Growth imperatives as a conflict between efficiency and justice

Dissertation

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Abstract

Economic growth (i.e., GDP increase) is a key concept in economics and politics. It is regarded as indispensable for sustainably securing an adequate standard of living and as an important prerequisite for solving (or at least mitigating) social distribution problems. However, the ecological effects of economic growth are now catastrophic, and the social benefits of further growth at a high level are controversial. For a long time, therefore, both activists and social scientists have debated the question of whether individual or collective decisions for economic growth are truly voluntary or whether coercive mechanisms of some kind make economic growth inevitable. In this discourse, virtually all concepts are "essentially contested" and many terms are not consistently defined.

The aim of this interdisciplinary theoretical work is a fundamental investigation and clarification of terminology and conceptual approaches and subsequently a substantiated answer to the question whether growth imperatives exist or not, and if so, what the social and/or economic mechanisms are. Much of the research work was done in collaboration with Oliver Richters (see Preface).

We structured the debate on growth imperatives along two dimensions: (a) degree of coerciveness between free will and coercion, and (b) agents affected. With carefully derived micro level definitions of "social coercion" and "growth imperative," we discussed several mechanisms suspected to make growth necessary for firms, households, and nation states. We identified technological innovations as a systematic necessity to net invest, trapping firms and households in a positive feedback loop to increase efficiency.[1] Resource-intensive technology is economically attractive because of a subtle violation of the so-called meritocratic principle. The dilemma between "technological unemployment" and the social necessity of high employment explains why nation states must foster economic growth. All other mechanisms discussed deemed us to be implausible under our definitions.

Three topics required more detailed investigation due to their discursive history and substantive importance: (1) It is disputed whether a growth imperative is located within the current monetary system. To examine the claim that compound interest compels economies to grow, we presented five post-Keynesian Stock-Flow-Consistent models and showed how to perform a stability analysis in the parameter space. The other claim that retained profits from the interest revenues of banks create an imperative is based on circuitist models that we considered refutable. Their accounting is inconsistent, and a modeling assumption central for a growth imperative is not underpinned theoretically. (2) A growth imperative only for firms who then encounter consumers *un*willing to consume would quickly die out. But up to now,

[1] Throughout this work, the plain term "efficiency" is used in the sense of optimal individual effort, not in the sense of the Pareto efficiency of Economics where it means the optimal distribution of net benefits.

unwillingness to consume is a rarity, and the reasons why consumers are buying more and more are disputed. I explore the thesis that *both* firms and consumers frequently acquire goods that increase their *efficiency* (productivity). For firms, efficiency is accepted as a main investment motive, but for consumers it is usually framed as convenience, ease, or comfort. Via social diffusion processes certain consumer goods that can save time and costs are transformed from a welcome expansion of possibilities into a social imperative whose noncompliance over time also has economic drawbacks. This leads to similar positive feedback-loops for consumers and firms, contributing to a vicious circle of economic growth. (3) The social norm *Meritocratic Principle* is crucial for a detailed understanding of how the growth imperative works but its actual significance for distributive justice is disputed. Three principles of distributive justice occupy center stage in the debate: merit (aka equity or desert), need, and equality. Yet their relation remains diffuse, and current theory does not inform political practice. I argue that from an evolutionary point of view, the primary principle of justice is reciprocity in social exchange (what corresponds to merit). Need and equality are auxiliary principles when merit is not effective, not efficient, or not communicable. The reciprocal social norm *Meritocratic Principle* can be implemented, and its controversy avoided, by concentrating on "non-merit," i.e., institutionally draining the wellsprings of undeserved incomes (economic rents). Avoiding or taxing away economic rents is an effective implementation of justice in market economies.

Contents

Preface

My personal interest in the question "Why can't we stop clinging to growth?" emerged around the year 2000 when I observed the rapid spreading of mobile phone use among consumers. Intuitively I felt that in the long run this would not lead to the anticipated relief from time constraints but just the opposite. In 2011, I realized that I, as a software developer for business software, was contributing to an acceleration of society myself, in the sense Rosa (2005) had described, and that no end of this development was discernible. I reduced my working time and began to scrutinize the relation between technical productivity increases on the one hand (a field that I was an expert in) and its social and ecological challenges on the other hand (a field that was new to me). From 2012 on I systematically acquired knowledge from all branches of the social sciences, mainly sociology, economics, and moral philosophy, but also social psychology, sociobiology, anthropology, rhetoric, economic history, political science, and demography.

In April 2014, a conclave of the board and members of the German Society for Ecological Economics (Vereinigung für Ökologische Ökonomie, VÖÖ) was held in Bromskirchen, Germany. During this meeting, a "Working Group on Growth Imperatives" was founded, then and until today consisting of two members, Oliver Richters and me. Both we had degrees in physics combined with a socio-economic background, Oliver Richters mainly in neoclassical and heterodox economic theory, me in practical business economics and social sciences in general. We were interested in the topic of growth imperatives but unsatisfied with the state of the debate. In particular, arguments in favor of a systemic growth imperative within the monetary system (Binswanger and Beltrani, 2009; Binswanger, 2013; Binswanger, 2009, 2015) deemed us to be implausible, but again and again we encountered people referring to this argument, often more like a stereotype. Our goal was a thorough review of the major substantial contributions to the theoretical debate on growth imperatives and – if possible – a definitive answer.

In 2016 we decoupled a separate article from our main work, focusing on the monetary growth imperative. It was published in *Ecological Economics* one year later (Richters and Siemoneit, 2017a, #2, Section 3.2). We also prepared two correlated discussion papers, the first (Richters and Siemoneit, 2017c) containing definitions of terms and a review of possible <u>socio-cultural</u> mechanisms suspected to cause a growth imperative, the second (Richters and Siemoneit, 2017b) discussing possible <u>economic</u> mechanisms. Parallel to that I published a discussion paper on "efficiency consumption" (Siemoneit, 2017), returning to my first obser-

vations mentioned above. I argued that personal efficiency increases are a major and specific consumption motive. Those efficiency increases would, however, contribute to further growth on the supply side and hence be part of a vicious circle.

When we tried to transform these discussion papers into journal articles we had difficulties to find journals and convince editors and reviewers. We had to condense Richters and Siemoneit (2017c,b) into a single article, thereby extending the section about the relevance of the social distribution norm *Meritocratic Principle*. We also published a German nonfiction book on how market economy is normatively based on the meritocratic principle and how markets can be made more just: Economic rents are the Achilles heel of markets and should be prevented or redistributed (Richters and Siemoneit, 2019b).

Our main article was finally accepted in 2019 by *Structural Change and Economic Dynamics* (Richters and Siemoneit, 2019a, #1, Section 3.1). It can be considered the central article of this dissertation, stating our "basic theorem," but central aspects, however, could at that time only be supported by discussion papers and our book. Parallel to the main article, an English and revised version of the discussion paper on efficiency consumption was published in *Technology in Society* (Siemoneit, 2019, #3, Section 3.3).

Only in 2020 I began to author an article about what had become a core aspect of our work. I discussed how the evolved mechanism of reciprocity is the foundation of our sense of justice and translates into the social norm *Meritocratic Principle*. A discussion paper version was published in 2021 (Siemoneit, 2021). The final article was submitted to *Social Justice Research* in April 2022 (#4, Section 3.4) where it is currently under review.

1 Introduction

"It is not from the benevolence of the butcher, the brewer, or the baker
that we expect our dinner, but from their *sense of reciprocity*."
– as Adam Smith didn't say –

1.1 Problem Description and Relevance

1.1.1 The Prevalence of Growth

Economic growth is a primary political goal of governments worldwide and already appears in the title or on the first pages of corresponding government reports.[1] In some cases, governments are even legally committed to this goal.[2] At the same time, the physical expansion of economic activity is one of the most important reasons for an accelerating global ecological crisis ("Great Acceleration," "Planetary Boundaries," Rockström et al., 2009; Steffen et al., 2015). The social benefits of further economic growth are doubted: GDP growth would not be a meaningful measure of social progress, and in industrialized countries it hardly contributes to an improvement of the social situation (Easterlin, 1973; Kubiszewski et al., 2013; Stiglitz et al., 2010). Moreover, any benefits are distributed very unequally: Economic inequality today is as great as it was one hundred years ago, after more equal times in between (Piketty, 2014).

Even according to the rather conservative *triple bottom line accounting* (TBL) of sustainable development, the three goals of economic, ecological, and social sustainability should be at least of equal importance. In fact, economic sustainability almost always takes precedence – and that means economic growth. This raises the question of the causes of an apparent bias in politics, especially since proponents of a "strong sustainability" emphasize that the three goals mentioned could categorically not have equal priority, but that ecology, as a material

[1] E.g., all recent annual economic reports of the German government; UK Government "Plan for Growth" (2011); US Economic Report of the President (2020); FR Rapport économique, social et financier (2020).
[2] German "Stability act" (StabG, 1967); UK "Growth Duty" (Deregulation Act 2015).

necessity, must have superior priority (Sachverständigenrat für Umweltfragen, 2002; Ott and Döring, 2011). Nevertheless, economic growth remains "the supreme and largely unquestioned objective" (Schmelzer, 2015, p. 267).

1.1.2 Is there a Growth Imperative?

The debate about the voluntariness or coerciveness of individual or collective economic growth and accordingly the (non-)existence of alternatives is as old as it is broad. Karl Marx has been referred to being the first theorist to describe a systemic growth imperative of capitalism (Gordon and Rosenthal, 2003), and since then many activists and social scientists have addressed this question. The debates received new impetus at the beginning of the 1970s, when the environmental question came massively to the fore (Carson, 1962; Meadows et al., 1972; UN Conference on the Human Environment 1972 in Stockholm), and some heterodox economists took a fresh look at the question (Boulding, 1966; Georgescu-Roegen, 1971; Daly, 1973), without, however, conclusively clarifying it. A *necessity* to pursue economic growth as a strategy would be termed a growth imperative (or growth coercion), but also weaker forms like growth impetus or growth driver are discussed.[3] Both the discourse and the terms are covered in more depth in our central article (#1, Section 3.1).

The lack of a plausible answer to the question "Why can't we stop clinging to growth?" is, in my opinion, the most pressing unsolved problem of the growth-critical discourse. The ongoing debates on this question contribute to the fact that growth criticism has not yet been able to leave the political and social-scientific niche and that ecological sustainability can still be played off against economic stability easily: Virtually all political measures are subject to a growth proviso. In fact, however, it is probably not about growth *per se*, but about jobs, or more precisely: about income from paid work. "Growth and employment" is the most frequent linguistic link in the German parliament (Rivera, 2018), but also in the governmental economic reports mentioned above, "jobs" are playing a prominent role. Economic growth seems to be the only way to escape the creeping rise in unemployment caused by globalization and technical progress.

If this is so, then in the long run only two options remain (Jackson, 2009): To make economic growth ecologically sustainable or to make non-growth socioeconomically stable. The first option – "Green Growth" – fails despite enormous efforts for several decades, mainly due to insufficient raw material efficiency (Haberl, Mbow, et al., 2014; Haberl, Wiedenhofer, et al., 2020; Hickel and Kallis, 2019). Decoupling GDP growth from the (over)consumption of natural resources was remarkably unsuccessful in the aggregate, it merely paved way for a new research

[3] We would have preferred the term "growth coercion" instead of "growth imperative" but the latter now is established. Instead of "growth impetus," the term "growth driver" is more common in economics and, in our opinion, better suited.

field called "rebound effects" (Madlener and Alcott, 2009; Santarius, 2015). The second option – non-growth or even degrowth – appears to most people to be completely unrealistic in political terms, literally unthinkable, not desirable, and not necessary (Paqué, 2010; Fücks, 2013). But this does not change the fact that ecological conditions set objective limits and that resource-intensive growth policies *must* therefore end. The socially desirable cannot be set off against the ecologically necessary.

On the other hand, there is a widespread fundamental criticism of market economy as an economic system within the growth-critical discourse and the discourse on social-ecological transformation. Markets are seen as having an inherent tendency to be antisocial, reckless, and unleashed (e.g., Neubauer and Repenning, 2019, Rackete and Weiss, 2019). Interest on debt and excess profit have long been regarded a sin, and it is a widely held intuition that money, compound interest, and profit *as such* would create a growth imperative (see #1, Section 3.1, and #2, Section 3.2). Accordingly, alternatives are sought, for example socialism or communism, solidary economy, Economy for the Common Good, Universal Basic Income (UBI), Commons, gift economy or shareconomy, community supported X, overcoming money and property. But many of the reform proposals critical of the market are economically unsound and ignore valuable theoretical and empirical findings of market-friendly scientists. Accordingly, the economic mainstream largely ignores the growth criticism.

There is no scientific consensus on what constitutes a growth imperative. H. C. Binswanger limited his definition ("necessity to grow," 2013, p. 116) to corporations, whose size is quite easy to determine in balance sheet terms, and, accordingly, the formula "grow or die" as an expression of capitalist corporate reality appears to be extraordinarily popular. But economic growth on the supply side only works with a simultaneous increase in demand: Why should consumers be subject to a growth imperative,[4] and how would their growth be measured? And finally, why should states or their politicians be subject to a growth imperative – what would be their analogue to "grow or die"?

