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## **Making Markets Just: Reciprocity Violations as Key Intervention Points**

Oliver Richters<sup>1,2</sup>, Andreas Siemoneit<sup>1,2</sup>

1: Carl von Ossietzky Universität Oldenburg, Germany.

2: ZOE Institute for future-fit economies, Bonn, Germany.

**Abstract:** Worldwide, politics are challenged to achieve economic stability, social justice, and ecological sustainability. These goals are often rather played off against each other, and some suspect that market economies (aka capitalism) are basically unable to solve these dilemmas. This article explores the normative foundations of market economy as a robust, self-regulating system enabling just exchange in large (anonymous) groups. The primary principle of justice for market exchange is reciprocity, i.e., the balance of costs and benefits from any kind of social exchange. The corresponding social norm is called *Meritocratic Principle*. It can be operationalized and its contestedness avoided by concentrating on ‘non-merit’, i.e., institutionally draining the wellsprings of systematically unearned incomes (economic rents). Economic rents as violations of reciprocity can be viewed as a key problem of justice in any economic system. This political compass can guide consistent policy measures and is applied to two economic hot spots: land rents and resource consumption. The measures discussed follow the German neo-liberal ideal of an ‘economic order’ by setting only few general caps. This would improve market economies and make the liberal vision of self-regulating markets more realistic.

**Keywords:** market economy, justice, reciprocity, economic rents, liberalism, growth imperative

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## 1 Introduction

Worldwide, politics are challenged to achieve economic stability, social justice, and ecological sustainability.

First, the proverbial stability of market economies is called into question by financial crises (Reinhart and Rogoff, 2009; Tooze, 2018), mortgage credit cycles and rising land prices (Jordà et al., 2016; Knoll et al., 2017) or the crisis of international trade (Arellano et al., 2020; UN DESA, 2020). National regulators seem powerless against transnational corporations ‘too big to fail’ and ‘too big to jail’ who can circumvent taxes as well as social and environmental regulations (Garrett, 2016; Saez and Zucman, 2019).

Second, concerns arise about increasing inequality (Piketty, 2014, 2020) or risks of unemployment through digitalization (Peters et al., 2019). In many industrialized countries economic growth has ceased to improve social conditions (Kubiszewski et al., 2013; Stiglitz et al., 2010; Wilkinson and Pickett, 2009). In polls, the gap between rich and poor is considered a major problem (Pew Research Center, 2014, 2019).

Third, economic activity results in biodiversity loss, climate change and impact on biogeochemical cycles beyond “planetary boundaries” (IPBES, 2019; Steffen et al., 2015). Efforts toward a circular economy with renewable energies and full recycling or to shift economic activity to the third sector (services) have not led to substantial reductions of environmental degradation (Haberl, Wiedenhofer, et al., 2020; Parrique et al., 2019; Reck and Graedel, 2012). The Earth system processes that define the safe operating space for humanity set limits to economic activity that cannot be offset by short-time social goals (Daly and Farley, 2011; Steffen et al., 2015). Adhering to ecological limits in the future is also crucial for intergenerational justice and social stability.

Politics often reacts to these problems by ‘regulation’, a wide range of measures that aim at a ‘sensible’ market economy, leaving freedom where it seems appropriate but addressing whatever is perceived as a market failure or weakness (cf. Figure 1). When market outcomes appear to be unacceptable, politics may even turn toward straightforward distributive justice within the market, for example by introducing minimum wages or price ceilings on food or real estate rents. Regularly certain policies make nonsense of others, e. g., when growth policies to create jobs foil environmental legislation, or when the latter is perceived as socially unjust. A well-known example of such a perceived trade-off is the jobs vs. environment debate (Goodstein, 1999; Räthzel and Uzzell, 2011).

Several scholars and activists suspect that markets are *inherently* unable to solve these dilemmas because these problems were only *created* by their principles of private property, wage labor, competition, profit, credit money, and interest-bearing debt. These principles would lead to a growth imperative pushing the economy beyond ecological limits (Magdoff and Foster, 2011; Wiedmann et al., 2020; critically: Richters and Siemoneit, 2017, 2019a). This is

complemented by a long tradition of cultural critique, arguing that markets are disembedded from their social relationships and get ‘autonomous’, being unable to be guided toward social utility (Cangiani, 2011; Polanyi, 1977). Accordingly, radical social movements call for a ‘system change’ to improve ecological and social conditions (Foran, 2019).

The aim of this paper is to study the theoretical and normative foundations of market economies and to identify the causes of its core problems mentioned above. In section 2 we revisit the debate about distributive justice and argue that the ‘Meritocratic Principle’ (more generally: reciprocity) is the normative ideal of market economy. Accordingly, in section 3 we interpret the economic circuit with costs, revenues, profit, money, interest, and competition in terms of this principle of justice. We formulate the underlying ‘social utopia’ as enabling just barter in anonymous societies by a decentralized process. The meritocratic principle as foundational social norm can (only) be successfully operationalized by interpreting it ‘negatively’, i.e., searching for ‘non-merit’ situations where systematically unearned incomes (economic rents) are achieved. This approach has several advantages and avoids typical dead ends of academic and public debates on justice.

We propose a distinction between ‘capitalism’ and a not yet realized ‘market economy’, the former characterized by political tolerance for economic rents that destabilize the economy. Neoclassical theory already provides a collection of requirements for a just economy, including ideal markets, perfect competition, incomes according to productivity and neutrality of money. The political core task would be to identify violations of the meritocratic principle and to establish institutions for draining the wellsprings of systematically unearned incomes. This way markets can fulfill their ‘liberal’ promise of self-regulating a large economy without detailed governmental intervention and contingent political bargain. We apply this idea to current main problems of market economies where economic rents distort economic exchange: Land rents (section 4), and technology based on resource consumption (section 5). Section 6 concludes.

