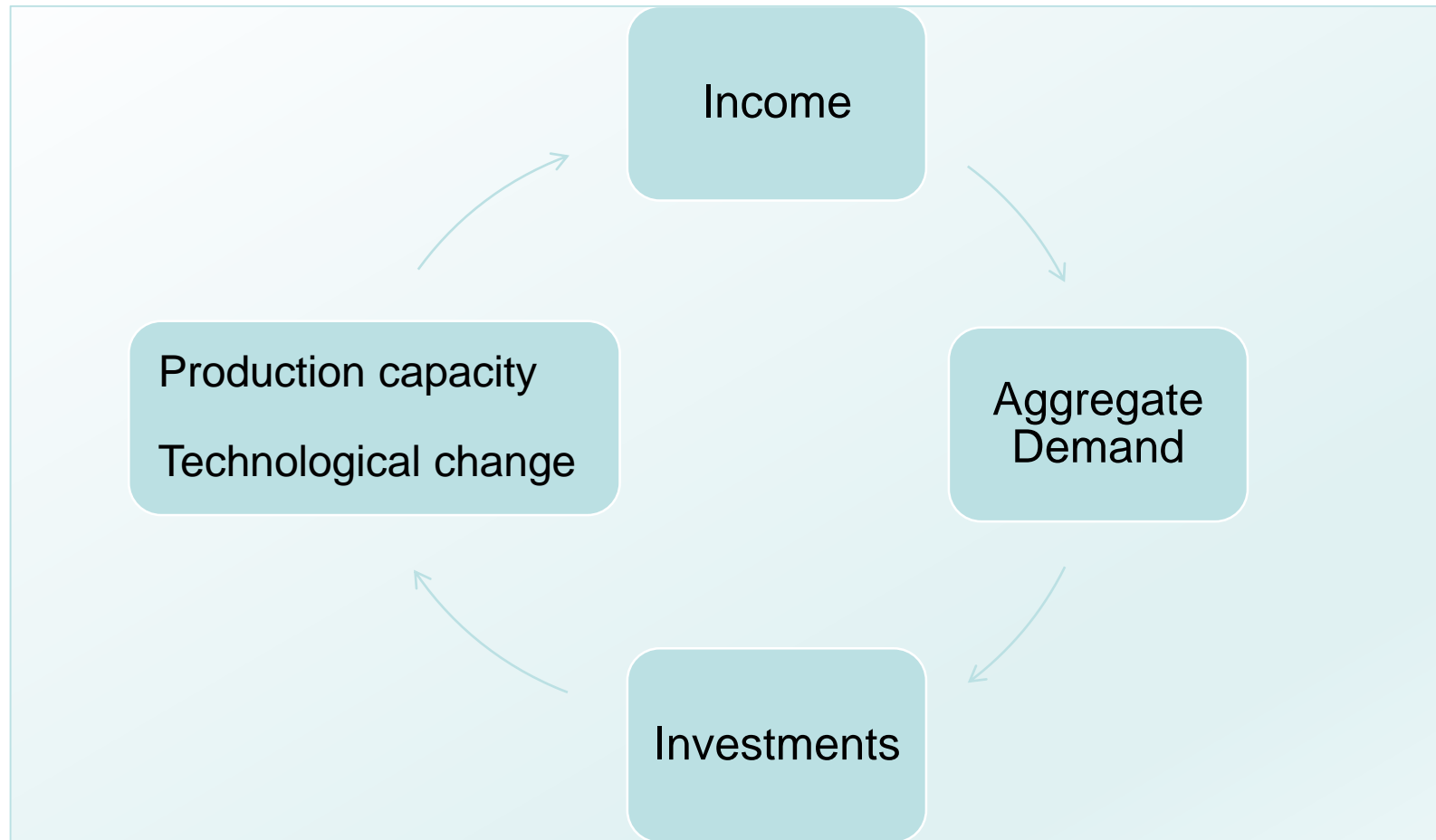
Plural Theories

II	NEOCLASSICAL THEORIES	109
Chapter 5		
Introduction		111
Chapter 6		
Fundamentals		115
6.1 Basic Macroeconomic Model: Neoclassical Foundations		115
6.2 Solow Model: Savings and Capital Accumulation		121
6.3 Neoclassical Growth Model: Microfoundations		128
6.4 Results and Discussion		134
Chapter 7		
Endogenous Technological Change		143
7.1 AK Model: Human Capital and Improvement of Knowledge		143
7.2 Endogenous Techn. Change I: Extension of Technologies		147
7.3 Endogenous Techn. Change II: Replacement of Technologies		150
7.4 Directed Technical Change: Different Types of Techn. Change		154
7.5 Results and Discussion		161
Chapter 8		
Environment and Technology		167
8.1 Dasgupta-Heal-Solow-Stiglitz Model: Substitution and Techn. Change		168
8.2 Green Solow Model: Abatement		173
8.3 AK Model with Environment: Abatement Depending on Techn. Change		175
8.4 Endogenous Techn. Change with Environment: Natural Resources		178
8.5 Directed Technical Change with Environment: Clean and Dirty Sectors		180
8.6 Results and Discussion		187