The term "coercion" suggests a lack of alternatives, and it needs to be clarified what this consists of. One can conceive of growth coercion as a form of *social coercion*, since there is no institutionalized coercion to grow (no binding norm at the individual level). In fact, however, there does not even seem to be a consensus on what constitutes a social coercion, although it is a term commonly used in the social science literature. Its use ranges from internalized social norms (role expectations and duties, decency, guilty conscience) to social approval and disapproval (peer pressure, public opinion) to institutionalized coercion (laws, compulsory military service, compulsory education, referral to psychiatry – see #1, Section 3.1, for details).

[4] Exemplary for many, Binswanger (2013, p. 88) answered this question by referring to "insatiable wants" of humans.

1.1.3 Mechanisms Discussed as Growth Imperatives

In addition to the fundamental question of the voluntariness or coerciveness of growth, the concrete mechanisms of a growth imperative are also disputed. In the socio-cultural domain, growth is seen primarily as an increase in material consumption. The following are discussed as potential causes (citations are by way of example):

- The pursuit of professional success and material prosperity is seen as a cultural imprint, a "Leistungsorientierung" (performance orientation) that increasingly finds its meaning in itself, as fulfillment of internalized demands and in competition with others (Weber, 1920; Murray, 1938; McClelland, 1961; Simon, 2009; Verheyen, 2018).
- "Keeping up with the Joneses:" Consumption serves not only to fulfill material needs, but also (some say: nowadays primarily, cf. Goodwin et al. 1997; Rosenkranz and Schneider 2000; Hellmann 2010) to compare oneself socially, to maintain status, and to avoid social exclusion (Hirsch, 1976; Schor, 1991, 1999; Frank, 2000; Bauman, 2007).
- Suppliers would actively create "new wants," by advertising their products and services (Galbraith, 1969, ch. 11).
- Consumption is attractive in that it gives people choices (especially in the form of "novelty"), enables, and empowers them ("Multioptionsgesellschaft," Gross, 1994, Schulze, 2003). However, this can also lead to undesirable side effects such as social acceleration (Rosa, 2005).
- Consumption takes place as a "social practice," i.e., because of routines, because everyone would do it that way, because certain forms of consumption establish a new normal over time, and because it is convenient (Shove and Southerton, 2000; Shove, 2003; Hand and Shove, 2007; Røpke, 2009).

In the economic domain, completely different mechanisms are being discussed (citations are by way of example):

- Money creation, credit and interest would lead to a systemic growth imperative, either due to their inherent properties or because of an unfavorable socio-technical organization of the monetary system. Discussed in particular are the compound interest effect and how banks in a dual role can create credit money but at the same time also must retain it (Beltrani, 1999; Douthwaite, 2000; Lietaer et al., 2012; Farley et al., 2013; Binswanger, 2013; Binswanger, 2009, 2015, 2019). Other authors explicitly question these arguments (Berg et al., 2015; Jackson and Victor, 2015; Cahen-Fourot and Lavoie, 2016).
- Property as such would necessarily lead to an increase in production because of its inevitable use as loan collateral and the resulting economic pressure on borrowers (Heinsohn and Steiger, 2009; Griethuysen, 2010, 2012).

- The profit orientation necessary for the survival of firms in a market economy would necessarily lead to firm growth in the aggregate. Several reasons are given for the necessity of profits (Gordon and Rosenthal, 2003; Kallis et al., 2012; Blauwhof, 2012; Smith, 2010). Characteristic of some of these approaches, however, is a failure to differentiate (or explicate) accounting and economic profit (cf. Lawn, 2011).
- Beginning with Marx, competition is cited as a "capitalist law of coercion," forcing firms to "grow or die" (Marx, 1906). Schumpeter (1942) linked this to the concept of innovation, shifting the focus from ownership to entrepreneurial creative output and its impact on costs and revenues ("creative destruction"). More recent debates consider still other aspects of competition and innovation (Pianta, 2006).
- Since the 1950s, growth theory has acknowledged the significance of productivity increases (technical progress) for steady economic growth (Solow, 1994). The so-called "Solow residual" was identified in endogenous growth theories with innovations and human capital (Romer, 1990; Blanchard and Illing, 2014). Ecological economists, however, pointed out that energy and materials were significantly underestimated as factors of production (Ayres, Ayres, et al., 2003; Ayres, Bergh, et al., 2013; Ayres and Warr, 2005, 2009; Kümmel, Henn, et al., 2002; Kümmel, 2011; Kümmel and Lindenberger, 2014). If these physical components were included, a prosaic picture of growth as increasing exploitation of low-entropy resources would emerge.
- Nation states and their institutions (like tax system, welfare state, labor market policy) are held responsible for a "growth policy" for which, in turn, a wide variety of reasons between enthusiasm and necessity are cited (Maier, 1977; Posner, 1997; Jackson, 2009; Seidl and Zahrnt, 2010; Schmelzer, 2016; Rajan, 2016).
- The striving of companies for market leadership, the existence of system-relevant market players and industries ("too big to fail"), economic power and monopoly profits (rent seeking) are discussed less as growth imperatives, but as growth drivers (Eucken, 1940; Galbraith, 1972; Eichner, 1987; Simon, 2009; Vitali et al., 2011; Lavoie, 2014; Teece, 2015).

1.1.4 The Link to Distributive Justice

Through the links growth∼employment and unemployment∼crisis, implicit in this debate is a more fundamental question. Unemployment[5] as a social crisis phenomenon refers to the discursively recurring connection between gainful work and one's livelihood. The exchange of economic achievements is openly or tacitly regarded as the only legitimate precondition for

[5] In the context of this work, this also includes a lack of demand for freelance work and entrepreneurship, i.e., any kind of "joblessness."

consumption and thus refers to the so-called *Meritocratic Principle* (simplified: "Those who do more than others shall receive more than others," Bolte, 1979, 26, translated). Thus, it becomes clear that economic growth is intricately linked to the question of fair distribution, especially with labor as a "scarce good" under the conditions of modernity. A plausible theory of a growth imperative will therefore probably not be able to do without a theoretically and empirically plausible concept of distributive justice.

The scientific and philosophical debate about justice has not yet revealed a clear paradigm, with several lines of argument competing here (Cohen, 1986; Sandel, 2009; Miller, 2017):

- **Grand Theories of Justice**, usually connected to a famous proponent, for example Virtue – Aristotle, Utilitarianism – Bentham, Autonomy (Deontology) – Kant, Egalitarianism – Rawls, Libertarianism – Nozick (Sandel, 2009).
- **Basic principles** that would (alone or in combination) govern the human quest for justice, among them virtue, happiness, desert, merit, sufficiency, priority, need, equality, and liberty (Tyler et al., 1997, 56ff.). While most theories are devoted to a primary principle of justice, some of them make a case for a plurality of principles (e.g., Walzer, 1983; Deutsch, 1985; Miller, 1999).
- Different **conceptual approaches**, for example naturalism (tracing justice back to natural phenomena) or contractarianism (justice being a social agreement), but there are many more (cf. Olsaretti, 2018).

We find major conceptual contrasts (tensions, dichotomies). Among these are:

- **Substantive vs. procedural** justice (Miller, 2017): Can justice strive for certain desired outcomes, or must justice restrict itself to just procedures, accepting any outcome? More generally, social psychologists are concerned with how procedural questions (non-outcome factors) affect perceptions of justice (Lind, 2020).
- **Cognitivist vs. decisionist** approaches (Quante, 2013, 40ff.): Is justice based on principles to be discovered or (only) subject to contingent agreement? A similar contrast is **rationalist vs. empiricist** (Binmore, 2005, p. 38): Can we deduct moral principles from reason alone, or must we consult data from the real world?
- The role of **intuitions** (Gigerenzer, 2007; Haidt, 2013): Are intuitions (gut feelings) the benchmark for "genuine" justice or merely heuristics for rational reasoning?

In markets, a merit-based distribution (income proportional to economic contribution) enjoys practical prominence and widespread approval (Miller, 1999; Saunders, 2006; Mulligan, 2018; Adriaans et al., 2019). The meritocratic principle makes not only a statement about the relation between performance and income but commands that everyone is responsible for his

or her livelihood altogether. But concerns arise about increasing inequality (Piketty, 2014), and merit as a normative basis is widely questioned (Rawls, 1971; Frank, 2016; Sandel, 2020). In the 1970s, a "principle triad" of merit (equity, proportionality), need, and equality gradually emerged from the debate. This approach quickly and consistently found the support of many scholars (see Lerner, 1977; Mikula, 1980; Reis, 1986; Kabanoff, 1991) and today represents one paradigm within the justice discourse of social psychology (Lind, 2020). Social justice research frequently refers to these three principles (e.g., Sabbagh and Schmitt, 2016; Van Hootegem et al., 2020; Narisada et al., 2021).

Whether independently or as a triad, the three principles merit, need, and equality occupy center stage in the debate about distributive justice, theoretically and empirically (Scott et al., 2001). Yet their relation remains diffuse, and current theory does not inform political practice (Honneth, 2008).

1.2 Research Questions

The following issues thus were identified as **research questions** to be answered:

- What do the terms "growth" and "growth imperative" mean at the micro and macro levels (individuals, firms, states)?
- Which, if any, of the proposed mechanisms for growth imperatives in the socio-cultural and in the economic domain are plausible?

The **definitions** of the following terms were lacking or had to be revisited:

- Social coercion
- Growth imperative
- Economic and accounting profit (dual nature), the triad "grow or die," "profit or die," "income or die"
- "Genuine" and innovation competition (dual nature)
- Self-binding

The following **basic premises** (lemmata, see below) had to be made plausible:

- Personal efficiency increases are a major and specific *consumption* motive.
- Reciprocity is the primary principle of justice and translates into the social norm *Meritocratic Principle*.

1.3 Conceptual Foundations and Methodology

This dissertation is a theoretical analysis in which a particular economic topic is to be analyzed, questioned and, if necessary, reorganized. The work is broad in scope not only within economics but drawing on relevant work from the fields of sociology, social psychology, moral philosophy, consumer research, and environmental sciences (interdisciplinarity).

The situation is comparable to a mathematical theorem and its proof. The theorem reads (cf. p. 133 in article #1, Section 3.1):

> The political growth imperative is created by the interplay of three "components:" (1) The increases in labor productivity resulting from the growth imperatives for firms and households, leading to technological unemployment, (2) the societal obligation to guarantee at least a minimal standard of living for everyone ("need"), and (3) the meritocratic principle as a fundamental social norm that sets limits to redistribution between those earning an income and those who do not.

A mathematical proof is an inferential argument for a mathematical statement, showing that the stated assumptions *logically* guarantee the conclusion.[6] Mathematics is, however, a hierarchical theoretical building. Its basis are axioms ("obvious truths") and definitions, and its theorems and lemmata (auxiliary theorems) are logically derived from these. Contrary to mathematics, there are no axioms in the empirical sciences. Every assumption is liable to scrutiny and empirical evidence, hence rather a theorem itself. The definitions and basic premises (lemmata) of the empirical sciences are usually found in the existing literature. Where they were lacking or insufficient for our case, we had to derive them ourselves (cf. the research questions, Section 1.2).

Also, there is no logical proof in the empirical sciences. Due to multiple interdependencies, empirical facts are usually not related analytically (logically) but substantially (plausibly), to use a distinction coined by Toulmin (2003). Any theory that is developed around empirical facts is valid only as long as it is not disproved by newer findings (falsification). In the social sciences, the situation is even more complicated than in the natural sciences. While in the latter the conceptual foundations are usually clear and accepted (often tacitly, "paradigms" in the sense of Thomas Kuhn, 1962), hardly anything is as contested in the social sciences as their conceptual foundations. Central terms and concepts have competing definitions and scopes, and the term "essentially contested concept" has been introduced to characterize such situations. We see "schools of thought" in sociology, economics, and moral philosophy, some of them explicit reactions to other such schools. Mediating approaches often only result in adding another school of thought to the existing ones. The social sciences are pre-paradigmatic in the

[6] https://en.wikipedia.org/wiki/Mathematical_proof, emphasis added.

Kuhnian sense (Weymann, 1998, p. 17). Therefore, any analysis in the social sciences should make transparent its conceptual basis and its methodological approach, to make clear to which idea of "proof" it refers to.

1.3.1 Conceptual Foundations

In this work I make a moderate (or pragmatic) use of concepts that are often denigrated as "deterministic" or "unduly narrow" in the social sciences: reductionism, naturalism, and Rational Choice Theory. There is a strong tradition of demarcating the social sciences from the natural sciences, beginning with Wilhelm Dilthey's famous statement (1894): "Die Natur erklären wir, das Seelenleben verstehen wir." (Nature we explain, the life of the soul we understand, Dilthey, 1924, p. 144) But economics as a discipline works at the intersection of the individual struggle for natural resources as the basis of our bodily existence and the collective use of social innovations that we have developed to unlock the potential of cooperation. To view economics either as a purely social science or as a science like the natural sciences misses the point. It is both that makes up economics as a discipline (and only interesting), and the same holds for all other social sciences.