## 2 Justice in Market Exchange

### 2.1 Reciprocity as the Normative Foundation of Markets

The social scientific and philosophical debate about justice has not yet revealed a clear paradigm, with several theories of justice competing (e.g., Sandel, 2009). But three major principles of justice can be assumed to govern modern societies: Merit (also conceptualized as equity, achievement, or desert), need and equality, though their relation and application remains contested (Adriaans et al., 2019; Miller, 1999; Siemoneit, 2021). In markets, need and equality play only a marginal role (Siemoneit 2021 and references therein). Need as justice is usually institutionalized as welfare policies beyond the market, and equality as justice plays an

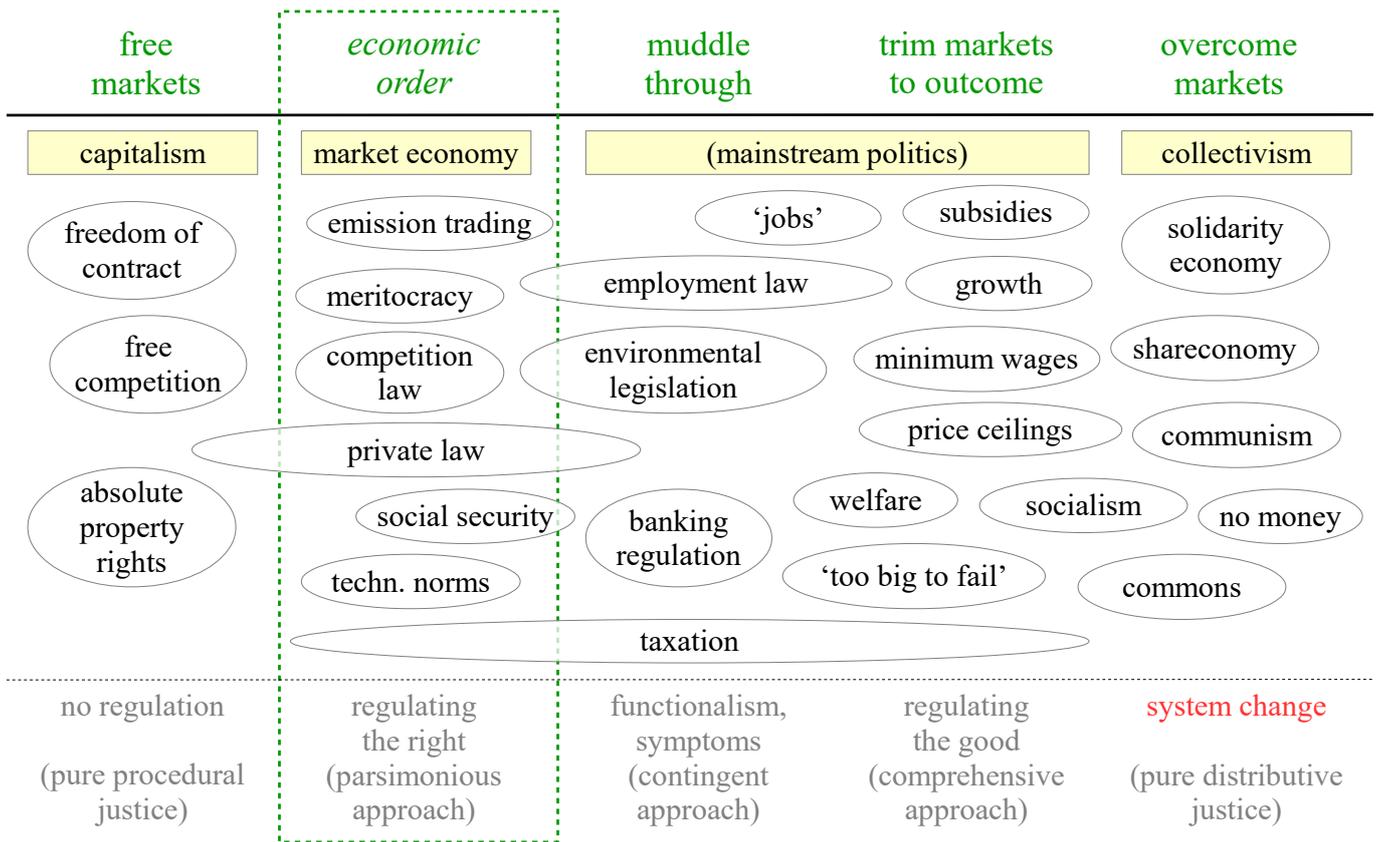


Figure 1: Economic policies between free markets and system change.

Economic policies cover in practice and theory a broad spectrum along the ‘market dimension’, with ‘pure market’ on the left and ‘no market’ (system change) on the right. Market orientation (green), naming (yellow boxes) and characteristics (grey) as well as attribution of exemplary policies to these five groups (ellipses) are approximate and contestable. For the term *economic order* see section 3.4. The dotted frame indicates the focus of the article.

important role as political equality and in the judicial system. *Distributive* equality is only a side issue, e.g., in solidary communities (though generally objections against unbridled economic inequality are widespread).

Merit as a principle of justice corresponds to a general balance in exchange which is referred to as reciprocity in biology and the social sciences. Reciprocity relies on a cognitive capacity for ‘reciprocal accounting’ that has evolved in humans (and some animals): to recognize individuals and to account for costs and benefits in the long run over repeated transactions (Kurzban et al., 2015; Stevens et al., 2005) – costs and benefits to be used in a broad sense (Becker, 1976; Blau, 1968). For most economists and sociologists, the notion of reciprocity seems to be restricted to the ‘gift’ in traditional societies or at least to *personal* relationships (Adloff and Mau, 2005). But reciprocity is timeless and ubiquitous, “the basic currency of social life” (Haidt, 2006, p. 47). Transactions that are seemingly ‘altruistic’ can often be explained by a ‘generalized reciprocity’ (Sahlins, 1965): a return can be expected, not necessarily now and here, not necessarily by the receivers themselves, undetermined in time, quantity, and value. Even actions like love, loyalty

or compassion, civic engagement or sacrifice must benefit the actors on the average – otherwise, such dispositions could not have been selected for in the evolutionary process (Kurzban et al., 2015).

