Dissertation thesis
CRITICAL THEORY AND DIALECTICS OF CONTEMPORARY ECONOMICS

Dissertation thesis

Robin Maialeh

Supervisor: Zdeněk Chytil

Prague/April/2017
Acknowledgement

Firstly, I would like to express my sincere gratitude to thesis supervisor Zdeněk Chytil for the continuous support of my Ph.D. study and related research, for his immense dedication, respectable knowledge and creation of a supportive environment. His guidance helped me through all my research and writing of this thesis. Besides my supervisor, I would like to thank to Danny Yagan, Shachar Kariv, Emanuel Saez, Gabriel Zucman, Christina and David Romer, Barry Eichengreen and Brad DeLong from the Department of Economics at UC Berkeley for their insightful lectures and valuable comments. I am also deeply obliged to Martin Jay and Wendy Brown from The Program of Critical Theory at UC Berkeley for their personal engagement that helped me clarify the direction in a broad scope of ‘critical’ literature. My sincere thanks also go to Jakub Kastl and Claudia Brodsky from Princeton University. Our discussions on the topic of my dissertation fruitfully contributed to the quality of my arguments. I am especially obliged to Ján Pavlík from University of Economics, Prague for his conscientious comments on the thesis which significantly improve its defensibility within a broad academic society. Further, besides my wholly supportive and beloved family, I am grateful to unpredictable economic forces since my dissertation has been written under the conditions of relative economic sufficiency – in conditions that I would not have had on my own.
# CONTENT

INTRODUCTION.............................................................................................................................................. 6

1. PROLEGOMENA TO THE CRITICAL THEORY ......................................................................................... 11
   1.1 History of the Critical Theory ............................................................................................................ 12
   1.2 Traditional and Critical Theory ........................................................................................................ 16
   1.3 The Bridge Between Economics and Critical Theory ......................................................................... 19
   1.4 Inequality and Freedom on Their Aesthetic Foundations .................................................................. 25

2. CONTEMPORARY ECONOMICS AND INEQUALITY ............................................................................... 30
   2.1 Introduction to Inequality: History, Methods and Data ....................................................................... 31
   2.2 Production Process: Attributes and Decomposition of the Output .................................................... 34
   2.3 Quantification of Global Inequality ...................................................................................................... 38
   2.4 Inequality, Growth and Other Social Phenomena ............................................................................. 42

3. DIALECTICALLY–CRITICAL REFLECTION ......................................................................................... 53
   3.1 Critique of Positivism: From Metaphysical Ontologism to Mathematical Formalism ................. 54
   3.2 Dialectics as a Reaction to Positivism ................................................................................................ 60
   3.3 Dialectical Totality and the Pseudoconcrete ..................................................................................... 65
   3.4 Instrumental Reason and Contemporary Economics ......................................................................... 70
   3.5 ‘Rational’ Attitude Towards Self–Preservation .................................................................................. 75
   3.6 Metamorphosis of the Subject and its Objectification ......................................................................... 81

4. INTERACTION OF HETERO NOMOUS AGENTS AND MARKET–BASED INEQUALITIES ................... 87
   4.1 Methodological Notes ........................................................................................................................ 88
   4.2 Market–Based Inequalities: A Fundamental Concept Through Probabilistic Drive Towards Divergence ......................................................................................................................................... 98
   4.3 Pareto Efficiency: A ‘Nonsensical Optimality’ in the Fundamental Perspective of Inequality .......................................................................................................................................................... 116
   4.4 Market–Based Inequalities: Cobb–Douglas Utility Revisited ................................................................. 120
   4.5 Discussion of the Results .................................................................................................................... 127

CONCLUSION ..................................................................................................................................................... 135

APENDIX ......................................................................................................................................................... 139

REFERENCES .................................................................................................................................................... 150
INTRODUCTION

In the eyes of an economist, philosophy is often perceived, however incorrect the fixed idea would be, as speculative metaphysics and unprovable poetry. Philosophers on the other hand often use the term ‘economics’ pejoratively when describing a narrow–minded reason or something based on ‘merchant logic’. Critical theory is so close to economics and yet so far to economists. The present thesis strives to present both philosophy and economics as viable complements, mutually enriching each other, and to provide new perspectives on selected aspects of their subject matter without lapsing into artificial theoretical ‘cross–fertilization’. The proposed thesis thus contributes to existing knowledge in both fields.