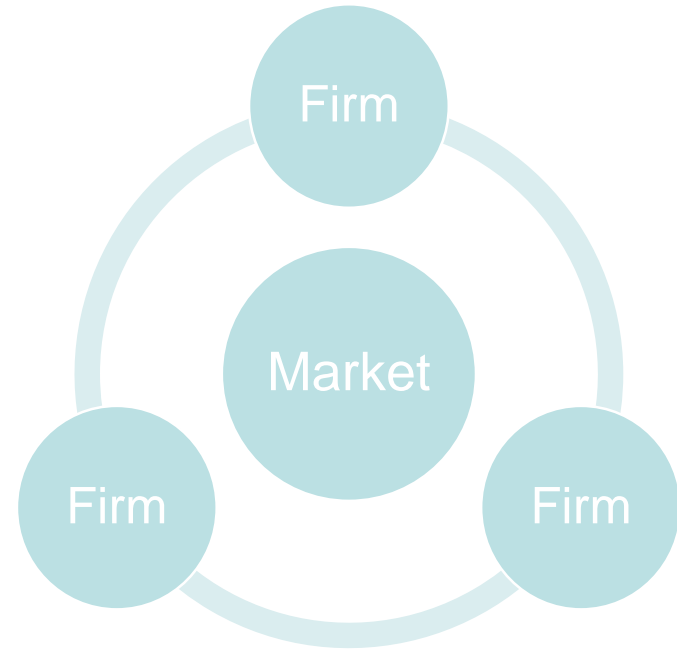
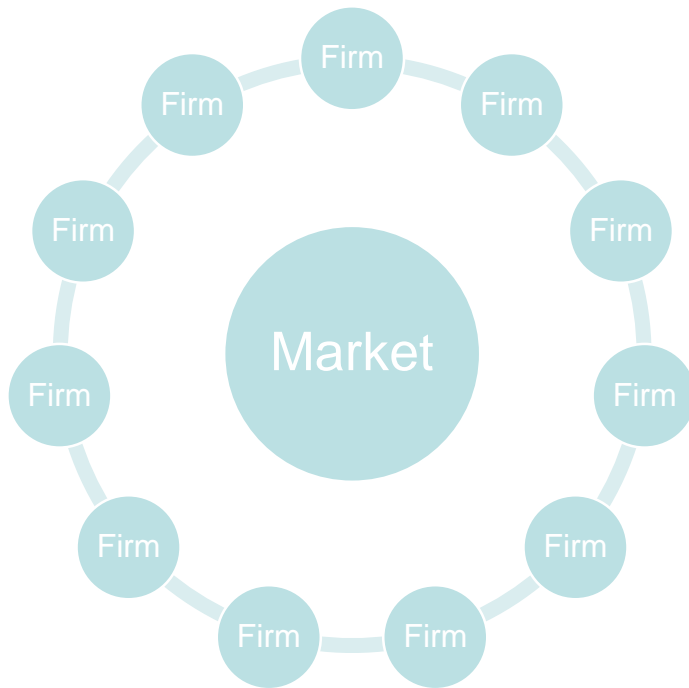
III	KEYNESIAN THEORIES	217
Chapter 10		
Introduction		219
Chapter 11		
Fundamentals		225
11.1 Keynes: Effective Demand		226
11.2 Harrod: Warranted, Actual and Natural Growth		243
11.3 Domar: Capacity and Demand Effects		247
11.4 Neoclassical Synthesis: Aggregate Demand and Aggregate Supply		251
11.5 Kalecki: Investments and the Business Cycle		257
11.6 Kaldor: Technical Progress Function		275
11.7 Robinson: Biased Technical Change		280
11.8 Results and Discussion		288
Chapter 12		
Monetary Theories		295
12.1 Davidson: Revenue Expectations and Monetary Constraints		296
12.2 Monetary Keynesianism: Equilibrium Without a Labour Market		304
12.3 Binswanger: Growth Imperative and Growth Impetus		312
12.4 Godley and Lavoie: Stock-Flow Consistent Models		324
12.5 Results and Discussion		336
Chapter 13		
Environment and Demand		339
13.1 IS-LM-EE: Environmental Constraints		340
13.2 Harris: Clean and Dirty Sectors		345
13.3 Fontana and Sawyer: Environmental Depletion Rate		351
13.4 Results and Discussion		355