Especially for the domain of income from gainful work in market economies, reciprocity translates into the social norm *Meritocratic Principle* like “Those who achieve more shall earn more” (Miller, 1999; Siemoneit, 2021). The meritocratic principle establishes a relation between personal market value and contribution to productivity (Marris, 2006). For market exchange, ‘merit’ (or more general: reciprocity) can be viewed with certainty as the paramount principle of justice.

## 2.2 Merit between Is and Ought

The significance of the meritocratic principle is emphasized indirectly also by critics of capitalism: Lobbyism, corruption, explosions of real estate prices, people that are *unfairly* well-paid despite scandals or badly paid despite their efforts can be interpreted as violations of reciprocity.

Despite widespread approval there are several objections

against the meritocratic principle. In general, to take ‘merit’ as a political guideline is problematic – its meaning is heavily contested (Miller, 1999; Siemoneit, 2021). Merit is always assessed by the *beneficiaries* of any achievement, in the case of market exchange by the buyer of a good. Merit depends strongly on context and can be neither exactly defined nor properly measured. Only when it is based on objective criteria (time needed, quantities produced) it is not disputed, but in general merit (or achievement) is a category that becomes the more blurred the closer you approach it (Verheyen, 2018, p. 15). Merit seems to have an objective core and a normative scope – it is not only about what merit *is* but also about what merit legitimately *shall* be.

### 2.3 Toward an Operationalization of the Meritocratic Principle

This poses the question of how to operationalize the meritocratic principle, if we do not want to leave it to permanent social bargain: which *institution* could guard its validity? The most salient feature of merit as a principle of justice is that it justifies unequal incomes and wealth but at the same time insists on genuinely ‘own’ (personal) achievements as their normative base – an income must be personally ‘earned’ (deserved). On the one hand, this results in “a social norm against living off other people and a corresponding normative pressure to earn one’s income from work” (Elster, 1989, p. 101), making any fundamental redesign of the distributional logic virtually impossible (‘system change’, cf. Figure 1). On the other hand, the insistence on *own* achievements opens up viable policy options toward less inequality.

Siemoneit (2021) proposed to concentrate on *non-merit* situations because a consensus regarding *violations* of the meritocratic principle can be achieved much easier. The notion of ‘unearned’ or ‘effortless’ incomes indicates the uncompensated appropriation of ‘foreign’ achievements (“at the expense of others”), hence violations of reciprocity. Unearned incomes are the Achilles heel of market economies because of a powerful leverage: Any unearned income strengthens those who receive it and weakens those who work for it, with the additional problem of a positive feedback loop when growing wealth leads to growing income. Therefore, identifying the wellsprings of *systematically* unearned incomes and institutionally preventing (or redistributing) them could provide a general political compass toward a just society based on market economy.

Nevertheless, the meritocratic principle must be complemented by a social principle: those in need and not able to generate a sufficient income have dignity and deserve a living. Any society that does not want to disintegrate cannot leave anyone behind. But ‘welfare’ is again restricted by considerations of reciprocity: It is always the donors who define what is considered as need, and they restrict aid to what is necessary, i.e., ‘true’ or ‘objective’ needs (Oorschot and Roosma, 2017).

### 2.4 The Dynamics of Individual Inequality

Individual inequality can be justified by unequal economic achievements, in full accordance with the meritocratic ideal, and indeed there are huge incentives for individuals to increase income and accumulate wealth. Material advantages, improved health, higher life expectancy, and better chances for mating are “offers one cannot refuse” (Richters and Siemoneit, 2019a). The accumulation of private wealth is rarely considered problematic, but rather an expression of the successful use of economic liberties and deemed a necessary condition or unavoidable outcome of the procedural justice of market economies.

But inequality has some inherent tendencies that are difficult to reconcile with meritocracy. Bouchaud and Mézard (2000) found that a simple exchange and investment dynamic can lead to “wealth condensation” when those with more capital can bear losses more easily and hence risk more, being successful on the average. Hackel and Zaki (2018) studied that people not only reciprocated more toward higher-wealth givers in an economic game (even though they were not more generous than lower-wealth givers), but that the wealthier also achieved better reputations. This can develop a runaway dynamic and lead to the concentration of wealth in the hands of few actors. The formation of elites can follow a similar dynamic. Roughly half of the wealth in the USA, UK, France, or Germany is inherited (Piketty and Zucman, 2015), and reaching top positions in society is strongly contingent on social background (Hartmann, 2002, 2008). Wealth can be used to elude social control and to enforce one’s interests, creating an imbalance of social and political efficacy (Goss, 2016; Rowbottom, 2010). These processes tend to reward not merit but luck, dynastic structures, or the status quo.

A destructive dynamic of inequality can be detrimental for society and even for the rich themselves (OECD, 2015; Piketty, 2014; Piketty and Zucman, 2015; Wilkinson and Pickett, 2009). A high degree of inequality contradicts the idea of the division of labor, since every income is contingent on the work of others (Siemoneit, 2021). Very unequal incomes are a visible proof that the reciprocity norm has been violated, even when the transfer itself was voluntary. There are primarily two ways toward a more equal, though still meritocratic society: Draining the wellsprings of unearned incomes can improve the primary distribution of income, and this should be the focus of economic policies. As a fallback, progressive taxation of income and wealth can redistribute illegitimately high incomes and wealth (secondary distribution).