My "moderate reductionist" approach to the social sciences is inspired by my education as a physicist. "Nature" does not seem to be organized arbitrarily but around few basic principles with high degrees of symmetry, most obvious in elementary particle physics. Despite some differences between elementary particle physics and the social sciences, I have never seen a good reason for *not* searching for such basic principles and symmetries in the social world as well, with the necessary caveats. Efficiency and reciprocity are among these basic principles, and the search for symmetries has inspired the work on "Efficiency Consumption" (#3, Section 3.3) and on the preconditions of social exchange (#4, Section 3.4). I am also inspired by the US-american cultural anthropologist Marvin Harris (1927–2001) and especially his famous book *Cultural Materialism* (1979). Contrary to the tenets of his discipline, he reversed the causal arrow from "nature" to "culture," asserting that culture usually evolves in response to the material challenges of life, not the other way around. Hence every cultural phenomenon should be surveyed for its deeper material sense. There is no need to enforce such a relation but at least the cultural basics, widely shared throughout the world, should reveal such a *raison d'être* (called ultimate cause in biology).

Naturalistic approaches are sometimes looked upon askance in the social sciences because they carry the danger of the naturalistic fallacy, i.e., to infer directly from natural facts to normative judgements (Moore, 1903). "Moderate naturalism" means that no direct conclusions are drawn from natural facts, but that natural facts are *relevant*, in the sense of contributing to a coherent overall picture (Vollmer, 1995). The "nature of man" does not determine behavior,

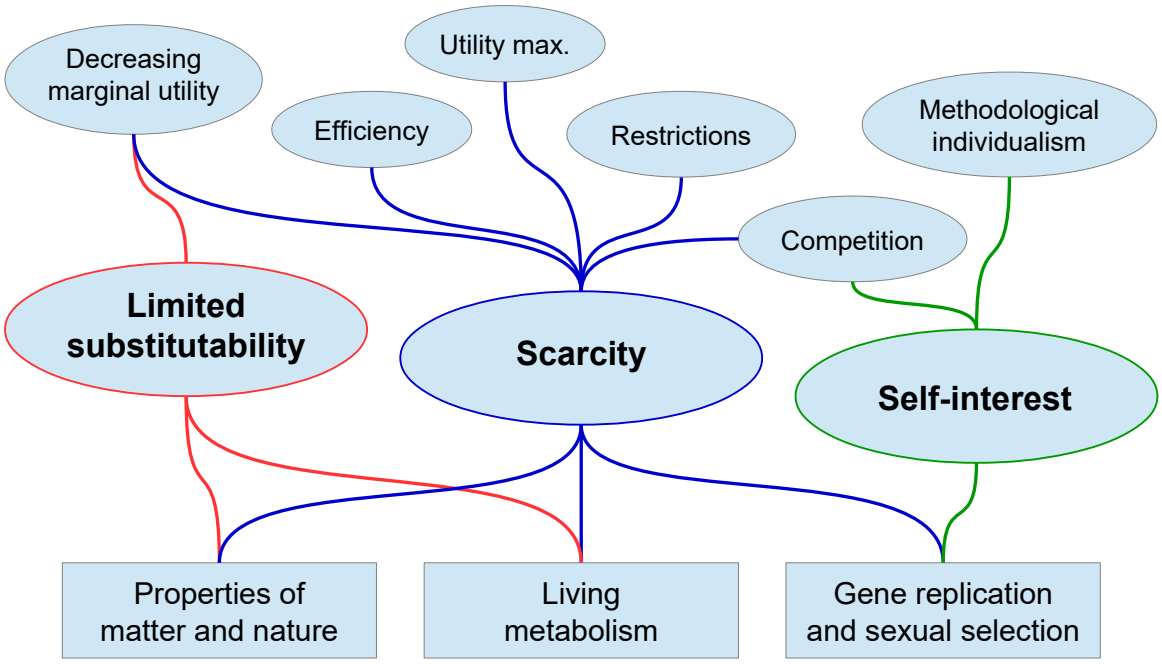

Figure 1: Visualization of how key concepts of neoclassical economics can be inferred from natural properties.

but it does limit (or at least bias) individual and social scope for action in characteristic ways. For neoclassical economics in general, many of their key concepts refer implicitly to natural conditions, and Figure 1 visualizes some of the possible references. Regarding this work, in the case of growth imperatives the naturalistic reference is to the significance of physical resources such as energy or metals for economic competition and household's consumption. In the case of theories of justice, the naturalistic reference is to the biological preconditions of reciprocity.

Rational Choice Theory occupies a special position within the social sciences. While most economists see it as part of the DNA of their field, other branches despise it as too narrow a view on humans and a caricature of human motives. The "moderate rational choice approach" used here refers to a more holistic tradition of rational choice social research, as exemplified in Wittek et al. (2013), where rationality, preferences, and individualism are handled more flexibly than in "hard" economics but still assume maximization of expected net utility.

1.3.2 Methodology

The methodological approach chosen is that of *Explanatory Coherence*, a concept that fits well with the consolidation of different theoretical approaches and the interdisciplinarity of the work: "[...] mentally balancing many complementary and conflicting pieces of informa-

tion until they all fit together in a satisfying way." (Thagard, 2000, p. 3) A high degree of interdisciplinary explanatory coherence is, in my view, what comes closest to a proof in the social sciences, as a maximization of plausibility and a minimization of contradictions. The challenge, but also the appeal, of this dissertation lies in the wealth of works drawn upon to contribute to this form of coherent balancing. Choosing this methodology is first and foremost a restriction on the targeted selection of relevant literature: What are valid sources of "pieces of information?" While this dissertation also uses original research articles (usually limited to classics or very specific questions), more relevant are the accepted basics of the corresponding disciplines. Such texts are preferably found in textbooks, handbooks, review articles, anthologies and monographs (which often contain excellent introductions), or good non-fiction books of renowned scholars (usually containing the original references).

In social scientific discourses, many terms are contested regarding their precise meaning – not amazing when taking a possible strategic use into account (Kopperschmidt, 2000). For the scientific assessment of growth imperatives and their related topics it is hence part of the minimization of contradictions to scrutinize and "narrow" terms that play a key role in the debate but are handled inconsistently and sometimes contradictorily. This concerns above all the title-giving term of the dissertation – growth imperative (and thus also social coercion) – but also terms such as profit or competition that may have a dual meaning and can easily get a moral connotation (greediness, recklessness). It is only the coherent overall picture that allows an assessment whether definitions are valid and fruitful.

This leads to another methodological characteristic worth mentioning: the use of conceptual contrasts (tensions, dichotomies), often visualized in figures, for example in the central article on growth imperatives (#1, Section 3.1) or in the article on distributive justice (#4, Section 3.4). It is not by chance that "free will" and "coercion" are the endpoints of an argumentative spectrum of the causes of economic growth. One arrives at very different political conclusions depending on whether one assumes a fundamental freedom of choice or a systemic inevitability (which also translates into contrasts such as socio-cultural vs. economic). In this manner, people debate many issues along an Aristotelian mean between extremes, be it the common good orientation of individual action (egoism vs. altruism), the necessity of modern communication technology (convenience vs. efficiency), or the driving forces of decision-making (rationality vs. emotions), usually underpinned by a moral disapproval of one pole and a moral superiority of the other. In this work such contrasts are used to visualize the spectrum of arguments and to specify certain "areas of scientific interest" (e.g., the dotted frame in the figures of article #1, Section 3.1).

2 The Articles, their Relations, and Research Contributions

2.1 Overview on the Articles

In Section 1.3, I stated the basic theorem of this work which can be visualized as a tension triangle that is reflected by the title of the dissertation: a conflict between "inevitable" increases of productivity and "foundational" social norms (Figure 2). Since the latter are "only" social, they have been the primary target of criticism, both from leftists (questioning the meritocratic principle) and conservatives (questioning welfare).

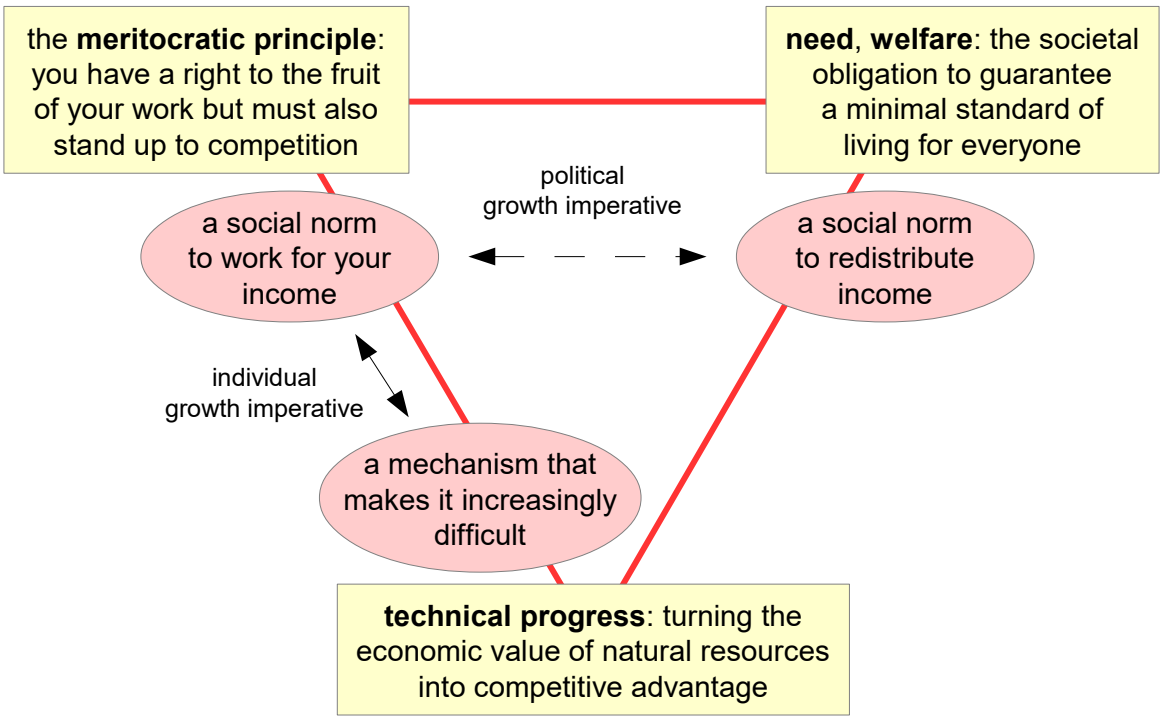

Figure 2: The basic theorem: a tension triangle of three distinct "social forces" (yellow boxes) which create social conflict (red ellipses). The political growth imperative (dashed arrow) can be mitigated by economic growth.

The structure of the dissertation arises from these tensions (Figure 3). The central article (#1, Section 3.1) gives an overview on the discourse, defines the problem and scrutinizes the core terms "social coercion" and "growth imperative." The main argumentative difficulties were

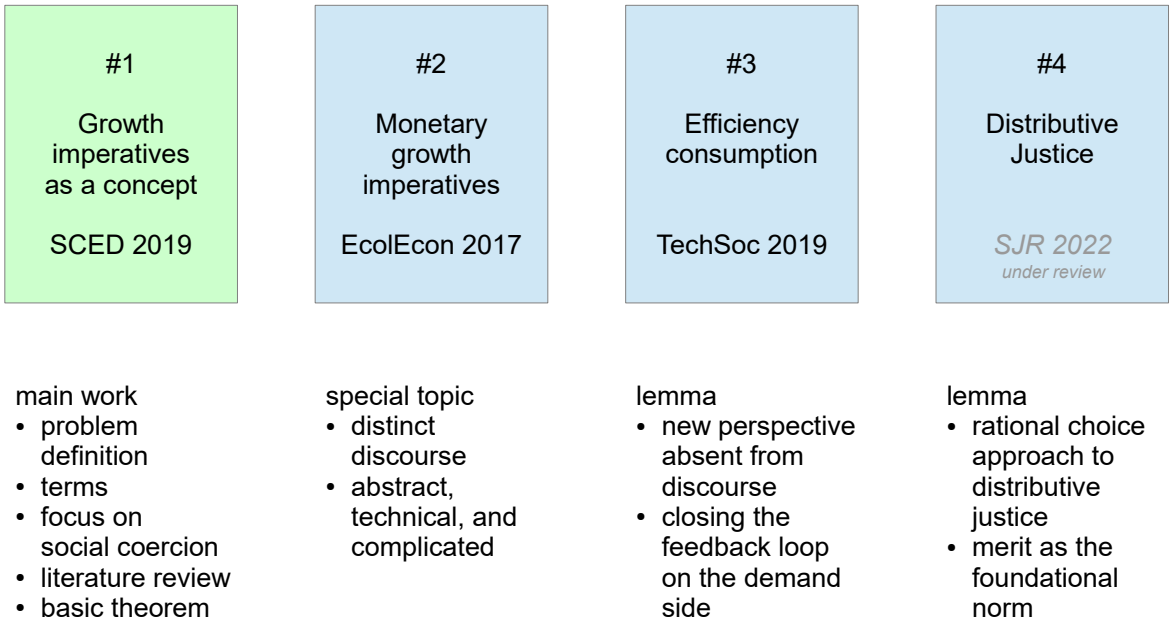

Figure 3: The four articles of the dissertation, their relations and *raison d'être*. Article #1 can be considered the central article, a review on the topic and providing crucial definitions. Articles #2 to #4 are either a special topic or base arguments that required more detailed investigation due to their discursive history and substantive importance.

social coercion as an interaction that is somewhat contradictorily both social and coercive and the distinction between the forces at the *micro* and at the *macro level*, leading to the agent-policy link. These were the prerequisites for an assessment of the broad spectrum of (few) theories and (many) assumptions about the voluntariness or coerciveness of economic growth. We came to clear conclusions and stated our basic theorem.