Nevertheless, compromises are needed in order to make both disciplines communicate. For this purpose, the level of abstraction and the depth of thought of the critical theory is moderately restricted. In this sense, critical theory is more adapted to economics than the opposite and therefore I hope that critical theorists comprehend the ‘vagueness’ as a means of communication with economics; the field otherwise impenetrable by critical theory.

Contemporary economics has been often fetishized as the highest order of reality – the ultimate source of everything which is daring to be further questioned. The thesis upon closer inspection deals with social reproduction, manifesting itself in the form of self–moving economic forces. These forces follow along closely with the acting agents. They are manifested as external forces indifferent to agents’ will. Social scientists have already vastly contributed to demystifying these forces, but the thesis puts them into the context of contemporary economics, making them visible on the very surface of everyday life, beyond traditional explicative concepts of fetishism or reification; and it does so by analytical tools of contemporary economics.

This thesis works on the basic principles of the market mechanism. Broader academic society, not only composed of economists, but also of other social scientists, is familiar with these principles. However, the proposed understanding of these principles incorporates new contextual nuances that are pushed to the point from which these subjective research attributes metamorphose into a new, specific definition of the researched object. This thesis particularly accentuates the very essential factors of socioeconomic self–production and makes use of dialectics in order to reveal the essence in its inner antagonistic form.
Despite great diversity of studies within critical theory, I compile sources which mainly
correspond to emancipatory tendencies in ‘economy’ and thus which are transferable into
economics. Secondary aspects of emancipation, which belong to superstructure, were gaining
power since the ‘60s. This thesis nevertheless goes back to theoretical roots and leads a frontal
critique on the core questions of contemporary economics, which revive and elaborate materialist
origins of the critical theory. To put it differently, the thesis pleads for a return to the primacy of
economy. Therefore, the whole set of critical theory’s knowledge presented in the thesis is not a
random selection but carefully picked knowledge which target the most burning questions of
contemporary economics. This means that obsolete issues of class struggle or exploitation based
on surplus value are neglected due to current socioeconomic conditions, while other central
issues are taken into account. Namely, critique of positivism and instrumental reason stand in the
center of my interest. Additionally, given the fact that presented critical theory is already a
product of my critical revision of the critical theory, these issues are mainly commented,
reproduced and subjected to my own interpretation. This explains only occasional and fragmental
critical reflection of the critical theory itself. It is also clear that critical theory is not the only
thinking flow that confronts mainstream contemporary economics. Some of them even indirectly
react on critical theory’s standpoints – let us name, for instance, Austrian school. However, their
insights are broadly elaborated and already anchored in economic thought, while the goal of the
thesis is to deal with critical theory since its findings have not been reflected in economics at all.
As regards to methodology, it is not meant to provide a coherent synthesis of the critical theory
and contemporary economics. The aim is to inspire contemporary economics with selected and
necessarily altered insights and approaches of the critical theory. Hence, chapters 1 and 3
demarcates what is inspirational for contemporary economics while the last chapter shows how it
can be implemented into contemporary economics.

As the most burning issue of the production process, based on critical theory’s insights, is
economic inequality. Therefore, I focus on inequality in economic distribution in a long tradition
in economics, which still has not been yet fully exhausted in economic literature. Recent studies,
inequality in a broader academic society and, even dare to say, within public society. Economists
thus contribute vastly to the issue particularly in terms of its quantification and by providing an
outline of basic correlative relations. Critical theory, especially its famous proponents Adorno
and Horkheimer (e.g. 2002 [1944]), conversely omits quantification of the issue. Nevertheless, still aware of the scale of it, critical theory contributes to the definition of the issue beyond the real world of concrete, empirically given appearances. Beside those acknowledged critical theorists, the thesis is complemented especially with Kosík (1976), whose *Dialectics of the Concrete* has become leading dialectical critique of contemporary economics worldwide.

The aim of the thesis is then to decide about the role of the market mechanism in the issue of inequality – whether market mechanism as the predominant mode of social reproduction plays the role of converging or diverging factor in the production process. For that, I compose an economic model that reacts on contemporary economic research on inequality and at the same time reflects basic foundations of the critical theory. Whereas the critical theory refuses the positivist idea of hypotheses (e.g. Horkheimer’s dissociation from verification and falsification of hypotheses, 1972 [1937]), the model is supposed to present substantival elements, a structured dialectical whole from which any particular fact can be rationally comprehended. Results of the thesis, formalized in the last chapter, therefore do not suggest new solutions for established problems, but rather serves as an explicative tool and formulates new criteria on which new solutions can be based on.