### 2.5 Economic Rents and Unearned Incomes

Unearned income relates to economic rents, a term not consistently used in economics. Schwerhoff et al. (2020) provide a general definition of economic rents as “those benefits to an agent that are in excess of the minimum necessary for

the agent to accept the transaction”, and they extensively discuss a taxonomy of economic rents and how to regulate them (if necessary). Their general definition would even include producer and consumer surplus, but it would be difficult to classify these as efficiency-reducing or “at the expense of others” and hence unjust. Not everything what is called ‘economic rents’ in economics is problematic, and regarding reciprocity it is not even possible to attribute unearned incomes to specific factors of production. For example, accounting profit is the legitimate compensation for the opportunity costs of the entrepreneur (see below), but it can obviously exceed these costs at which point it becomes illegitimate, and this holds true for all other forms of income (Richters and Siemoneit, 2019b, p. 68). Since legitimacy is a difficult notion, we will concentrate on the obvious (blatant) cases that can be interpreted as “undue or unjust income” (Piketty, 2014, p. 535) or “exploitation rent” (Stiglitz, 2015) because these are definitely at odds with reciprocity.

Economic rents of this kind are a biased transfer of resources (violation of reciprocity), preying upon some dependency that is difficult or impossible to circumvent (inescapability). Beneath overt coercion, economic inescapability can have many sources, like geographic location, dependence on natural resources, lack of job alternatives, poverty, network effects, legislation, path dependence (cf. Richters and Siemoneit, 2019a, Siemoneit, 2019). But economic rents are not restricted to economic transactions *strictu sensu*. The debate on rent-seeking and regulatory capture (Dal Bó, 2006; Tollison, 2003) shows that it can be profitable to influence or even manipulate the orientation of political regulation.

For the purpose of this article, economic rents are unearned incomes whose wellsprings can be *systematically* and *clearly* attributed to other persons or to natural forces.

### 3 Market Economy – its Foundations and its Social Utopia

In this section we are going to interpret core terms of neo-classical theory with reference to reciprocity and justice. Many economists favored leaving out questions of justice to offer a “value-free” theory (Sandmo, 2015, p. 5, Sedlacek, 2011). They often consider Pareto efficiency as “sufficient for ethical acceptability” (Hammond, 1989, p. 187) and leave the problem of the (re)distribution of individual endowments to ethics and political economy. Hayek (1978, p. xi) even denounced social justice to be an “entirely empty and meaningless” term. But economic theory remains unintelligible without acknowledging the idea of reciprocity as the foundation of market exchange.

#### 3.1 Money as Reciprocal Memory and Neutral Means of Communication

When small groups with tight personal social control grew into anonymous societies in the course of time, the diffuse ‘reciprocal accounting’ of who is how much in somebody’s

debt since when had to be replaced by more explicit and transparent means: money and credit. Money as “societal memory” (Kocherlakota, 1998, p. 2) is a natural extension of the norm of reciprocity (Holcombe, 2020, p. 112). In experiments, the introduction of worthless token money can create trust and cooperation among strangers (Camera et al., 2013). It makes incomparable goods comparable and allows to socially finalize ‘half’ barter transactions. The exchange of goods using money is formalized as a budget constraint in economic models, but seldom economists are as explicit as Fisher (1983, p. 54) who formulated the underlying morality of exchange as “no swindling”, meaning that “no agent will ever give up something unless what he gets for it is of equal value”.

With money and markets, mutually beneficial reciprocal exchange can be essentially extended to a whole society that has no or only weak interpersonal relations, with elements of generalized reciprocity regarding ‘when’ and ‘who’ (undetermined in time and persons), but directly reciprocal regarding to ‘how much’ (monetary amounts as objective value). In an ideal world, money facilitates economic exchange without distorting or biasing it (“neutrality of money”, Patinkin, 2008). Confronted with central banks’ unconventional forms of monetary policies, banking crises, hyper inflations and other monetary turbulences, the neutrality of money seems to be a bold thesis. In fact, it is rather part of its social utopia: Money *shall* be neutral, it *shall* be only a means of communication about the value of economic achievements.

#### 3.2 How to Safeguard Production and Investments

While money facilitates barter, the precondition of barter is the production of goods. It requires the appropriate combination of the factors of production, and according to the neoclassical theory of functional distribution, “each factor will be paid according to its *marginal contribution* to the value of the output” (Varian, 1975, p. 231, original emphasis): Land is compensated with land rents, natural resources with resource rents, labor receives wages, capital receives interest and profits (Bliss, 1987). John Bates Clark (1899, p. v, 9) even deemed the maxim “to each what he creates” a “natural law”. He emphasized that a violation of reciprocity would create an explosive element which sooner or later would destroy the social structure. In economics, these reciprocity considerations are conceptualized as property rights, interest and profits, and income.

There is a long historical record of theoretical justifications that tie property rights to efforts made. Property rights have the social function to incentivize investment, preventing the invasion of free riders and protecting the benefits of exchange and division of labor (Smith, 1998). Waldron (2020) argues that the most common form of justificatory argument for private property is consequentialist: there will be “an overall increase in the amount of utility” if “the person who bears the cost of restraint is in a position to reap all the benefits”. Such rights can be justified for that they

guarantee ‘who sows shall reap’ and ensure responsibility (reciprocity of effort and earnings, Löhr, 2013). Building capital requires investment, i.e., expenses prior to production, which can be viewed as costs not compensated yet, so a ‘return on investment’ is a reciprocal requirement if the investment proves successful. These returns become unjust only when they are too high or received for too long, i.e., when they become ‘effortless’ and therefore unearned.

However, Marx (1906 [1867]) argued that (at least parts of) land rents, interest and profits are illegitimate, sign of an exploitation of workers who are the only ones creating value. By this, Marxist economists unequivocally refer to the meritocratic principle, but they assign the sources of value (merits) differently. We address the problem of land rents in section 4. Concerning (entrepreneurial) profits, note that two definitions are used in parallel in the economic literature (Mankiw and Taylor, 2011, ch. 13), and critics of capitalism often confuse both meanings (Richters and Siemoneit, 2019a). *Accounting profit* is the increase of a company’s equity capital *before profit appropriation*, i.e., the surplus of explicit revenues over costs (including depreciation and interest payments). Profit appropriation is split up into distribution to the owners and retained earnings (i.e., growth of the company). For *economic profit*, revenues must exceed not only the explicit costs but also the owners’ opportunity costs, i.e., the time and money that they expend to keep their business going, including their costs of living. The neoclassical (economic) zero-profit equilibrium in competitive markets may allow entrepreneurs to live well with a ‘normally high’ accounting profit in accordance with their economic achievement.