Some of the core arguments, however, required more detailed investigation due to their discursive history and substantive importance. The article on monetary growth imperatives (#2, Section 3.2) could be easily decoupled from our main work. Monetary growth imperatives have been discussed virtually independently of all other mechanisms but at least always as a genuine growth imperative. The topic is highly specialized and very technical, probably a main reason why rumors about ever-growing compound interest and bank's capital never ceased. But it is treated as an *economic* issue and can be viewed as a special topic of the central article. The articles on efficiency consumption (#3, Section 3.3) and justice (#4, Section 3.4), however, go astray. In the fields of sociology, social psychology, moral philosophy, and consumer research, economic reasoning is not canonical, and economists on the other hand often lack knowledge

in these fields. But both articles deliver base arguments without which the main work remains incomplete and even incomprehensible.

2.2 #1 Growth imperatives: Substantiating a contested concept

This article is the main body of the research work on growth imperatives with Oliver Richters, directly referring to the research questions formulated in Section 1.2. Past and current discussions about the alleged need for growth have delivered answers between free decision and coercive laws, with very different reasonings. We structured the debate in a matrix with two dimensions, coerciveness and type of agent, thereby identifying two questions: (i) What makes economic growth "imperative" (coercive)? (ii) Which agents are subject to this coercion according to which mechanisms, and is the concept of a growth imperative likewise applicable at the micro and macro level?

We regard *growth imperatives* as a special case of *social coercion*. The attribute "social" refers to a certain *mode of interaction*. It places social coercion between social pressure (not existential) and direct coercion (not social). It was necessary to derive a plausible and intuitive model for how that somewhat contradictory "indirect coercion" works, and it was a core aim of the article to demarcate the terms social coercion from social pressure and growth imperative from growth driver. Social *coercion* must be existential to deserve its name, and only then the term becomes a meaningful analytical tool. Formally we defined growth imperatives as exterior conditions that make it *necessary* for an agent (such as an individual, firm, or state) to increase their *economic efforts* as to avoid *existential consequences*.

Many of the motives to invest and consume have been discussed in the literature as free will or as some lopsidedness due to internalized social norms or social pressure. We showed that often it is coercive social interactions and economic conditions that leave individuals literally no alternative to economic growth. We scrutinized theories of growth imperatives for firms and described how technical progress requires steady increases in efficiency and therefore net investment. For explaining how technical consumption goods that make private life more efficient become existential necessities for households, we referred to the article about "Efficiency Consumption" (#3, Section 3.3). The availability of natural resources plays a key role in trapping firms and households (supply and demand) in a positive feedback loop, forcing them to increase efficiency. Finally, we explained how the growth imperatives of the economic agents proper translate into a political growth imperative for governments. Certain collective convictions and political restrictions create a strong social norm to earn one's income through work, making unemployment a threat to social stability. Among these restrictions are the meritocratic principle and welfare policies which are more deeply explored in the article on justice (#4, Section 3.4). The dilemma between "technological unemployment" and the so-

cial necessity of high employment explains why alternatives to fostering economic growth are "unrealistic."

All other mechanisms discussed deemed us to be implausible under our definitions, and no better definitions have been offered so far. The pressures described were not existential, or the arguments were inconsistent altogether. A recurring problem was the inconsistent use of core terms, especially profit and competition. For example, two definitions for profit are used in parallel in the economic literature: (1) accounting profit that must be positive to earn a living ("profit or die"), and (2) economic profit that can provide a living for the company's owners when it is zero. Both terms are meaningful, but by mixing them up one can easily create an apparent vicious circle of inevitable growth ("grow or die") due to the "necessity of profits." In the end, neither growth nor profit are decisive, but a businesses' ability to deliver an income for its owners ("income or die"), and we showed how achieving an income becomes increasingly difficult due to technical progress.

To avoid misunderstandings: To *pursue* economic growth at the micro level does not necessarily mean that firms actually grow in balance sheet terms. We have deliberately chosen the definition for a growth imperative such that it forces agents to increase their economic efforts, not their size. GDP is a measure of throughput, not capital. We can even imagine something like "proxy growth" when for example a computer manufacturer net invests to produce cheaper, albeit better computers that are bought by firms who do not grow in balance sheet terms but are now more productive. With their behavior they contribute to aggregate growth, and the question is rather: Could these firms forgo the replacement of their old computers without risking their existence?

The theory we have developed around the basic theorem has the advantage of cultural and normative parsimony because it has no specific socio-cultural prerequisites except a market. Efficiency and reciprocity can be claimed to be universal mechanisms, entailing (1) a sensitivity to cost-benefit ratios (i.e., market prices) and (2) the necessity to earn a living. If there is sufficient freedom of choice among producers and consumers (including the freedom to fail with a business), we will experience a universal pattern of "creative destruction" parallel to productivity increases. Probably the only socio-cultural differences will be how societies deal with the distributional problems arising from it (e.g., "varieties of capitalism," Hall and Soskice, 2001). Our theory sheds light on several social riddles, e.g., the attractiveness of technology, the possibility to extort society with the potential losses of jobs or the historically perceived asymmetry of power between employers and employees.

Regarding politics, the economic attractiveness of resource use makes it necessary to regulate resource consumption to stay within Planetary Boundaries – market forces alone will not be able to counterbalance the material temptation. Market-compliant regulations of resource consumption (caps, taxes, fees) combined with a redistribution of the revenues from

this regulation would push innovations into a new direction probably less threatening for the environment while reducing inequality and the political need for economic growth.

This article was jointly written with Oliver Richters and published in December 2019 in *Structural Change and Economic Dynamics*.

Highlights

- Precise micro level definitions of "social coercion" and "growth imperative"
- Truly forceful socio-cultural influences are based on *economic* pressure
- Resource based technical progress coerces firms and households to pursue growth
- States' growth policies are substantially driven by "technological unemployment"
- Limiting resource use and redistributing rents would stabilize markets without growth

2.3 #2 Consistency and stability analysis of models of a monetary growth imperative

A growth imperative suspected within the monetary system has its own specific discursive history and is discussed independently of other growth imperatives. Therefore, it was helpful to decouple a separate article on this very specialized topic from the main work. We scrutinized the two main arguments which refer both to systemic properties, independent of the will of agents: (1) Credit and (compound) interest can only be paid back if "new" money enters the system, increasing the money supply. Debt claims increase exponentially because of interest dues, and liabilities must increase in lockstep. The looming debt overload could only be neutralized by defaults and crisis or mitigated by steady economic growth. (2) Banks must retain profits for legal requirements and economic reasons, causing a "leakage" in the money circulation that cannot be plugged. The transfer of money to banks' capital must be compensated by credit increase, and this is coupled to investment.

We were very skeptical toward this type of growth imperative from the outset because it violated our intuitions that (i) money is an intelligent social innovation and (ii) a growth imperative that is existential should have its causes in the material world. GDP increase is above all an increase in material throughput, and to assume a purely monetary phenomenon that has effects on the material world deemed us to be the wrong direction of causality. The arguments mentioned had been scrutinized by several authors in the past. The central aim of the article was to clarify why certain modeling approaches lead to a growth imperative and others did not.

We examined the first argument with five post-Keynesian models of a monetary economy from the literature, some of which were explicitly designed to investigate this argument. We

applied the concept of stability analysis known from dynamic system theory to Stock-Flow Consistent (SFC) modeling. The relevant condition for a stationary state is not interest rates but the aggregate net saving ratio and net investment to be zero, i.e., the proportion of income which is saved and invested on top of replacement investment. Other authors already had shown that the stability of a stationary state depends on the interplay of interest rates and consumption parameters. If the interest rate is high and the parameter "consumption out of wealth" low, a stable, non-growing economy is impossible. We showed that this result can be generalized to all models investigated, because they are based on similar assumptions about consumption and investment decisions. For a stationary state to exist, consumption out of wealth must be above a *threshold* that increases with the interest rate in all the models if tax rate and consumption out of income are kept constant. We have displayed these stability threshold curves jointly in one figure, and they do not depend on parameters describing reserve, equity, or liquidity requirements, thus these parameters do not influence the stability of the stationary state. We also provided a detailed analysis of the economic intuition behind the different threshold curves of the models.

The second argument locates the growth imperative not within decisions of consumers or firms, but in the fundamental connection between investment, credit creation, and profits. It relies on three simple, independent statements: (1) Businesses must generate positive (accounting) profits, (2) investments are funded by credit, and (3) interest is charged on credit. A positive rate of economic growth is necessary in these models because zero growth would lead to losses of businesses in the aggregate, and therefore to a downward spiral. This argument is connected especially to the economists H. C. Binswanger and M. Binswanger who have extensively published on the topic. We showed that a growth imperative exists in these models because of their assumption that private banks distribute only a fraction < 1 of their profits. All models investigated are constructed such that bank's equity capital must increase *even if debt does not*, which is a discrepancy between the authors' intention in their texts and their actual models. We also found accounting inconsistencies in their modeling of banks' capital. Therefore, these models are not convincing and should be revised.

To summarize, analyzing the different modeling approaches shows that no "immanent" or "systemic" growth imperative can be found within a monetary economy relying on credit money and positive interest rates. Proponents of the first argument neglect that loans are usually put to productive use and can earn a return which is high enough to cover repayment *and* interest.[1] A loan may be a bilateral agreement between individuals, but the money and hence economic achievements is not exchanged bilaterally only. Accordingly, to capture the entire process by a "two-agent model economy" obscures the matter. Decisive for ongoing growth of the economy

[1] At which point one would still be indifferent between taking out a loan or not. An economically attractive investment must (and can) return even more.

are saving and investment *decisions* of those receiving income, be it from interest or other sources. Therefore, the existence of positive interest rates alone cannot be responsible for a growth imperative. In general, if *any* model assumes permanent positive net saving or net investment for certain agents, this necessarily renders a stationary state impossible.

This article was jointly written with Oliver Richters and published in June 2017 in *Ecological Economics*.

Highlights

- No "inherent" growth imperative can be found for interest-bearing debt-based money
- If agents decide to net save and invest, the stationary state is unstable
- How to perform a stability analysis of discrete-time macroeconomic models
- A joint stability map of five post-Keynesian models shows similar bifurcation thresholds
- For stability, "consumption out of wealth" must increase with the interest rate
- Some models are inconsistently constructed and should be revised

2.4 #3 An offer you can't refuse: Enhancing personal productivity through 'efficiency consumption'

The idea that consumers choose goods for increasing their personal efficiency was nearly absent from consumer research and microeconomics when I started my research on the topic. With very few exceptions, time and cost efficiency was a topos related to firms, not to consumers. But a growth imperative as a phenomenon of the *whole* economy must have effects on consumers, too. Otherwise, my intuition said, we should see more examples of consumers who do not take part in certain consumption patterns, yet do not experience any problems due to their "frugal" lifestyle. What we observe instead is that *not* using for example a smartphone is much more dependent on a certain lifestyle today than the other way around. It would have been great to study the theses of this article empirically, but I was lacking the resources for that. I had to restrict myself to literature review, theoretical analysis, and "explanatory coherence," therefore the article is more an essay than rigorous research. But according to my knowledge it is the first attempt whatsoever to scrutinize efficiency as a consumption motive.

The concept of efficiency consumption should help to better understand at least two aspects discussed unsatisfactorily to date: (1) In microeconomics and consumer research, a remarkable asymmetry of firms and consumers prevails. Both disciplines assume fundamental differences in the motivations, goals, and overall structural conditions of firms and consumers. The wording used is completely different, drawing a sharp line between businesses' and consumers' logics. This is also complemented by my personal experience in discussions. (2) Accordingly, there is

no microeconomic approach that reveals a growth imperative for consumers like the one long since discussed for firms in competitive markets. Everyone seems to accept the "grow or die" competition of firms as a quasi-natural fact, but consumers seemingly have absolute freedom about when and what to consume – and whether at all. The challenge therefore was to explain why cars, computers, smartphones, and the like are offers for consumers they cannot refuse, to paraphrase an adage from Puzo's (1969) famous novel. These goods often become existential necessities in the course of time.