The first chapter introduces critical theory. After presenting history of the critical theory the chapter clarifies differences between traditional and critical theory (especially Horkheimer, 1972 [1937]). It follows that the critical theory is then explained with an emphasis on its economic categories. These rarely noticeable economic categories concern the totality of the production process and particularly direct my attention to economic inequality. The last part of the chapter designates artistic foundations of the critical theory, based on Gartman’s comparative analysis of Bourdieu’s (2000) and Adorno’s (1997 [1970]) aesthetics, from which economic inequality can be also dealt with.

Secondly, the thesis presents a chapter on inequality, but exclusively from the point of view of contemporary economics. The purpose of the chapter is not to provide a holistic economic view on today’s inequalities, but rather to present the character of the research and to provide a brief summary of empirical findings in the field. It does so by introducing basic method and data sources, quantifications and by relating economic inequality to other socioeconomic phenomena. In order to capture the broadest scope of contemporary economic research of inequality, the chapter includes income, capital and consumption inequality. For this purpose, I
consider especially influential researches of Saez, Piketty, Milanovic and Zucman. The emphasis is put selectively on developed countries, the whole world or on selected examples, United States in particular.

The third part counters the second one from the position of the critical theory. It comprises critique of positivism and its consequences; while, through dialectical means it strives to overcome positivist insufficiency. The chapter further describes how positivist fundamentalism might lead to instrumental rationality which consequently, when put into context of self-preservation of economic agents, leads to agents’ objectification – to losing their subjectivity. A variety of authors is considered in order to examine the issue – from the formers of the *Institut für Sozialforschung* to the third generation of the critical theory and their relevant contemporaries.

In the last chapter I propose a model that is based on empirical findings of contemporary economics in the second part and theoretical insights of the critical theory in the third part. The aim of the model is to capture the role of the market mechanism in the issue of inequality. Economic agents are put into their dialectical totality which is demonstrated in antagonistic relationships to the very existence of the agent. Behavior of every agent is described by maximization function that govern her action; further, the equation of total resources, which agent has at a disposal, is assigned to every agent. The dialectic character of the model is manifested in the very definition of the model, where the final action of the agent is determined by both external conditions (imperatives of the market mechanism) and instinct structures (self-preservation) – the whole is reproduced by constant clashes of subjective motives and objective conditions. The model thus contributes to clarification of the production process and particularly reveals inequality as the immanent constitutive product of the market processes: economic growth and distribution of wealth. Results of the model finally expose market mechanism as the diverging factor of the production process.

Also, I would like to clarify a few terms which I use in the thesis. Firstly, by ‘contemporary economics’ I take into consideration mainstream economics of the recent, let us say, hundred years. Despite that I am fully aware of the colorful mosaic of economic theories, the prevailing general trend refers, almost unexceptionally, to ‘scientized’ positivist understanding that leave behind general questions of the former period and rather focuses on developing detailed knowledge in specialized subfields of economic science. The second term is ‘dialectics’, which is not understood in its ‘ancient’ sense as a discursive disputation which leads to
establishing the truth. It is understood, simply put, as a method/approach for which totality is produced and reproduced by antagonistic relationships. Critical theorists mentioned in the thesis treat dialectics diversely, but it is easy to observe that general Hegelian and Marxian tradition of dialectics dominates.
1. PROLEGOMENA TO THE CRITICAL THEORY
1.1 History of the Critical Theory

The difficulty to map and fundamentally grasp critical theory is enormous. It is widely considered as the most difficult school of thought to understand (e.g. Nichols and Allen-Brown, 1997:227), combining the toughest continental philosophy of Hegel, Marx and Kant. (Smith, 1993:91) In narrow terms, critical theory is an equivalent to Frankfurt School – school of thought founded by Carl Grünberg on the ground of Institut für Sozialforschung at Johann Wolfgang Goethe-Universität in Frankfurt am Main in the early 1920s. Under the leadership of the former founder, the Institute was characterized by a rather orthodox, scientific Marxism (Jay, 1973:3-20). This direction was abandoned when Max Horkheimer (1895-1973), the later director of the Institute, and his inner circle of scholars, held new perspectives of the critical social research. Some of the most prominent figures around Max Horkheimer particularly included Theodor Adorno (1903-1969), Herbert Marcuse (1898-1979), Walter Benjamin (1892-1940), Friedrich Pollock (1894-1970), Leo Löwenthal (1900-1993) and Erich Fromm (1900-1980). Most scholars from the Institute were able to emigrate when Nazis came to power in 1933 and occupied the Institute. (Löwenthal 1981:143; Jay, 1973:29) In 1934, an arrangement was made to reestablish the Institute of Social Research at Columbia University in New York. (Antonio, 1983:329) The second generation of critical theory has been led by Jürgen Habermas, while the third, contemporary generation is led from the position of the director of the Institut für Sozialforschung by Axel Honneth.