Both profit definitions are socially meaningful, the first as a base for taxation (‘income’), the second for comparing different investment alternatives, serving as a valuable indicator of sources of societal wealth. But both definitions also demarcate the difference between ‘earned’ and ‘unearned’ profit and interest income. Normatively, the meritocratic principle allows only *own* achievements to be compensated, which implies that to ‘profit’ from the work of one’s employees is not acceptable. Neoclassical theory is in line with that: In an ideal world, employees are compensated for their efforts with wages or salaries, and the entrepreneur would indeed – by taking ‘the rest’ (accounting profit) – only be compensated for his or her opportunity costs. And in that ideal world, too, due to competition it would not be possible for the entrepreneur to gain more than a ‘normal’ income (zero-profit equilibrium).

### 3.3 Market Economy as a Comprehensive Solution to the Coordination Problem

The crucial condition for coming near to this ideal is competition – or more generally: social control. Social control enables cooperation by suppressing exploitative behavior. It is necessary for compensating a *self-serving bias* to assign high incomes to one’s own accomplishments and to

exaggerate opportunity costs (cf. Babcock and Loewenstein, 1997). Competition in a market economy is not a goal in itself, but a cheap and effective substitute for the *personal* social control of small groups, and beneath the usual price competition it involves many forms of nonprice competition. The market mechanism, embedded in an institutional framework of political regulation and judicial surveillance, has in part replaced individual ‘moral’ and personal social control of small groups by indirect means to solve free rider problems and to ensure reciprocity. When direct forms of cooperation (i.e., personal social control) are feasible (in teams, within firms etc.), competitive elements can impair productivity and effectiveness (Deutsch, 1985, ch. 8) and result in “pointless competition” (Binswanger, 2010).

To summarize, ‘market economy’ can be viewed as a comprehensive coordination process, with the virtually megalomaniac goal of optimally controlling the actions of every individual toward efficiency. This decentralized process uses prices as a simple mechanism to communicate about preferences and economic achievements. By an adaptive process that regulates supply and demand via prices, the economy is a self-stabilizing system that enables cooperation (‘invisible hand’). Ideally, the price contains information about all scarcities involved, including ecological constraints, so no parallel social or ecological accounting is necessary – though prices *systematically* can only guide *social* exchange (Richters and Siemoneit, 2019b, p. 62). In section 5 we will present a consistent solution to the problem how prices might reflect ecological constraints.

This depends on institutions, i.e., enforceable rules that come with sanctions. Property rights should ensure that everyone can profit from its own achievements, but competition and budget constraints guarantee that the meritocratic principle is effective and no one can claim more than he or she deserves. This establishes tight restrictions on individual actions while maintaining the perception of ‘free choices’. The state is fully integrated into this economic circuit and in principle subject to the same budgetary constraints. In a way it ‘produces’ public goods and therefore ‘deserves’ taxes and fees to be paid.

So much for the theory.

### 3.4 The Gap between Utopia and Reality

In reality, we observe manifold violations of reciprocity in markets (and everywhere else), hence injustices. Neoclassical theory has received a lot of critique for not adequately describing capitalistic reality, and many other schools of economic thought have embarked upon delivering better descriptions. But essentially, we do not need a better theory of capitalism but rather well-founded policies that redress its problems. We propose a distinction between ‘capitalism’ and a not yet realized ‘market economy’. Market economy is basically a successful economic system that only degenerated into capitalism which is characterized by the political tolerance for economic rents that destabilize the economy.

Neoclassical theory should not be viewed as a bad description of reality but as a good prescription for politics: Ideal markets, perfect competition, incomes according to productivity and neutrality of money are goals to be improved on, not to be overcome. The political task would be to adjust reality to neoclassical theory.

This article aims at specifying more precisely the institutional preconditions of a market economy to establish an *economic order* – a term coined by the founders of the German neo-liberalism (“Ordo-liberalism”, Eucken, 1992). The economic order is an institutional framework that is rather parsimonious and focuses ‘on the essentials’, i.e., those few problems that are crucial and whose solution would make an economic self-regulation via market exchange only realistic. Ordo-liberal policies strike at the roots of the problems, not at their symptoms, and they define procedures at a relatively high (constitutional) level, without intervening directly into the economic process.

Any dichotomy between ‘interventions’ and ‘no interventions’ misses the point. Neither leaving markets be ‘free’ nor tailoring measures to desired outcomes are feasible solutions (cf. Figure 1). Instead, the solution is to design the social and economic order with only few political measures, guided by a foundational and basically uncontroversial social norm (Richters and Siemoneit, 2019b). Regarding reciprocity as justice, using political power is legitimate for maintaining or restoring reciprocity (power to punish, retributive justice), and illegitimate for violating reciprocity (power to gain, injustice, “abuse of power”). Literally all democratic institutions are (or should be, Rawls, 1999, p. 3) designed to maintain or restore justice, i.e., reciprocity.

The following sections are devoted to the question why competition does not work as it should in central economic domains, i.e., limiting profit to opportunity costs. We discuss two main sources of economic rents in capitalist economies and how to tackle them according to the principles derived.

## 4 Land Rents

### 4.1 The Role of Land in Theory and Practice

For classical economists such as Adam Smith (1776), land was considered a third factor of production and distribution next to capital and labor (Watson, 1976). Henry George (2009 [1881]) argued that land differs from capital for several reasons: Land area does not depreciate, it can hardly be increased by some form of ‘investment’, and the value of land and its returns depend strongly on its location. But in the 20th century the role of land was played down in economics (Blaug, 2000; Gaffney and Harrison, 1994; Schwerhoff et al., 2020), and the differentiation between land and capital fell into oblivion. However, land plays an important and distinct role, both economically and ecologically.