IV	MARXIAN THEORIES	395
Chapter 15		
Introduction		397
Chapter 16		
Fundamentals		403
16.1 Marx: The Accumulation of Capital		404
16.2 Conditions for Sustainable Economies Without Growth		415
16.3 Results and Discussion		423
Chapter 17		
Theory of Monopoly Capitalism		427
17.1 Monopoly Capitalism		428
17.2 Conditions for Sustainable Economies Without Growth		442
17.3 Results and Discussion		448
Chapter 18		
Environment and Capitalism		451
18.1 Capital Accumulation With Fossil Fuels		451
18.2 Conditions for Sustainable Economies Without Growth		463
18.3 Results and Discussion		468

Keynesian Theories



Marxian Theories



Surprising results

- In neoclassical and Keynesian theories, zero growth is not a problem in principle
 - Central role of technological change
 - Business Cycle around zero growth (for example Kalecki)
 - Binswanger's theory of growth imperative depends on few assumptions
- In Marxian theories, zero growth more difficult. Reasons:
 - Interest to accumulate by capitalists
 - Coercion to invest and grow

Synthesis

Supply side

Increases in productivities need to be outbalanced by reductions in supply of production factors. For example:

Equivalence between reductions in labour supply ($-g_{LS}$) and growth in labour productivity (g_T)

$$-g_{LS} = g_T$$

Equivalence between reductions in resource supply ($-g_R$) and growth in resource productivity (g_Γ)

$$-g_R = g_\Gamma$$

- and constant capital productivity and capital stock

$$g_K = 0$$

Demand side

Changes in different components of aggregate demand need to outbalance one another

$$\Delta I + \Delta C + \Delta G = 0$$

Assuming constant capital depreciation and a constant capital productivity, investments stay constant