In a broader sense, critical theory is also understood as an umbrella term for various kinds of radical philosophy. By such understanding, critical theory is constituted of a variety of differing positions for which a single critical theory is hard to define. (Piccone, 1980) This consists of authors who, at least in a certain way, follow and take over general views of the formers of the Frankfurt School. One of the formers was Löwenthal who asserts that critical theory is nothing more than a collective denominator. Löwenthal himself had to supposedly rely on Jay’s research to enumerate the main characteristics of the school. (1981:145) In the present study, the use of terms ‘critical theory’ and ‘Frankfurt School’ is taken as equivalent since most of authors use the term ‘critical theory’ in the narrow context of the Frankfurt School.
Pearson aptly portrays the Frankfurt School as “the tendency in contemporary social thought which everyone ‘knows’ and nobody reads.” (1974:111) Connerton (1976:22) concludes that critical theory is “resistant to summary”; likewise, Antonio (1983:326) put that “critical theory is immune to brief summary.” The latter claims that critical theory is hardly to be characterized by a particular set of methodological techniques and theoretical propositions. Despite this uneasiness, scholars have been trying to identify a common denominator. To continue with Antonio, he points out that still a coherent approach to the society can be defined on the base of meta–assumptions that derive from Hegel’s dialectics and Marx’s materialist critique, which stresses immanent principles of contradiction, change and movement and which opposes formal and static nature of Kantianism. (1983:343) Lówenthal argues that the goal of critical theory is to criticize and refashion Marxian theory in the light of changed historical situations. (1981:147) Geuss describes the Frankfurt School as “a reflective theory which gives agents a kind of knowledge inherently productive of enlightenment and emancipation.” (1981:2)

Kellner sees the root of the Frankfurt School in the Marxist critique of political economy and historical dialectic aiming at revolutionary change. (1975:139) He clarifies that critical theory\(^1\) is based upon the Hegelian–Marxist dialectic and historical materialism. (1975:138–41) Kellner’s position is hence emphasizing the Marxist thrust of critical theory. From this position, he criticizes Jay’s underestimation of the Marxist heritage. (1975:138–141) It is worth to remark, that Jay has justifiable reasons to diminish orthodox Marxian view. For example, Horkheimer, based on his conviction that general intellectual level of the great masses is rapidly declining, opposes the idea of the orthodox view of proletariat, which is, according to his claim, no guarantee of correct knowledge. (Horkheimer, 1972 [1937]:213, 239) Another one is Habermas who does not describe any collective agent of emancipation who suggest new normative structures. (1981:33–34) Postone contributes to the discussion by arguing that the theorists of the Frankfurt School viewed the economic, social, political, legal and cultural dimensions as interrelated; therefore, they do not grasp the critique of political economy in an economistic and reductionist manner (2006:181), which was the dominant practice in their times. Perception of the critical theory on the ‘East’ was mainly burdened by the ruling soviet ideology: for instance, Frankfurt School was labeled in Czechoslovakia as “bourgeois socio–philosophic school”

---

\(^{1}\) Here we might see the terminological inconsistency – while Kellner refers to the same point he uses both terms „critical theory“ and „Frankfurt School“ in the same fashion.
(Javůrek et al., 1976) or later on as a “Frankfurt caricature of ´Marxism´” striving for “would-be Marxist dialectics” (Zelený, 1982:126).