Increasing land use and changing settlement patterns are responsible for ecological degradation, but there is pressure toward more land use. Soil is an important natural

resource, providing essential ecosystem services such as fuel, food, water purification, flood mitigation, air quality and climate regulation (Colsaet et al., 2018; Foley et al., 2005). A scarcity of productive lands on a global scale is looming, so global land use is a key indicator of sustainability (and a Planetary Boundary, Steffen et al. 2015). A substantial reduction of land sealing, fragmentation of landscape and land consumption is necessary to preserve ecosystems, biodiversity, and soil fertility (Haberl, Mbow, et al., 2014; International Resource Panel, 2014). The European Union states the (very moderate) objective of ‘no net land take’ by 2050 (Science for Environment Policy, 2016), and the United Nations formulated to ‘halt and reverse land degradation’ as Sustainable Development Goal 15.3. But population growth, urbanization, changing diets as well as expansion of renewable energy and biomaterial production create pressures to increase land use (International Resource Panel, 2014). Social and ecological objectives risk being played off against each other.

Land rents are a major cause of rising inequality and economic instability. Rising land prices prevent affordable housing and create social tensions: Empirically, around 80 % of the global increase in housing costs are related to rising land prices, not rising construction costs (Knoll et al., 2017). This plays a pivotal role in explaining rising inequality. Piketty (2014) argued that capital accumulation is the driving force behind inequality, but taxation of capital is feared to reduce investment incentives. Rognlie (2015) and Knoll et al. (2017) separated wealth into capital and land and showed how a substantial part of growing wealth inequalities can be explained by surging house and land prices. Theories that equate wealth and capital are therefore insufficient to understand increasing inequality: Land rent income is highly concentrated and quickly increasing, contributing to inequality and injustice (Schwerhoff et al., 2020; Stiglitz, 2015). In addition, as mortgage loans make up a substantial part of the loans issued by banks, real estate and especially land prices play an important role in banking crises (Brunnermeier et al., 2020; Jordà et al., 2016; Ryan-Collins et al., 2017; Turner, 2017).

The privatization of land rents are a violation of reciprocity. The value of a plot of land (Ricardian Land) is determined primarily by its “location”, a term that captures man-made infrastructure in the surrounding area (e.g., private production sites and services, public utilities), but also the availability of natural resources such as fossil energy sources, sun, or wind. This dependence is most obvious in urban agglomerations where the value of land is mainly determined by public and private investment on neighboring premises and by the presence of other people (Schwerhoff et al., 2020). Land speculation and political rent-seeking flourish alongside land acquisition and conversion (Cotula, 2012; Löhr, 2012). When new transport connections, communication networks or commercial buildings are erected, the owners of the land benefit from rising rents and land prices while bearing hardly any (opportunity) costs. Accordingly,

land rents are a well-known example of an unearned income (George, 2009 [1881]; Siegmeier et al., 2018; Stiglitz, 2015): Those who benefit from public decisions do not bear the costs, and competition cannot mitigate the problem because no ‘new’ land can enter the market. Further land regulation due to ecological constraints may aggravate these social tensions, as land is the bottleneck for a higher supply of affordable housing, and any limitation of land sealing will further increase scarcity rents on land, especially in cities.

#### 4.2 Land Value Taxation and the Limitation of Land Take

To balance costs and benefits, George (2009 [1881]) suggested to replace all taxes by the *single tax*, a land value tax to skim unearned land rent and to use it for financing public infrastructure. Stiglitz (2015) argued that land value taxes would reduce inequality and enhance economic growth by encouraging investment into real capital. An alternative is the concept of *land value capture* where public authorities recover land value increases resulting from public investment and government actions (Batt, 2001; Medda, 2012; Smith and Gihring, 2006). According to the Henry George Theorem (Arnott and Stiglitz, 1979; Gaffney, 2009; Siegmeier et al., 2018), the fixed costs of public infrastructure can be financed entirely by land value taxation and capture. Capturing and redistributing these land rents by institutions is fully in line with the normative foundations of market economies and may considerably improve its functioning (Edenhofer et al., 2015; Gaffney, 2009; George, 2009 [1881]; Schwerhoff et al., 2020).

Land rents are an efficient tax base, making their taxation attractive for reasons of both efficiency and equity, and this ‘theoretical appeal’ is widely acknowledged and accepted (Schwerhoff et al., 2020). Land value taxes can hardly be circumvented, as land cannot leave the country. Thereby, land rent taxation is “very likely to be progressive” (Schwerhoff et al., 2020, p. 399).

However, political reluctance is widespread. The Economist (2014) argued that land value taxes are very popular among economists, but politicians face a barrier because the costs concentrate on today’s landowners while the benefits spread equally over today’s population and future generations. Introducing property taxes requires careful planning and faces data deficiencies in many countries (Norregaard, 2013). Difficulties for tax assessment arise when land values are bundled with values of buildings, as is often the case, but Schwerhoff et al. (2020, p. 399) argues that “identifying land rents is a challenge that has been mastered well enough for practical purposes” (for an overview of these issues, see Fernandez Milan et al., 2016).

Apart from the distributional impact, land value taxation also creates incentives to use developed land as a scarce resource more efficiently. Once construction permits are approved, the owner of land can cultivate the land or not, whatever is advantageous for him. But the municipality

must provide the necessary infrastructure anyway, and the interests may irreconcilably conflict with each other. Land value taxation provides incentives to develop valuable land, thereby improving the effectiveness of spatial and urban planning. This reduces urban sprawl, as settlements can be constructed in a more compact way. At the same time, land speculation becomes less attractive. Concepts such as ‘tradable planning permits’ or ‘auctioned tradable development rights’ are discussed as means to limit the land take by development (Henger and Bizer, 2010; Vejchodská, 2016). Land value taxes can support land use planning that tries to avoid overconsumption of land (Brandt, 2014; Fernandez Milan et al., 2016).