After thorough definitions of terms, I explained the causes and forms of what I called "efficiency consumption:" consuming a good *essentially* for increasing personal time and cost efficiency. I described the possible motives and how the practices developed lead to less costs and more individuality and independence of consumers. Businesses react to this by further refining their processes and demanding more specialized jobs, thereby allowing for ever greater mobility and flexibility. Eventually, the *comprehensive* diffusion of certain "consumption" (more precisely: investment) patterns enables firms to develop completely new and more efficient business models that first marginalize old businesses and finally force them to give up, with a simultaneous concentration of supply. Put it another way: consumers themselves pave the way for business models that make consumption cheaper. Examples are cars whose consumption is the precondition for supermarkets abroad to develop, computers (for online trade), and smartphones (for access to services). New *infrastructures* have been created, and keeping to the old ones that are increasingly subject to Schumpeter's "creative destruction" becomes increasingly difficult, expensive, and even "absurd."

I added two theoretical analyses to the article: (1) I scrutinized potential causes of the asymmetrical scholarly view of microeconomists and consumption researchers on consumption. By referring to the semantics of "price" and "value" and the self-conception of the disciplines, I showed that there might be a "disciplinary gap" between microeconomics and consumption research. Efficiency consumption is taking place within this gap, and accordingly it is neglected by both. The analysis is also a hint that banning the concept of value from neoclassical economic theory (Koch, 1995) was maybe not a good idea. (2) I discussed an alternative model of consumption based on a proposal of Kelvin Lancaster (1966) and the works of Abraham Maslow (1943) that would allow a more realistic interpretation of investment and consumption motives. Firms (or their owners, respectively) do not maximize profits but expected net utility (Kirchgässner, 2013), and then firms and consumers can be conceptualized more symmetrically than is usually the case.

This article was single-authored and published in November 2019 in *Technology in Society*.

Highlights

- Personal productivity (efficiency) is a major and specific consumption motive
- Time- and cost-saving goods become an economic necessity for consumers
- Efficiency consumption and the growth imperative for firms create a feedback-loop
- A "disciplinary gap" between microeconomics and consumption research is revealed
- An alternative consumption model allows a more "symmetrical" view on firms and consumers

2.5 #4 Merit first, Need and Equality second: Hierarchies of Justice

In our central article (#1, Section 3.1), we argued that the social norm *Meritocratic Principle* would play a paramount role for distributive justice and hence for an understanding of how the growth imperative at the micro and macro level would work. But this assumption is far from being uncontroversial in the branches concerned with distributive justice, above all social psychology and moral philosophy. This article therefore discusses the relation of the three most important principles of distributive justice: merit (also referred to as equity, desert, or proportionality), need, and equality.

The discursive significance of these principles can hardly be overstated. Since the late 1970s they have become "focal points" of the debate about distributive justice, and the topic was quite hot in social psychology at that time. Like in a "magic triangle," most distributive problems can be solved successfully by applying one of these principles or a combination of two of them, and their popular support (empirical evidence) is strong. But, alas, the relation between them has always remained vague, and their application was subject to somewhat contingent considerations (Honneth, 2008). Merit (or desert) is despised, anyway, by most moral philosophers. Among very few, the Oxford political theorist David Miller (1999) has acknowledged the paramount role of merit, but even Miller insists on the irreducibility of the three principles altogether (personal communication).

This article clarifies the social purpose of these principles and their relation, i.e., under which circumstances which of the principles or their combinations is used and why, at least for the most significant (and empirically investigated) cases. Using social-psychological jargon, it is a specific Theory of Allocation Preference, but its significance goes beyond that. For many decades it is the first attempt in social psychology to unify disparate explanatory approaches under a single principle.

Unusual for both social psychology and moral philosophy, the article starts with biology: a depiction of the evolutionary roots of *reciprocity* as ideal justice, i.e., an exact proportionality between personal benefits and (opportunity) costs from social exchange. In contrast to

mutualism, the benefits from reciprocity may be "delayed" and even received from agents not taking part in the original social exchange (indirect reciprocity). The evolution of reciprocity as "mental accounting" led to the development of money and property, but also social reciprocal norms, one modern of them being the so-called *Meritocratic Principle*: "Those who do more than others shall receive more than others" (Bolte, 1979, 26, translated). Accordingly, merit is the "natural" (reciprocal) case and the primary principle of justice, and the challenge was to explain how need and equality (with costs exceeding benefits) fit into this picture.

Ironically, *Equity Theory* had already a clear focus on merit (named equity or proportionality at that time). Equity Theory was the leading paradigm of social psychology in the 1970s and on the brink to become a general theory of social interaction. But there was a shift from the outcome-focused to the relationship-focused paradigm in social psychology, beginning in the middle of the 1970s (Lind, 2020). Ten years later Equity Theory had been virtually eliminated from the discourse, and merit was only one (unloved) principle, among others. This article is hence not only a new try on the topic but also an attempt to vindicate Equity Theory's basic assumptions and to avoid the problems this theory had encountered in the past.

"Primary principle" does not mean "only principle" but a hierarchy of principles according to context and constraints. While the "mental accounting" enables people to trace debit and credit quite accurately for themselves, justice is also a communication process with others, and humans are maximizers of expected net utility, not maximizers of justice. Therefore, additional criteria come into play which are often neglected, especially by moral philosophers who usually pay little attention to facts. Justice is rather a social bargain and an optimization problem than a clear-cut principle, and the article explores the trade-offs and communicative difficulties of this process, claiming that at least three additional criteria are important: effectiveness (utility), efficiency (optimal individual effort), and communicability (social acceptance). For this it was necessary to introduce concepts from other disciplines that hardly play a role in the discourse, probably because they are difficult to defend when noble motives are preferred to mundane goals. The most important of these concepts is *self-bindings*, an issue that in my opinion is definitely underexplored. Only few social scientists had it on their radar at all (e.g., Schelling, 1960, 1978, 1984, 1985, Elster, 1979, 2003, Homann, 2003, 2014). Self-bindings can shed light on the difficult range between obvious reciprocity and genuine altruism where people invest into the cohesion of society because they see a "sense" in it – difficult to communicate but often widely shared. Other "rational" concepts introduced by me are heuristics, rules of thumb, and simplicity. They are important for efficient decision making and for communicating a distributive decision.

The article shows how classical applications of need and equality can be reconciled with merit (reciprocity). Need and equality are auxiliary principles when merit is not effective, not efficient, or not communicable (or simply coincides with equality), but their scope is

limited by merit. Regarding need, it is helpful that during the last decades a lively discourse about targeted aid (welfare policies) has developed, delivering a good basis for reconciling need with merit. Regarding equality, the argument is less straightforward. Equality seems to depend much more on balancing diverse considerations which have been made explicit in this article. Finally, the article shows an elegant way for political implementation while avoiding the contestedness of merit. Draining the wellsprings of undeserved incomes (economic rents) is likely to be uncontroversial for most people, and a political focus on undeserved incomes could unite diverse political currents. This would open new and more effective policy options.

This article was single-authored and is currently (June 2022) under review at *Social Justice Research*.

Highlights

- Reciprocity (merit, equity) is the primary principle of distributive justice
- Justice must be just, but also effective, efficient, and communicable
- Need and equality are auxiliary principles, governed by reciprocal considerations
- Self-bindings help to interpret altruism as "very generalized reciprocity"
- Avoiding or taxing away economic rents is an effective implementation of justice

2.6 Synthesis and Conclusions

Economic growth policies remain to be a contested topic, and this dissertation scrutinized the question why it might be impossible to simply stop pursuing economic growth, individually and politically. What sounds so harmless as a topic bundles social and social-scientific fields of conflict as if under a burning glass, and to explore these conflicts was part of this dissertation.

Regarding the core question, with a carefully derived definition of the title-giving key term, "growth imperative," we have argued that in market-based economies, a growth imperative exists due to the interplay of three distinct social forces: On the one hand, there is technical progress that effectively turns the economic value of non-renewable resources into competitive advantage, forcing competitors to follow suit or to leave a particular market, with the potential consequence of "technological unemployment." On the other hand, there is a strong, individual social norm that people have the right to reap the fruit of their work (meritocratic principle). But from the very same social norm it also follows that the achievements of your work have to stand up competition: if your "price" is too high you will loose your income, be it from wages or profits. This creates a social conflict: everyone is required to work for his or her income, but technical progress makes it increasingly difficult. It requires steady net investments for both firms and households.

We also showed how this growth imperative at the micro level creates a political growth imperative at the macro level, making political alternatives to fostering economic growth "unrealistic." There is another strong, collective social norm that obliges the successful to support the unsuccessful (need, welfare), for maintaining social cohesion and avoiding social conflict, but the level of support is severely restricted by the meritocratic principle (socio-cultural breadline). The easiest and least controversial way to solve this conflict is to explicitly foster economic growth: the creation of new jobs relieves the welfare system twofold, by increasing revenues and reducing expenses – a strong leverage, easy to communicate and in line with the intuition of most people. This is what I have called our "basic theorem" about growth imperatives. For all competing theories and assumptions regarding growth imperatives we could explain why they are not convincing under our definition, and no better definition has been offered so far.

Two important underlying assumptions ("lemmata") could be made plausible in two single-authored articles that entered completely new fields: consumption research, social psychology, and moral philosophy. (1) Viewing firms and consumers as being driven by basically the same motives and being subject to similar incentives and restrictions can help to understand why a growth imperative is not restricted to firms. "Efficiency consumption" is the consumer's analogue to the steady investment of firms into product and process innovations and can close the feedback loop of a growth imperative on the demand side. This is a crucial precondition for the concept of growth imperatives to be meaningful at all. This perspective has been nearly absent from consumer research and microeconomics before (and alas, still is). (2) The social norm *Meritocratic Principle* is necessary for the concept of growth imperatives in two ways: market success based on resource-intensive technologies is also based on a subtle violation of the meritocratic principle. Achievements arising from natural forces are appropriated by their providers and offered on the market without bearing the true costs, hence offering a better cost-benefit relation. The meritocratic principle is also crucial for understanding the nation states' dilemma because it sets tight limits to plain redistribution from those achieving an income to those who do not. But the meritocratic principle is much more than just some social norm. It is a popular formulation of the requirement of reciprocal exchange, plainly *the* principle of justice, although it is obvious that for communicative reasons one principle of justice is not enough. Need and equality will continue to play important roles in all cases where the insistence on merit will not maximize individual utility but cause social conflict. But these seeming deviations from the meritocratic principle could be reconciled with reciprocity by making further informed assumptions about human motivation and social restrictions. This article is not only a specific Theory of Allocation Preference but can be seen as a step toward a unified theory of justice.

Regarding the research questions stated in Section 1.2, the research program was successful.

All research questions could be answered in this work, at least if the underlying assumption is accepted that humans are rational maximizers of expected net utility. This, of course, is far from being uncontroversial in the social sciences. Still another question is whether the explanations offered here will resonate in the related disciplines. Three articles of this dissertation (#1, #3, and #4) have demonstrated the potential of an interdisciplinary approach and justified the methodology chosen. The more "basic" disciplines (like biology, evolutionary theory, or social psychology) deliver the foundations that the more "advanced" disciplines (like economics, consumer research, or moral philosophy) can build upon. But in the end it is only the overarching view and the integration of all related disciplines that make the picture coherent and can really *explain* the underlying mechanisms. No single discipline could have answered the research questions on its own, maybe not even identify them as interesting topics.

For future research building upon this work, I see mainly two paths, namely empirical studies and digging deeper into the conceptual foundations. (1) Several aspects of this work can be investigated empirically, for example human motives and views regarding efficiency and justice. With the caveat of an appropriate linguistic framing (cf. article #3, Section 3.3), it should be possible to confirm that people choose consumption goods for their efficiency enhancing properties. For substantiating that people view reciprocity as the most basic principle of justice, the phrases "advantages at the expense of others" and "not bearing the costs of one's own choices" provide excellent starting points. (2) In Section 1.3, I have touched upon the contestedness of the conceptual foundations of the social sciences and their state of being pre-paradigmatic. Terms like rationality, utility, efficiency, ... seem to be much more than only descriptions of behavior. In my view these terms are metaphors for certain *social virtues* and therefore they are good arguments for legitimizing behavior – they are *moral* terms. Assuming with Homann (2003, 2014) that people are literally obsessed with moral motivation (while underestimating the significance of institutions), these terms play paramount roles in political discourses. Therefore it is difficult to use them in parallel as "neutral" conceptual foundations of the social sciences, especially since social scientists are expected to assist in deciding controversial social issues. It is surely challenging to scrutinize how this conflict can be solved.

Regarding practical politics: Can we really do without growth? It is a common political argument that we would need high investments to deal with the social and ecological challenges, and it is hard to imagine what a society without net investment would look like and why it should be desirable. Our answer is: We do not know either, but there is no need to *enforce* zero growth. One day or the other we must reduce the consumption of non-renewable resources to *zero*, anyway. This conclusion is already contained in the definition of "non-renewable," therefore this is not a substantive but an analytical argument, i.e., a tautology (Toulmin, 2003, p. 114). "Whether 'green growth' in terms of value added remains possible despite these

physical limits remains to be seen" (p. 134 in article #1, Section 3.1).