Horkheimer himself suggests that critical theory is not a “storehouse of hypotheses” but rather it “constructs a developing picture of society” (1972 [1937]:239) that exposes, according to Antonio (1983:331), “the prevailing system of domination, expresses its contradictions, assesses its potential for emancipatory change, and criticizes the system to promote that change.” Horkheimer adds that critical theory is a part of the development of society and its critical standpoint – the idea of reasonable organization of society that will meet the needs of the whole community – is immanent in human work. (1972 [1937]:213, 229) A negative definition relies on the fact that critical theory “has no specific influence on its side, except concern for the abolition of social injustice.” In abstract terms, critical theory represents “the materialist content of the idealist concept of reason.” (Horkheimer, 1972 [1937]:213, 229) Piccone identifies one shared fundamental objective: to come to terms with the new emerging forms of organized capitalism and to reconstitute the project of human emancipation. (1980:21) Howard defines critical theory similarly to Horkheimer as a style of understanding the social world which concerns emancipatory action. (1977:104) Antonio summarizes that critical theory focuses on contradictions between ideology and reality. In his explanation, ideology portrays “a false unity of the ideal and real”, where the greater the distortion is, the deeper the contradictions it reflects and the higher the sensitivity to criticism the system has. (1983:331) The role of ideology for Antonio is crucial: “immanent critique points at social structure from the perspective of its own legitimations by criticizing ideology from the perspective of history” and “contrasting emancipatory aspects of ideological claims with social reality.” The aim is to “turn legitimations against their context, transforming them into weapons against false consciousness.” (1983:338) Critical theory thus contributes to the subjective dimension of emancipation by clarifying historically–based immanent emancipatory goals and it demystifies reification that opposes free human action. (1983:331-332) Put it shortly, critical theory elucidates the pre–formation of subject’s consciousness.

Keucheyan posits that critical theories² challenge the existing social order, while they do not concern any particular aspects of the order like composition of a tax system or pension

² Perhaps intentionally stated in plural in order to emphasize variances of critical theory and support the idea that there is no only one critical theory.
reforms. (2014:2) Hrubec when mapping a history of the critical theory underlines that it concerns long-term trends in society (2013); Pullmann adds that it reveals universal grammar of human action (2013). All of this is crucial for any subject which matters to the critical theory. It does not say that critical theory neglects particular phenomena, but rather treats them in their interrelatedness to the Outside.

Despite that the aim of the dissertation is not to clarify the term ‘critical theory’, it is convenient to sum up, also in order to avoid an accusation of alibism, what is actually understood when referring to the critical theory in this particular piece of work. Firstly, etymology of the word ‘critical’ goes back to the Ancient Greek, where it associates with ‘krinein (κρίνειν)’; the word that describes ‘to separate’ or ‘distinguishing between two or more things’. Critical theory is therefore understood as a perspective from which notions like being and appearance, essence and phenomenon, general and specific or constant and variable must be distinguished. Conversely, it is an intellectual perspective from which already separated notions like subject and object should be understood mutually interwoven. To what critical theory is critical is therefore the illegitimate question – there is not a commonly shared view on what should be the subject of critique and what methods shall be employed in doing so. Therefore, critical theory is different from previous critical philosophies. It goes beyond Kantian ‘critique’ as well as beyond Cartesian ‘critique’, while the latter is often damned (by critical theorists) with an endeavor to overcome its faults. In the present case, a partial goal is to rehabilitate the Cartesian ‘enlightened’ cogito on the ground of economic theory. This explains why Habermas is not included in a bigger scale, since his contribution lied in a similar systematization, but in a specific discourse of the communicative action. To conclude, critical theory, as it is understood in this dissertation, does not differ from how critical theory is standardly perceived in its broader sense, i.e. as a thinking flow(s) originating from political philosophy and sociology of the Frankfurt School. The difference may be found in the context of critical theory since the combination with economics is immensely rare. As the result, critical theory’s rejection of false rationalism serves as an intellectual tool of skepticism against fetishized rationalism and dogmatism in economics.

In summary, the new perspectives raised by the first generation adopted a more philosophical, undogmatic approach open to diverse intellectual currents (Jay, 1973:31). Critical
theory thus opens a new narrative horizon of radical liberation of humankind which opposes the orthodox Marxian view as well as the view of modern capitalist thinkers. The subsequent part presents the distinctions between critical and traditional theory and reveals a methodological frame used by critical theory to confront contemporary oppression.

1.2 Traditional and Critical Theory

The clearest distinction between traditional and critical approaches in theorizing is provided in Horkheimer’s famous essay *Traditional and Critical Theory*. Postone refers to it as “the immanent dialectical critique.” (2006:183) The discussion is opened with the question what theory actually is. Most of researchers speak about the sum–total of inter–linked propositions about a subject, which enables derivation of the rest from them: “The general goal of all theory is a universal systematic science, not limited to any particular subject matter but embracing all possible objects.” (1972 [1937]:188–189) Researchers are thus expected to present results corresponding to their theoretical concept. This requires an integration of facts into conceptual frameworks which is confirmed by experiments in such a way that they fit into theory as currently accepted. (1972 [1937]:196) Scientist’s achievement is a question of as detailed as possible an exposition of a subject in various special and descriptive disciplines, or of the synthesis and analysis of masses of data. The critical point is then the dualism of thought and being, understanding and perception which is second nature to the scientist. (1972 [1937]:197)