## 5 Technology, Resource Consumption, and Economic Rents

### 5.1 Resource Consumption and the Growth Imperative

The ecological consequences of resource consumption are widely discussed since Meadows et al. (1972), and economic rents from resource extraction are an important topic in environmental economics at least since Hotelling (1931). The unsustainable use of natural resources at the expense of others is often discussed in economics as negative externalities, being both inefficient and unjust: The ‘invisible hand’ of the market is complemented by an ‘invisible foot’ that kicks the common good to pieces (Daly, 1973, p. 17).

Much less attention, however, has been paid to the meritocratic principle in this regard. Since Solow (1956), economic growth is known to depend on technical progress, but this has an underestimated material basis (Ayres, Ayres, et al., 2003; Ayres, Bergh, et al., 2013; Ayres and Warr, 2005, 2009; Kümmel, 2011; Kümmel and Lindenberger, 2014). Most technological innovations that drive economic growth are not only based on ‘ideas’ (Human Capital Theory), but even more on material and energy which is an important or even decisive part of their economic value. People can get better off if they purposefully increase their consumption of natural resources whose ‘achievements’ complement their genuinely personal achievements at low costs – thus material and energy use can improve and sustain market success (Richters and Siemoneit, 2019a). Consequently, revenues and market shares are diverted from the less to the more innovative firms (Pianta, 2006) – which are usually also more consuming.

Technology hence undermines the meritocratic principle and biases the income distribution. The normative significance of the meritocratic principle lies in justifying unequal incomes according to ‘merit’, and merit is basically about *personal* talents, skills, and efforts. Material and energy use can increase these, in the form of expanded capabilities and enhanced productivity. This is discussed as *capital-skill complementarity* and *skill premium* (Berman et al., 1998; Jaumotte et al., 2013; Krusell et al., 2000), but may be rather

a ‘resource use-income complementarity’.

Basically, two forms of competition must be distinguished (Richters and Siemoneit, 2019a): a ‘genuine’ form of competition based on performance, when extraordinary personal abilities and efforts (‘merits’) are honored, and an innovation competition, when not the innovation as such but mainly its resource use leads to a better cost-benefit ratio and accordingly to market success. Regarding technology, the meritocratic principle “Those who achieve more shall earn more” reads rather “Those earn more who more skillfully use up resources in a market-compliant way”. Several of the largest corporations of the world owe their success to resource consumption, either directly or indirectly due to technology.

This is a rather subtle violation of the meritocratic principle, because developing and using technology still means ‘a lot of work’. But there is a considerable bias of the income distribution toward the benefit of STEM workers<sup>1</sup> who have significantly higher annual earnings and relatively lower unemployment rates than non-STEM workers at all levels of educational attainment (Carnevale et al., 2011, p. 31–2). They profit from their ability to turn natural resources into production factors (Richters and Siemoneit, 2019a).

These processes literally create a growth imperative. They lead to a *systematic distortion* of ‘fair competition’ by technical innovations and can explain why states ‘must’ prioritize economic growth over ecological sustainability. More generally, these processes can explain the historical asymmetry of power between workers and owners of the means of production. Not ownership is causal, but a reliable threat of residual unemployment due to the continuous replacement of labor by machines that shifts compensation toward the entrepreneur at the cost of the workers (Richters and Siemoneit, 2019a).

## 5.2 Cap & Trade – Limiting Resource Consumption to Improve Market Economies

From an ecological perspective, political intervention is needed to reduce resource consumption. Daly and Farley (2011, ch. 21) formulated “Six Design Principles for Policies” of which the first and second are: (1) Each independent policy goal (sustainable scale<sup>2</sup>, efficient allocation, just distribution) requires an independent policy instrument, as suggested by Tinbergen (1956). (2) Setting limits at the macro level (policies) can still leave freedom and flexibility at the micro level (individuals).

The debate whether politics should influence prices or quantities is old and contested (Daly, 1973; Harris and Pizer, 2020; Hepburn et al., 2020; Weitzman, 1973). Weizsäcker (1991) argued that *prices* should “tell the ecological truth”.

<sup>1</sup> An acronym denoting science, technology, engineering and mathematics.

<sup>2</sup> The overall material ‘throughput’ of the economy, measured in quantities, that can be effectively absorbed and renewed by the environment in the long run.

Ecological taxes try to fight externalization by bringing social costs in line with individual cost. Concerning fossil fuels, direct subsidies are estimated to be roughly 500 billion dollars per year (2013). Together with externalized environmental and societal costs, the granted privileges account for 6,5 % of global GDP (Coady et al., 2017). Subsidies are often justified with improving the access of the poor to energy, but rather those with high resource consumption profit. Internalizing these costs is not only an ‘efficient’ solution – ‘make polluters pay’ by balancing costs and benefits is also a manifestation of the Meritocratic Principle.

Regarding the design principles, for sustainable scale it is rather *quantities* of extraction and emissions that matter, which are influenced only indirectly by prices or taxes. Clear roadmaps for environmental taxes give businesses a planning horizon, but can fail in limiting quantities because of this indirect relation. The ‘direct’ alternative is to explicitly limit resource extraction. Auctioning tradable certificates (‘Cap & Trade’) would more reliably limit quantities and let markets determine their prices (Cañón et al., 2013; Daly and Farley, 2011). The materials affected should include fossil fuels (with crude oil also being the material base for plastics) and the most important metals like steel, aluminum, copper, zinc etc. Such a designed market intends to fix market failures by adding artificial scarcity and therefore increasing prices.<sup>3</sup>

Limiting resource extraction would make several political interventions redundant that try to ‘incentivize’ higher resource efficiency but are seldom suitable to balance the economic incentives not to. It is often cheaper to dump products at their end of life and bring fresh material into circulation (Binnemans et al., 2013; Walker et al., 2020). Instead, the limitation of extraction would make repair-friendly design and cost-effective recycling economically attractive. As a side effect, the most relevant emissions due to resource consumption would be reduced as well. Emissions are at the end of the pipe, not at the beginning, thus more difficult to quantify (source vs. sink problem, Daly and Farley, 2011, 422ff.). Several excessive material flows transgress planetary boundaries (Steffen et al., 2015), and any effective solution should avoid the indirectness of policies prevailing today. One precondition for its effectiveness would be to include international trade in the accounting of the relevant mass fluxes to avoid leakages, i.e., the relocation of resource processing to unregulated jurisdictions. Otherwise remaining producers would face an unfair competition (cf. Section 3.3).