But the conclusion goes beyond the question whether we can quit growing or not. Implementing political institutions that limit resource consumption and prevent or redistribute economic rents is much more than some measure for more ecological sustainability or a more stable economy. If the meritocratic principle is a fundamental social norm, then tackling economic rents could provide a general political compass toward a just and sustainable society based on market economy. Similar ideas (though not the wording) were prevalent among the "ordo liberals" in Germany just after World War II (ordo = Latin for order). They laid the foundation for the institutionalization of Social Market Economy that made Germany prosper. Evaluating the experience of the past one hundred years, they concluded that neither central planning nor laissez-faire were apt to ensure a stable economy without a concentration of economic power and hence exploitation (Eucken, 2012). Economic power in their view should be prevented from the outset because once established it would be inevitably abused.

It is this tradition of liberalism that we refer to when we propose to implement an "economic order" – a parsimonious institutional framework that focuses on the essentials, i.e., those few problems that are crucial and whose solution make an economic self-regulation via market exchange only realistic (Richters and Siemoneit, 2021, p. 8). Liberalism has no good reputation today although for most of the term's history it described an individual virtue of tolerance, generosity, and common good orientation (Rosenblatt, 2018). This ideal could be revived by combining the old liberal idea of the "lean state" (no market interventions) with the "economic order" (no economic rents). Then most market interventions are not necessary anymore, and liberalism could become a synonym for economic stability, social justice, and ecological sustainability. But here we are really entering the realm of utopia.

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3.1 #1 Growth imperatives: Substantiating a contested concept

Authors: Oliver Richters and Andreas Siemoneit

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Growth imperatives: Substantiating a contested concept

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ABSTRACT

Economic growth remains a prominent political goal, despite its conflicts with ecological sustainability. Are growth policies only a question of political or individual will, or do 'growth imperatives' make them inescapable? We structure the debate along two dimensions: (a) degree of coerciveness between free will and coercion, and (b) agents affected. With carefully derived micro level definitions of 'social coercion' and 'growth imperative', we discuss several mechanisms suspected to make growth necessary for firms, households, and nation states. We identify technological innovations as a systematic necessity to net invest, trapping firms and households in a positive feedback loop to increase efficiency. Resource-intensive technology is economically attractive because of a subtle violation of the meritocratic principle of justice. The resulting dilemma between 'technological unemployment' and the social necessity of high employment explains why states 'must' foster economic growth. Politically, we suggest to institutionally limit resource consumption and redistribute economic rents.

1. Introduction

Economic growth has become a prominent political goal worldwide (Schmelzer, 2015, pp. 262–270). Critics question the ability of growing economies to stay within "planetary boundaries" (Steffen et al., 2015; van den Bergh and Kallis, 2012), or they argue that growth should be replaced by new objectives because it has ceased to improve social conditions in industrialized countries (Kubiszewski et al., 2013; Stiglitz et al., 2010; Wilkinson and Pickett, 2009). Even proponents of growth suspect that it may become obsolete because of "secular stagnation" (Blanchard et al., 2016; Teulings and Baldwin, 2014). These concerns raise the question: "*Why is there so much of a political need for growth?*" (Rajan, 2016, p. 270). Discussions about this alleged need for growth deliver answers between free decision and coercive laws, with very different reasonings (cf. Section 2).

This article investigates whether growth imperatives exist, i.e., mechanisms that require economic growth to keep the economy functioning and are hard to circumvent for individuals, firms, or nation states. In Section 2, we structure the debate on growth imperatives in a matrix with two dimensions, coerciveness and type of agent, thereby identifying two questions:

(i) What makes economic growth 'imperative' (coercive)? We regard *growth imperatives* as a special case of *social coercion*. For both terms formal definitions that are currently missing are delivered in Section 2. It is a core aim of the paper to demarcate the terms social coercion from social pressure as well as growth imperative from growth driver, and to explain how they relate to each other. Many of the motives to invest and consume are discussed as free will or as some lopsidedness due to subtle social pressures or expectations. We will show that often it is rather coercive social interactions and economic conditions that leave individuals literally no alternative to economic growth.
(ii) Which agents are subject to this coercion according to which mechanisms, and is the concept of a growth imperative likewise

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	free will (*autonomous*)	social conformity (*internalized*)	social pressure (*not existential*)	social coercion (*existential*)	direct coercion (*force*)
macro: nation states / policy makers	technocratic optimism [1] ideology [5]	planning euphoria [1] symbol of national power [1] holy grail [6] paradigm or mindset [7]	Cold War rivalry [1] international competition [1]	system stability [2] skyrocketing unemployment [3] subservience [4] social crisis [1]	
micro: firms	fetish [9] matter of taste [15]	growth for growth's sake [1] protestant work ethic [12] obsession [16]	market leader, No.1 [10] compulsion to accumulate [13]	expand-or-die [8] external coercive laws [14] grow or die [17]	(not observed)
micro: households	eccentric decisions [21]	standard of living [18] mental infrastructure [22] newly created wants [25]	rat race at the social level [19] stigmatization [23] keeping up with the Joneses [26]	shrinking [20] social death [24] iron cage of consumerism [27]	loss of income [28]

Fig. 1. Quotes related to economic growth and its contested 'necessity'. The two dimensions are 'drive' (or 'motive') from left to right and 'scope' from bottom to top. From their context, the quotes (though not the wording alone) can be attributed to coerciveness and one of the agent types. Quote positions in the matrix are approximate (and contestable), and in a few cases we have selected what we considered to be a primary attribution to an agent type. In any case, the quotes illustrate the breadth of the debate and the tensions between free will and coercion and between individual action and political measures. The dotted frame indicates the focus of the article. [1] Schneider, 2015, pp. 262–270. [2] Patch, 2012, p. 95. [3] Kallis, 2011, p. 873. [4] Deyzek, 1992, p. 524. [5] Mises, 2010, p. 48. [6] Rolen, 2012, p. 33. [7] Daly, 1973, p. 149. [8] Schneider, 2016, p. 124. [9] Hamilton, 2003. [10] Sinek, 2009. [11] Heinsohn and Steiger, 2009, pp. 186–187. [12] Weber, 1920. [14] Schumpeter, 1942, pp. 30–33. [14] Marx, 1906 [1867], p. 649. [15] Gordon and Rosenthal, 2003, p. 26, critically discussing neoclassical theory. [16] van der Wee, 1986, p. 15. [17] Smith, 2010, p. 31. [18] Bourguignon, 2004, p. 513. [19] Hirsch, 1976, p. 76. [20] Rennwanger, 2013, p. 117. [21] Gaucester, 1971, p. 24. [22] Welzer, 2011. [23] Rogall, 2012, p. 180. [24] Kamman, 2007, p. 2. [25] Galbraith, 1969, ch. 11. [26] Mott, 2003. [27] Jackson, 2009, ch. 6. [28] Kallis et al., 2012, p. 128.

applicable at the micro and macro level? Section 3 scrutinizes theories of growth imperatives for firms and describes how technological progress requires steady increases in efficiency and therefore net investment. In Section 4, we will show how technical consumption goods that make private life more efficient become existential necessities for households. The availability of natural resources plays a key role in trapping firms and households (supply and demand) in a positive feedback loop, forcing them to increase efficiency. We will explain in Section 5 how the growth imperatives of the economic agents proper translate into a political growth imperative for governments, because certain collective convictions and political restrictions make alternatives to fostering economic growth 'unrealistic'.

We discuss institutional remedies for this dilemma. Section 6 concludes.

2. Structuring the debate

2.1. Reasons for economic growth: between free will and direct coercion

To structure the debate on growth imperatives, we arranged related quotes along two dimensions (Fig. 1):

(1) A 'drive' (or 'motive') from left to right that ranges from free will over socio-cultural and economic influences to direct coercion (force). We have named five points along this dimension. It has three aspects that are further explained in Fig. 2: (a) Coerciveness increases from zero on the left to full scale on the right. (b) The points differ in their external influence: free will and conformity are based mainly on individual mental attitudes, deliberately chosen or culturally acquired. Direct coercion as maximum external influence is hypothetical in our context, as no individually enforced 'growth law' has been observed. In between, we find 'social' as a *mode of interaction* (cf. Section 2.2), and we distinguish between social pressures and social coercions, the difference being existential threat. We will argue that a social coercion must be existential to be 'truly' coercive, therefore the focus of the article is on the dotted frame. (c) We will show a general tendency for 'coercive' arguments to be based on economic instead of socio-cultural pressures. Toward the right edge of our figures, the economic *mode of pressure* gains in importance (cf. Section 4.1).

(2) The second dimension of Fig. 1 is a 'scope' from bottom to top that considers how three different classes of agents are affected by growth imperatives: firms and households at the micro level, and public decision makers at the macro level. We will argue that genuine (economic) growth imperatives ("causes") can only be found at the micro level of firms and households, even though it translates into a political growth imperative ("symptoms") via an agent-policy link.

Fig. 3 visualizes these questions and the content of the article sections.

2.2. Social pressure and social coercion

Coercion is usually discussed as a relation between two individual agents, coercer and coercee (cf. Anderson, 2017). The coercer can be 'society', when individuals are "compelled [...] by situa-

3.2 #2 Consistency and stability analysis of models of a monetary growth imperative

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Analysis

Consistency and stability analysis of models of a monetary growth imperative

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ABSTRACT

Is fostering economic growth 'only' a question of political will or 'unavoidable' to maintain economic stability? It is disputed whether such a 'growth imperative' is located within the current monetary system, creating conflicts with sustainability. To examine the claim that compound interest compels economies to grow, we present five post-Keynesian models and show how to perform a stability analysis in the parameter space. A stationary state with zero net saving and investment can be reached with positive interest rates, if the parameter 'consumption out of wealth' is above a threshold that rises with the interest rate. The other claim that retained profits from the interest revenues of banks create an imperative is based on circuitist models that we consider refutable. Their accounting is inconsistent, and a modeling assumption central for a growth imperative is not underpinned theoretically: Bank's equity capital has to increase even if debt does not. This is a discrepancy between the authors' intentions in their texts and their actual models. We conclude that a monetary system based on interest-bearing debt-money with private banks does not lead to an 'inherent' growth imperative. If the stationary state is unstable, it is caused by agents' decisions, not by structural inevitableness.

1. Introduction

The debate about ecological limits and 'planetary boundaries' (Rockström et al., 2009; Steffen et al., 2015) has propelled forward the debate whether the economy will reach a non-growing, stationary state (D'Alisa et al., 2014; Jackson, 2009; Schmelzer, 2015; Steurer, 2002). This is in conflict with the 'credo of unlimited growth' (Schmelzer, 2015, pp. 262–70) that was based on the notion of the economic circuit as a self-contained, 'perpetual' flow of exchange value, while the inevitable 'physical flow of matter-energy which is not circular' was neglected (Daly, 1985, pp. 279–81). Gordon and Rosenthal (2003, p. 26) argued that in neoclassical theory, 'growth is a matter of taste', 'no more than preference between present and future consumption', and Robert Solow as a founder of neoclassical growth theory summed it up by saying that there is 'nothing intrinsic in the system that says it cannot exist happily in a stationary state' (Stoll, 2008, p. 92). But some authors have argued that for structural or systemic reasons only a growing economy is compatible with economic stability. The lack of any viable alternative to growth seems to create a 'growth imperative', creating a conflict with sustainability. Beltrani (1999, p. 123) claimed that immanent systemic mechanisms exist that the economy has to grow to maintain economic stability, *independent of the will* of the economic agents. Discussing cultural and societal influences in relation to economic growth, Richters and Siemoneit (2017a) provide a more detailed discussion on terminology. A (weaker) 'constant incentive for growth' caused by voluntary *decisions* of economic agents is called 'growth impetus' (Binswanger, 2013, p. 116) or 'driver' (Jackson and Victor, 2015, p. 39).

Beltrani (1999), Binswanger (2013), Binswanger (2009), Douthwaite (2000), Farley et al. (2013), and Lietaer et al. (2012) locate a growth imperative within the monetary system, while Berg et al. (2015), Cahen-Fourot et al. (2016), Jackson and Victor (2015), Strunz et al. (2017), and Wenzlaff et al. (2014) dispute this claim. The political relevance of this controversy is emphasized by some members of the Study Commission on 'Growth, Wellbeing and Quality of Life' by the German parliament: They suggest to study the different positions

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on the relation of growth, money, and credit to improve the basis for decision-making (Deutscher Bundestag, 2013, p. 794). This paper adds insights to the question of whether a stationary state (with non-growing GDP, Gross Domestic Product) is feasible in monetary models driven by effective demand. The study can be considered as part of the emerging field of ecological macroeconomics at the frontier of ecological and post-Keynesian ideas (Berg et al., 2015; Jomini and Sawyer, 2016; Holt et al., 2009; Jackson et al., 2014; Kronenberg, 2010; Rezai and Stagl, 2016).

In the following, we review two different lines of argument and corresponding mathematical models from the literature. The central aim is to clarify *why* certain modeling approaches lead to a growth imperative and others do not. Section 2 analyzes the arguments for a monetary growth imperative stemming from the existence of credit money and compound interest. This claim is examined with five post-Keynesian models of a monetary economy from the literature, some of which were explicitly designed to investigate this argument. The stability analyses reveal that the interplay of consumption decisions and interest income determines whether a stable stationary state exists. Section 3 critically reviews models locating the growth imperative within retained profits of private banks. Our analysis shows that they are based on inconsistencies and a discrepancy between the authors' intention in their texts and their actual models. Section 4 presents results and conclusions, trying to help to resolve the controversy of whether a monetary growth imperative exists.