$$\Delta I = 0$$

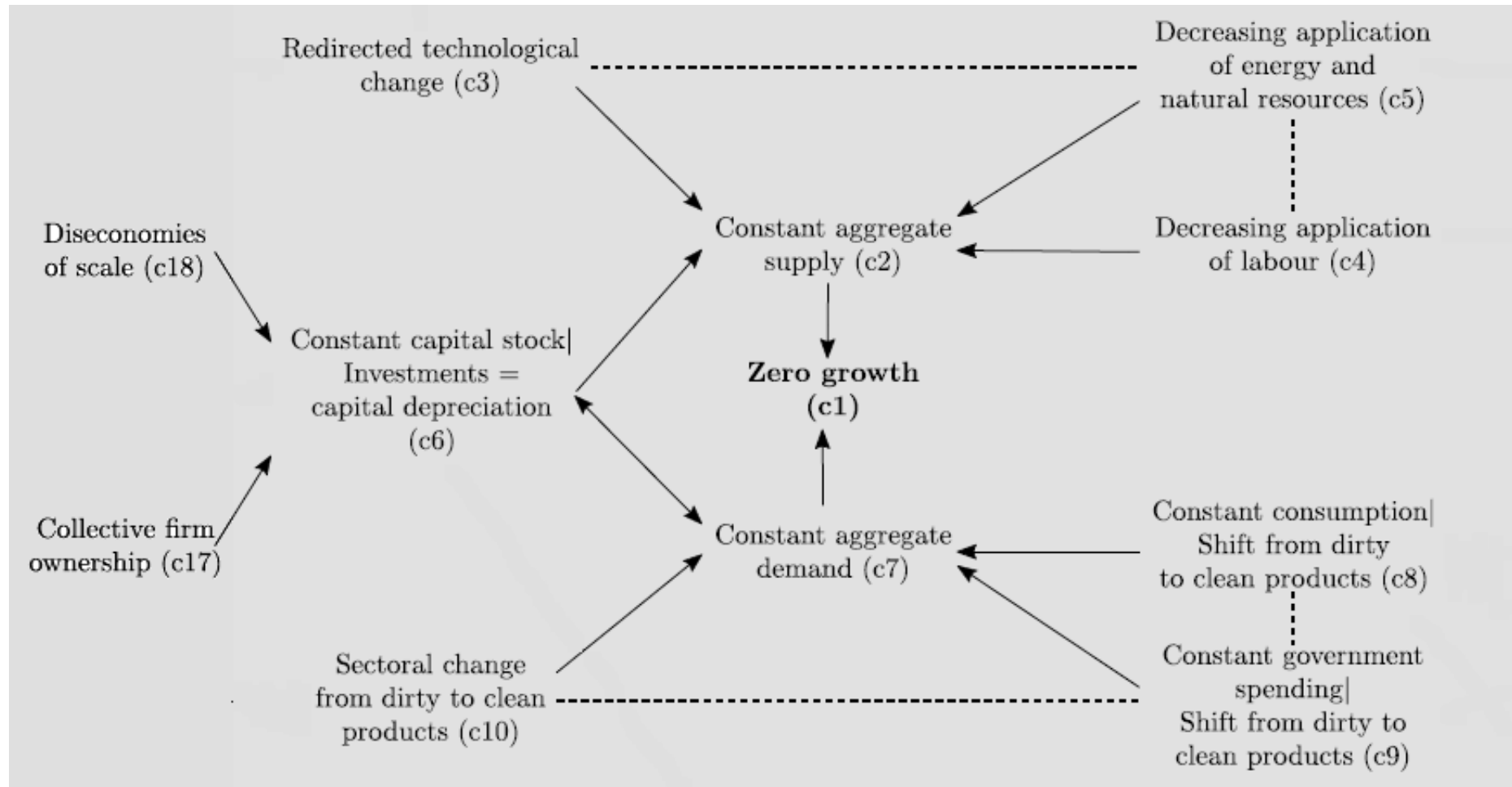
Therefore

$$\Delta C + \Delta G = 0$$

Savings equal investments

$$S = I$$

Synthesis

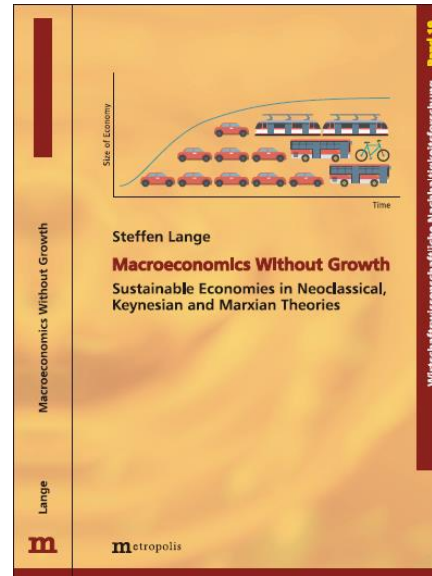
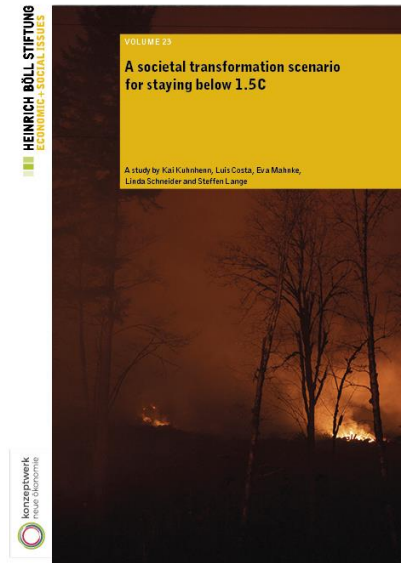
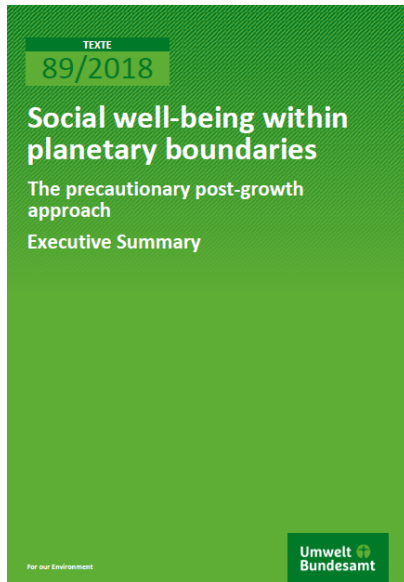


Relation to the growth and environment debate

- Important question: What is the cause for less/zero growth?
 - Strict environmental limits (exergy economics)
 - Redirected technological change combines reduced energy and resource consumption with high employment -> working hours reductions depend on degree of substitution between energy and labour
 - Less consumption and/or government spending
 - Necessity to redistribute work and/or provide income beyond wage-labour
 - Question of distribution always a central issue

Additional questions:

- What will capitalism in the economic sense do? In particular the financial system?
- What will the political economy of capitalism do?
- Relation to gender questions (wage vs. reproductive work)
- International competition



Thank you.

Dr. Steffen Lange
IÖW – Institute for Ecological Economy Research, Berlin