A complementary approach was proposed by Hoffmann et al. (2015) aiming at integrating the damaging of (global or local) commons into competition law. If firms damage the environment without any compensation, or if they sell ecosystem achievements as their own, this could be considered unfair business practices, allowing for lawsuits. This

<sup>3</sup> Note that the scarcity is ‘artificial’ only if these materials are not logistically scarce. In the long run *every* material exploited will be logistically scarce as a matter of fact.

change of competition law would give every single firm an incentive to check their competitors, leaving surveillance not only to the authorities.

### 5.3 Cap & Trade & Dividend – Revenue Recycling

Regarding just distribution, the revenues generated through the auction of resource certificates should be distributed equally to all humans as an *ecological basic income*. These revenues cannot be attributed to certain persons (merits) because they are based on natural resources. ‘Nature’ is and cannot be part of the monetary circuit. The distribution of scarcity rents through ‘Cap & Dividend’ (Barnes, 2008) is equivalent to an equal physical access of all humans to the ‘Fruits of the Earth’. This ecological basic income fully neutralizes the social consequences of higher resource prices without compromising their communicative task. People profit if they consume less resources than the average. With such a revenue recycling mechanism, the negative distributional impacts of fees and taxes can (partly) be compensated (Peñasco et al., 2021). Examples are the ‘Alaska Permanent Fund’ (1976) as well as the ‘Sky Trust’ and ‘Climate Leadership Council’ proposals (Barnes, 2000; Climate Leadership Council, 2019; Klenert et al., 2018; Kunkel and Kammen, 2011; Segal, 2011). The survey results of Sommer et al. (2020) show that the German public supports such lump-sum payments, particularly in the case of high carbon prices. This can help to overcome resistance to environmental taxes (Carattini et al., 2018).

Such a Cap & Trade & Dividend model combines three independent policy instruments to achieve three independent policy goals. Although other measures like a carbon tax may be tactically more viable, Cap & Trade & Dividend is superior because it is not ‘intervening’ in markets but improving them by setting the cost-benefit calculation straight in terms of achievements and their returns (meritocracy). It reveals ‘what markets are for’, and this way more self-regulation can be achieved more easily. However, designed markets require careful design, ambitious caps and sensible control if they are to have any effect (Cañón et al., 2013; Green, 2021).

The measures proposed would redirect technological progress to an increase of overall resource productivity instead of labor productivity, thereby reducing the societal problem of technological unemployment and consequently poverty and the need for comprehensive redistribution. Thus, limiting resource consumption is much more than ‘only’ environmental policy. It may counterbalance the economic incentive to increase resource consumption in order to replace expensive labor by machines and energy. The unjust privatization of ‘nature’s achievements’ is neither new nor restricted to modern innovation competition. Probably hardly ever in human history resource rents have been distributed justly, so adjusting a ‘resource bias’ would indeed contribute to solving an age-old distribution and stability problem.

## 6 Conclusions: How to Design Policies Based on Meritocracy and Liberty

Market economy can be a simple, robust, efficient and fair economic system. The social norm behind markets is reciprocity, a balanced relation of all costs and benefits from any kind of social exchange, not restricted to personal relations. This norm is popularized in market economies as *Meritocratic Principle*, stating that everyone must work for his or her income, and that incomes should reflect ‘merit’ (or achievement) to be just. It is not markets, private property, competition and profit that destroy societies. Societies are destroyed by taking something for nothing.

We showed how neoclassical economics is implicitly based on this conception of justice, though sketching rather ‘how the system ought to be’. Pareto efficiency and reciprocity can often go hand in hand but do not automatically so, and that is where regulation comes in. Practically, policies should concentrate on ‘non-merit’, i.e., the sources of unearned incomes at the expense of others (exploitative rents). We used the meritocratic principle as a heuristic to identify two important sources of unearned incomes, to analyze them and to design appropriate institutions that suppress or redistribute them. This way we can avoid the trade-offs usually encountered today when trying to bring economic stability, social justice, and ecological sustainability in line. Markets are only *created* by certain ‘regulations’, but our approach could probably reduce regulation used overwhelmingly today for curing basic injustices of markets – a ‘leaner state’ should be possible, in accordance with the idea of an ‘economic order’.

We would draw the following conclusions for policy design from our analysis: First, policies should focus on just market incomes. When the primary distribution works well, only little secondary distribution (subsidies, welfare) is necessary, substantially reducing sources of societal conflict. Second, taxation should put the burdens on the ‘right’ people, i.e., those who achieve economic rents, be it from government, other people, or ‘nature’. Compared to taxing wages or capital income, taxation of economic rents does not discourage work or investment. Third, a market instrument for achieving justice is not always easily available. While Cap & Trade & Dividend for natural resources is quite straightforward, land rent taxation requires the careful and repeated assessment of land values, and other sources of economic rents may be even more complicated and still be subject to detailed regulation.

The policy proposals made here must be viewed as a comprehensive package. To cherry-pick only some measures while leaving the rest of the system unchanged would probably increase the absurdities currently experienced. The meritocratic principle and hence justice are the consistent perspective of our analysis, insofar there is only one reason to prioritize some measures over others, namely the fact that a society may live with injustices but not with a devastation of their natural basis of existence.

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