Note that two definitions for profit are used parallel in economic literature (Mankiw and Taylor, 2011, ch. 13). *Accounting profit* (as used in all models) is the increase of a firm's equity capital *before profit appropriation*, i. e., the surplus of revenues over costs. For *economic profit* revenues not only have to compensate for the explicit costs of accounting, but for all costs required to keep factor inputs in their current use. This includes an appropriate estimation of the owners for the value of their working time, but also the losses of income due to the renunciation of better job or investment alternatives (opportunity costs). Thus, firms with an economic profit of zero can be 'profitable' and provide a living for their owners, realizing accounting profits which are fully distributed.

2. The Interplay of Consumption Decisions, Credit Money and Compound Interest

Several authors locate a growth imperative within the monetary system, particularly within interest bearing debt. For an overview on arguments and theoretical foundations, see Strunz et al. (2017) and Wenzlaff et al. (2014). One of the arguments is that credit and interest can only be paid back if 'new' money enters the system, increasing the money supply: "Debt grows exponentially, obeying the abstract laws of mathematics" (Farley et al., 2013, p. 2809) because of 'compounded interest' or 'interest on interest' (Lietaer et al., 2012, pp. 100–1). This would imply that "the economy must grow continuously if it is not to collapse" (Douthwaite, 2000, p. 6). The central argument along these lines is that debt claims increase exponentially because of interest dues, and therefore liabilities have to increase in lockstep. The looming debt overload could only be neutralized by defaults and crisis, or mitigated by steady economic growth. Farley et al. (2013, p. 2811) concluded that in a stable non-growing economy, 'money creation $_{\ldots}$ cannot be debt-based and interest-bearing.' Dittmer (2015) has critically discussed non debt-based money extensively; thus we focus on investigating whether a stationary state is compatible with positive interest rates.

Do positive interest rates on money necessarily lead to accumulation of financial assets? If creditors spend their interest income for investments or consumption, money flows back into circulation and is available for repayment, so exponential growth of debt and deposits does not happen (Berg et al., 2015). This possibility is omitted by those cited above arguing that positive interest rates are incompatible with zero growth for systemic reasons. Glotzl (1999, 2008) objected that it is unrealistic that creditors decide to fully spend their interest income, which is why credit claims increase and the collective of debtors is powerless to repay the debt. But note that this is not 'independent of the will of agents', but dependent on consumption decisions of those who achieve income. Only if agents decide to increase their money stocks permanently and boundlessly, no stationary state can be obtained. The conclusion is that the relevant condition for a stationary state is not interest rates, but the aggregate net saving ratio and net investment to be zero, i. e., the proportion of income which is saved and invested on top of replacement investment. The relation between income (from wages or interest) and consumption can be studied in post-Keynesian models.

2.1. Insights from Post-Keynesian Models

Models describing a monetary economy were used to investigate whether a monetary growth imperative exists. The theoretical formulation of these models driven by effective demand is the 'Monetary Theory of Production' (Fontana and Realfonzo, 2005; Godley and Lavoie, 2012) in the tradition of Keynes (1936, 1973).

Jackson and Victor (2015, p. 44) "found no evidence of a growth imperative arising from the existence of a debt-based money system" in their model, because simulations converged to a stationary state. Cahen-Fourot et al. (2016) came to the same conclusion, emphasizing that it is necessary to include consumption out of wealth to reach a stationary state, because saving out of profit has to be compensated. The parameter 'consumption out of wealth' c_w indicates the percentage of the stock of wealth of households at the end of one period that they spend during the next period. Both papers concluded that positive interest rates and debt-money are compatible with a stationary economy.

Berg et al. (2015) provided a more nuanced view based on a systematic approach, further explained in Richters (2015). The stability analysis of their model showed that the question of whether a stationary state is stable depends on the interplay of interest rates and consumption parameters. If the interest rate is high and 'consumption out of wealth' c_w low, a stable, non-growing economy is impossible.

We will show in the following that this result can be generalized to other models, because they are based on similar assumptions about consumption and investment decisions (Section 2.2). Sections 2.3.1–6 explain the methodology and provide five stability analyses of the papers by Berg et al. (2015), Cahen-Fourot et al. (2016), Jackson and Victor (2015), and, for comparison, chapters 4 and 10 of the textbook 'Monetary Economics' (Godley and Lavoie, 2012). The results are jointly discussed in Section 2.4.

2.2. Introductory Thoughts on Consumption and Investment Decisions

In all the dynamical models of this chapter, consumption C is composed of not more than three components, the first being a fixed autonomous spending c_0 (sometimes set to 0), the second being proportional to disposable income Y_d ($c_y Y_d$) or disposable wage income W_d ($c_w W_d$), and the third being proportional to the net wealth of households of the previous period V_{t-1} (c_v) (with parameter 'consumption out of wealth' c_v):

$$C_t = c_0 + c_y Y_{d,t} (\text{resp. } c_w W_{d,t}) + c_v V_{t-1}. \tag{1}$$

The papers may use different notations (α_2 for c_y, α_1 for c_y or c_w), but we harmonized them for increased readability. The old Keynesian

3.3 #3 An offer you can't refuse: Enhancing personal productivity through 'efficiency consumption'

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An offer you can't refuse: Enhancing personal productivity through 'efficiency consumption'

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ABSTRACT

Worldwide, economic growth is a prominent political goal, despite its severe conflicts with ecological sustainability. Contributing to the debate on economic 'growth imperatives', this article explores the thesis that both firms and consumers frequently acquire goods that increase their efficiency (productivity). For firms, efficiency is accepted as a main investment motive, but for consumers it is usually framed as convenience, ease, or comfort. Via social diffusion processes consumer goods that can save time and costs are transformed from a welcome expansion of possibilities into a social imperative whose noncompliance over time also has economic drawbacks. Positive feedback mechanisms not only lead to an acceleration of private life but favor ever more efficient industry and trade structures on the supply side, contributing to a redistribution of incomes and revenues. Eventually, a comprehensive consumption pattern leads to a new 'normality' and makes the renunciation of consumer goods like cars, computers or smartphones virtually impossible. Both microeconomics and consumption sociology generally assume fundamental differences in the motivations, goals and overall structural conditions of firms and consumers. Some reasons for this scholarly asymmetry are discussed and a more symmetrical consumption model is proposed.

1. Introduction

Economic growth (measured as Gross Domestic Product, GDP) is one of the most important goals of politics worldwide. GDP growth is generally associated with progress and improved human well-being, a "panacea" to most economic and social problems, and over time "growth for growth's sake" became "the supreme and largely unquestioned objective" [1, pp. 262–70]. But the suitability of GDP growth as a means for measuring social progress is questioned, as is its promise to improve social conditions [2,3] and the ability of growing economies to stay within "planetary boundaries" [4]. "Green Growth", the absolute decoupling of economic growth from environmental impact [5], is discussed as a way out of this dilemma. It is doubted whether this will ever be possible [6–9]. The alternative to refrain from growth "remains anathema to policymakers and arguably to the public at large" [10, p. 624].

Scholars in different fields have criticized this as a lopsided and unreflecting clinging to growth, but they are far from unanimous about whether this is caused 'only' by political will or whether systemic 'growth imperatives' exist [1,11,12]. To the question 'Why can't we stop clinging to growth?' no generally accepted answer exists. Instead, this question generates a plethora of theses that range from unchangeable anthropological constants to system failures and from business power and cultural influences to personal character. Accordingly, proposals for a socio-ecological transformation are made across a whole spectrum, ranging from institutional and cultural changes to individual ones [13–16, and references therein].

As a contribution to this debate, I wish to discuss a socio-economic mechanism that would reveal a systematic necessity for consumers to net invest (i.e., to 'grow'). The thesis is: Both firms *and* consumers frequently, intentionally, and often enthusiastically, acquire numerous goods that make them more *efficient* (in the sense of time and cost efficiency). In microeconomic literature, the 'efficiency' topos (as defined in this article) has generally been related to production only. But there is also an *efficiency consumption*: Certain technical products like freezers, washing machines, cars, computers and mobile phones (as well as services based on these goods) are able to relieve consumers' schedules, make them independent and more flexible. Consumption research has scrutinized this type of consumption from time to time but mainly viewed it as 'convenience' or an answer to 'time pressure', a phenomenon interpreted as a culturally imposed practice or sign of a personal lifestyle, like dual income families [17–19]. But efficiency consumption

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also has *economic* advantages, a topic often lacking attention in consumption research. This more existential aspect of consumption may be the cause for a *systematic* 'escalation': These goods provide access to opportunities for cutting costs and generating or sustaining income. Via economic feedback loops they can contribute to a reshaping of the supply side, escalating supply *and* demand and making these consumer goods no longer a choice but an obligation, thereby closing a positive feedback loop which can be interpreted as (part of) a 'growth imperative'.

This article attempts to explore the potential of this perspective as a means to explain certain consumption decisions and resolve some theoretical issues. As a starting point, Section 2 outlines two aspects where current theory lacks coherence. Section 3 delivers definitions of several terms relevant for this article. In Section 4, the concept of efficiency consumption is introduced theoretically and then underpinned empirically. Microeconomists and consumption sociologists have repeatedly emphasized the fundamental difference (asymmetry) between firms and consumers. Section 5 offers an explanation of how this (in connection with other effects) may have contributed to efficiency consumption not yet being perceived as an area for research. In Section 6, an alternative theoretical model for consumption is presented that 'symmetrizes' firms and consumers (and therefore also investment and consumption). Finally, in Section 7 some open research questions are stated.

2. Starting point and question

The concept of efficiency consumption could help to better understand at least two aspects discussed unsatisfactorily to date:

(1) In microeconomics and consumption sociology, a remarkable asymmetry of firms and consumers prevails.

Samples from microeconomic textbooks reveal a *technical progress naturalism* on one side and an *insatiable need naturalism* on the other. On the supply side, quasi natural cut throat competition is a constant source of efficiency increases and innovations [20, pp. 37–8]. On the demand side, there are quasi natural 'wants' that can never be fully satisfied, since the level of 'wants' rises in parallel to the standard of living, and a desire to consume always persists [21, p. 352] (critically on *need naturalism* Ilmonen and Sulkunen [22, p. 47]). Depending on whether the authors interpret goods as 'necessary' or 'extravagant', consumer motives are assessed differently, but by definition a satisfied (non-)consumer does not exist in microeconomics [23, p. 189]. Rational decisions by firms based on objective criteria are contrasted with irrational or 'eccentric' decisions by consumers based on personal desires [24, pp. 181–2]. This asymmetry is justified by assuming that the profit maximization of firms is a consequence of a "Marktzwang" (market coercion) due to competition, while the utility maximization of consumers does not arise from a comparable pressure [21, p. 305]. While modern textbooks (e.g., [25]), tend to alleviate this asymmetry, they still scrutinize 'soft' topics like tastes, altruism and cognitive limitations for consumers, but assume 'hard' profit maximization, efficient allocation and optimal input choices for firms.

Consumption sociologists emphasize other aspects but come to similar conclusions. They also insist on a *fundamental difference* in the motivations, goals and structural overall conditions for firms and consumers. Hedtke [26, pp. 50–73] discusses vehemently an, in his view, misguided 'parallelization of households and firms' as propounded by economist Gary S. Becker and others, and most authors in Goodwin et al. [27] as well as in Rosenkranz and Schneider [28] draw the picture of a more or less volatile consumer and insist that the influences on consumers are mainly cultural, as opposed to firms. Works in the tradition of *Consumer Culture Theory* [29] discuss all domains of consumption in terms of cultural aspects, be this architecture, mobility or clothing.

I would question that this strong asymmetry is really justified by reason and therefore make a case for a stronger symmetrization (that, in accordance with Occam's razor, would also be a more parsimonious theoretical presupposition).

(2) Accordingly, there is no microeconomic approach that reveals a 'growth imperative' for consumers like the one long since discussed for firms in competitive markets ("grow or die" [30, p. 27]).

A growth imperative only for firms who then encounter consumers unwilling to consume would quickly die out. But up to now, unwillingness to consume is a rarity. Since necessarily "C equals P" (i.e., except for exceptional circumstances the extent of consumption equals the extent of production [31, p. 17]), increasing supply has always met some demand. But *do* consumers have to consume more and more? Consumer researchers insist that in western, industrialized countries consumption has lost its existential function and has become mainly symbolic, stating that today it "is related to elementary needs only to a minor extent and is in fact *choice consumption, desire consumption* instead" [32, p. 48, my own translation]. Similarly: "Insofar as private consumption beyond an elementary securing of one's existence is marked by a distinctly expressive character [...]" [33, p. 117, my own translation]. Likewise: "Due to widespread wealth, consumption has moved apart from securing one's existence [...]" [34, p. 169, my own translation]. Hellmann [35, pp. 179–80] also makes a distinction between first and second order consumption (primary and secondary needs), accepting only *physiological* basic needs as primary. Discussed are conspicuous consumption, consumption as a meaning of life, convenience and the permanent quest for novelties (6,27,36–39) (for a critique of the moralistic bias of this debate see McCloskey [31]). Moreover, Rosa [40, p. 243] has shown how decisions taken by consumers to expand their possibilities using time saving technologies contribute to an acceleration of society ("acceleration circle"). However, he explicitly rejects any economic pressure and refers to self-determined consumption decisions (pp. 279–80).

I would also challenge the thesis that modern consumption mostly goes beyond basic needs and lacks economic pressure. The consequences of diffusion of time- and cost-saving technologies are more than mere acceleration or cheaper life. Everyone is becoming more efficient, and this has an impact on the *distribution of income*. In an accelerated society, securing the balance of income and expenditure requires ever more 'consumption' that appears to go beyond basic needs, but that is essential for their satisfaction (via an income) and therefore existential. This consumption has to be viewed rather as an investment.

3. Clarification of terms

3.1. Investment and consumption

On the one hand (and also colloquially) investments are defined as long-term capital, as opposed to immediate consumption. On the other hand, investments are defined in economics as the deployment of production factors *outside of households*, for a better provision of goods in the future [41: "Investment"]. The term consumption is also used in two different senses: In a wider sense consumption is defined as using up goods for increasing human welfare. In a narrower sense, consumption is defined as using income for purchasing consumer goods [41: "Consumption"].

Unifying and referring to the first of the two definitions, an investment can be regarded as a renunciation (postponement) of immediate satisfaction of wants, for securing or improving the future provision of goods (long-term advantages). Accordingly, investments of households can be long lasting goods as well as spending (non working) time, for instance education, further qualification or learning languages.

3.4 #4 Merit first, Need and Equality second: Hierarchies of Justice

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Merit first, Need and Equality second: Hierarchies of Justice

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Abstract: The question of "Justice" still divides social research, moral philosophy, and public discourse. Three principles of distributive justice occupy center stage in the debate: merit (equity, proportionality), need, and equality. Yet their relation remains diffuse, and current theory does not inform political practice. Here, we aim to develop a coherent picture with an interdisciplinary analysis. From an evolutionary point of view, the primary principle of justice is reciprocity in social exchange (what corresponds to merit). But besides being just, justice must be effective, efficient, and communicable, thereby making justice rather a social bargain and an optimization problem. Social-psychological insights (intuitions, rules of thumb, self-bindings) can inform us when and why the two principles need and equality are more likely to succeed than merit would. But both are governed by reciprocal considerations, and self-bindings help to interpret altruism as "very generalized reciprocity." Regarding politics, the reciprocal social norm *Meritocratic Principle* can be implemented, and its controversy avoided, by concentrating on "non-merit," i.e., institutionally draining the wellsprings of undeserved incomes (economic rents). Avoiding or taxing away economic rents is an effective implementation of justice in market economies.

Keywords: Justice, reciprocity, meritocratic principle, altruism, self-binding, economic rents

Highlights:

- Reciprocity (merit, equity) is the primary principle of distributive justice
- Justice must be just, but also effective, efficient, and communicable
- Need and equality are auxiliary principles, governed by reciprocal considerations
- Self-bindings help to interpret altruism as "very generalized reciprocity"
- Avoiding or taxing away economic rents is an effective implementation of justice

Contents

1 Introduction

"Justice" claims to provide a central moral standard for judging not only individual behavior but also the basic structure of societies and their institutions (Cohen, 1986, p. 1, Rawls, 1999, p. 3). However, the scientific and philosophical debate about justice has not yet revealed a clear paradigm, with several lines of argument competing here (Cohen, 1986; Sandel, 2009; Miller, 2017):

- **Grand Theories of Justice**, usually connected to a famous proponent, for example Virtue – Aristotle, Utilitarianism – Bentham, Autonomy (Deontology) – Kant, Egalitarianism – Rawls, Libertarianism – Nozick (Sandel, 2009).
- **Basic principles** that would (alone or in combination) govern the human quest for justice: virtue, happiness, desert, merit, sufficiency, priority, need, equality, liberty etc. (Tyler et al., 1997, 56ff.). While most theories are devoted to a primary principle of justice, some of them make a case for a plurality of principles (e.g., Walzer, 1983; Deutsch, 1985; Miller, 1999; see also below on the "principle triad").
- Different **conceptual approaches**, for example naturalism (tracing justice back to natural phenomena) or contractarianism (justice being a social agreement), but there are many more (cf. Olsaretti, 2018).

We find major conceptual contrasts (tensions, dichotomies). Among these are:

- **Substantive vs. procedural** justice (Miller, 2017): Can justice strive for certain desired outcomes, or must justice restrict itself to just procedures, accepting any outcome? More generally, social psychologists are concerned with how procedural questions (non-outcome factors) affect perceptions of justice (Lind, 2020).
- **Cognitivist vs. decisionist** approaches (Quante, 2013, 40ff.): Is justice based on principles to be discovered or (only) subject to contingent agreement? A similar contrast is **rationalist vs. empiricist** (Binmore, 2005, p. 38): Can we deduct moral principles from reason alone, or do we have to consult data from the real world?
- The role of **intuitions** (Gigerenzer, 2007; Haidt, 2013): Are intuitions (gut feelings) the benchmark for "genuine" justice or merely heuristics for rational reasoning?

This article focuses on distributive justice, i.e., the allocation of benefits and burdens in societies, the most important allocation being income for work. In the terms of Leventhal et al. (1980), it is a theory of allocation preference. It does not discuss non-outcome factors like procedural fairness because in the end material outcomes are decisive (Harris, 1979, but see also Miller, 2017, p. 13). In markets, merit-based allocations (income proportional to economic contribution) enjoy practical prominence and widespread approval (Miller, 1999; Mulligan, 2018; Adriaans et al., 2019). But concerns arise about increasing inequality (Piketty, 2014), and merit as a normative basis is widely questioned (Rawls, 1971; Frank, 2016; Sandel, 2020).

The proportionality of inputs and outcomes (i.e., merit) as the hallmark of an equitable relationship was also the core proposition of *Equity Theory*. Equity Theory was the leading paradigm of social psychology during the 1960s and 1970s and led to hopes of becoming a general theory of social interaction (Adams, 1963, 1965; Berkowitz and Walster, 1976). Both inputs and outcomes could be positive or negative, and their relation was presented in a complex, somewhat counterintuitive mathematical formula (Walster, Berscheid, et al., 1973). Note that the term equity has two meanings (Leventhal, 1980, p. 29): Narrowly it refers to Equity Theory's *contributions rule* which says that inputs must balance outputs. In everyday language it refers rather to justice or fairness in general (see also Young, 1994). Throughout this article we will use the narrow definition of equity and prefer the term merit to the term equity.

While Equity Theory was considered plausible for most economic transactions, many societies fulfill the *basic needs* of their weak members, and often people are treated *equally*, economically or politically. People donate blood or organs, get committed to refugees or environmental protection without expecting anything in return. The application of Equity Theory to intimate relationships was deemed especially disturbing (Walster, Walster, et al., 1978, ch. 6). Equity Theory was criticized for its "unidimensionality" and other conceptual shortcomings (Deutsch, 1975; Leventhal, 1976a, 1980; Schwinger, 1980; Deutsch, 1985; Folger, 1986), and gradually the "principle triad" of merit, need, and equality emerged from the debate. This approach quickly and consistently found the support of many scholars (see Lerner, 1977; Mikula, 1980a; Reis, 1986; Kabanoff, 1991). Today it represents one paradigm within the justice discourse of social psychology (Lind, 2020), and social justice research frequently refers to these three principles (e.g., Sabbagh and Schmitt, 2016; Van Hootegem et al., 2020; Narisada et al., 2021).

In philosophy, desert-based theories of justice suffered a similar fate. The act of doing something for others can constitute a moral claim: people *deserve* certain benefits in light of their actions, and justice requires getting them (Feldman and Skow, 2016; Lamont and Favor, 2017; Mulligan, 2018). This approach is traced back to Aristotle who argued in his *Nicomachean Ethics* (1131a) that "all men agree that what is just in distribution must be according to merit." But desert has no philosophical lobby today. Rawls (1971, 1999) is considered being most influential in killing the concept: no one deserves anything at all, and, despite lacking empirical support, mainstream philosophers prefer variants of either egalitarianism (equality) or libertarianism (a purely proce-

dural approach) (Miller, 1999, Mulligan, 2018). Mulligan (2018) recently published an elaborate defense of meritocracy and argued that, empirically and across ideological and cultural lines, people want rewards to reflect merit. Miller (1999, 2017) occupies a special position among philosophers: He endorses merit but only in combination with need and equality, i.e., the principle triad.

Whether independently or as a triad, the three principles merit, need, and equality occupy center stage in the debate about distributive justice, theoretically and empirically (Scott et al., 2001). Yet their relation remains diffuse, and current theory does not inform political practice (Honneth, 2008). As long as merit, need, and equality are seen as competing principles, the dualism of other-regarding preferences vs. "selfish" motives will persist (see Section 2.4), and social policy will continue to struggle with redistribution (see Section 6).

Here, we aim to develop a coherent picture with an interdisciplinary analysis of when, why, and how people in modern societies allocate benefits and burdens according to merit, need, and equality, setting it in the evolutionary context of reciprocity. We show how a reciprocal balance in social exchange can be regarded as the primary principle of justice. While merit matches reciprocity naturally, need ("altruistic" acts) and equality do not: what could fill the gaps between seemingly higher costs and lower benefits for one of the partners when choosing need or equality as distribution rule? "Primary principle" does not mean "only principle" but a hierarchy of principles according to context and constraints.

In Section 2 we depict the evolutionary roots of reciprocity as "ideal justice," describing the mechanism as well as the term's broader (and contested) usage. The section also presents the corresponding social norm *Meritocratic Principle*. Section 3 explains why one justice principle is not enough. Justice is rather a social bargain and an optimization problem than a clear cut principle, and we have to explore the trade-offs and communicative difficulties of this process. Sections 4 and 5 show how several classical applications of need and equality can be reconciled with merit. They are auxiliary principles when merit is not effective, not efficient, or not communicable (or simply coincides with equality), but their scope is limited by merit. An important topic is implementation (Section 6): How is a Theory of Justice "applied," especially regarding modern (anonymous) societies? Focusing on "non-merit" will open new and more effective policy options. Section 7 draws some conclusions.

Because there has been a shift from the outcome-focused to the relationship-focused paradigm in social psychology, beginning in the middle of the 1970s (Lind, 2020), many of the works concerning distributive justice cited here date back to the outcome-focused period.

2 Reciprocity: From Evolutionary Roots to a Social Norm

2.1 Selective Forces

Evolutionary selection has shaped a process in which individuals compete for resources to replicate their genes by reproduction, and humans make no exception. Besides competition, fitness[1] can also be enhanced by cooperation, but according to the selection rules every cooperating individual must benefit from it in the long run. Today, the existence of a genetically based altruism can be ruled out – this would contradict any evolutionary functional logic (Voland, 2013, p. 65).

Among animals, mutualism (behavior that provides *direct* benefits to every mutualist) can be observed regularly, often between species (Leigh Jr, 2010). But only higher primates seem to have evolved the cognitive abilities required for reciprocity, i.e., accepting costs for the benefit of others which are rewarded later, either by the beneficiaries themselves (direct reciprocity) or by others (indirect reciprocity) (Trivers, 1971, 2006). Reciprocity is dependent on repeated interactions, and it is endangered by cheating, so the cognitive abilities required include individual recognition, temporal discounting, and memory (Stevens et al., 2005). In parallel, mechanisms have evolved for so-called altruistic punishment of cheaters, but also for building up reputation and the assignment of social approval (prestige) (Voland, 2013, 74ff.).

2.2 Forms of Reciprocity

Reciprocity among humans has been widely discussed for different ages and cultures in anthropology and sociology (see Adloff and Mau, 2005), but only recently in psychology (Kurzban et al., 2015). Note that some authors (especially in economics) restrict the term reciprocity to a *personal* relation and motives of social approval (cf. Konow and Schwettmann, 2016), but reciprocity implies an equivalence in all exchange relations: to repay in kind what another has done for us, materially or socially. Voluntary exchange will only occur when the benefits exceed the costs for both partners (costs and benefits in a wide sense; Blau, 1968; Becker, 1976). Due to different individual levels of marginal utilities and marginal costs, both partners can benefit from exchange. This proposition lies at the heart of Social Exchange Theory (Thibaut and Kelley, 1959; Blau, 1964; Homans, 1974), and Neoclassical Economics uses the concept of consumer and producer surplus to characterize such situations.

The condition of equivalence must be met at least in the long run (Kurzban et al., 2015). Sahlins (1965) introduced the concept of generalized reciprocity, transactions that are seemingly "altruistic" but can be expected to be returned, not necessarily here and now, not necessarily by the beneficiaries

[1] In evolutionary theory, fitness is a measure of an individual's success in transmitting its genes to future generations.