Traditional theory thus speaks not of what theory means in human life, but only of what it means in the isolated sphere in which it comes into existence. The division of labor favors such isolation, however scientific branches do not become for that reason self–sufficient and independent: “They are particular instances (…), moments in the social process of production.” (Horkheimer, 1972 [1937]:197)

---

3 The term ‘critical theory’, when used in the dissertation by the author, is not capitalized since the capitalized form usually refers only to the Frankfurt School. Despite that most of the cited authors have direct links to the Frankfurt School, we also reflect findings of related authors inspired (even indirectly) by the Frankfurt School, and therefore the capitalized form might be misleading.
Isolationism of traditional theory is the crucial distinctive point. The aim of critical thinking (activity) is not, either in its conscious intention or in its objective significance, to improve any element in the structure; the structure which seemed as “an unchangeable force of nature, a fate beyond man’s control”, confirming its own rationality. (Horkheimer, 1972 [1937]:204) Critical thinking is, by contrast, motivated to transcend and to abolish the opposition between individual’s spontaneity, purposefulness and rationality, and those basic principles and relationships on which society is built. It opposes to be a function of the isolated individual or sum–total of individuals; critical thinking rather captures a definite individual in his real, particularly conflicting web of relationships with others, with social totality\(^4\) and with nature. (Horkheimer, 1972 [1937]:210-211) Critical thinking (and thus theory) strives for a reconciliation of the contradictions between individual’s nature and social organization. This attacks on the reductionist position of capitalist economy where the individual maintains the life of society by taking care of his own personal happiness. Such an economy, according to Horkheimer, has a dynamism resulting in a great degree of power for some and material and intellectual weakness for the rest. The fruitfulness of the production process is thus transformed into “paralyzing barrenness” in which “men by their own toil keep in existence a reality which enslaves them in ever greater degree.” (1972 [1937]:212-213) The difference between traditional and critical theory is that critical viewpoints, derived from historical analysis, like the idea of a reasonable organization of society that will meet the needs of all, are immanent in already mentioned human work but are not correctly grasped by isolated individuals nor by the common mind. (Horkheimer, 1972 [1937]:212-213) According to Hrubec (2011), critical theory thus opposes an affirmation to reality, particularly stressed by Adorno (2005 [1951]), with the aim of true cognition which derives from the detachment of phenomenon and the essence, being and appearance.

Inspiration lies in the critique of Soviet practices as well. Horkheimer argues, that if the unity of disciple and freedom has disappeared, the movement becomes a matter of interest only to its own bureaucracy. (Horkheimer, 1972 [1937]:218) A parallel with Soviets might be seen also in the context of contemporary economics since it has resigned to its formerly emancipatory ends. The critical future–orientation must be therefore seemed as the crucial distinction. Categories like

\(^4\) However dominant the concept of totality among critical theorists is, we might also identify a critical poststructuralist attitude towards social order.
value or profit are elements in a conceptual whole, where the meaning of the whole is to be sought not in the descriptive preservation practiced by traditional theories, but in its critical transformation into the right kind of society. (Horkheimer, 1972 [1937]:218) Traditional theory is thus explanatory and descriptively oriented whereas critical theory is emancipatory. This is closely tied with already mentioned economic resignation and descriptive approach adopted in the recent century. Postone clarifies the idea of wholeness and totality adopted by critical theory which does not allow the critique to be grounded upon any concept such as commodity – because the immanent critical idea necessarily posits indeterminacy as the basis of the critique. (2006:187)

One may be confused about the hostility of critical theory to description or traditional theorizing of specialized researches. Critical theory begins with the simple exchange of commodities and then defines the idea with help of universal concepts. It moves further by using knowledge from the research of all relevant specialized areas. Here, political economy in the very broad sense plays the key role because in combination with critical theory it is supposed to expose how an exchange economy, given the changing condition of men, must necessarily lead to a worsening of social tensions. (Horkheimer, 1972 [1937]:226) The basic form of the commodity economy contains in itself the internal and external tensions, while the commodity exchange process generates these tensions in an increasingly heightened form. This progressively regressive process then goes through periods of development of human powers, individual emancipation and enormous extension of human control over nature, to finally “drive humanity into a new barbarism”. (Horkheimer, 1972 [1937]:227)

When critical thinkers speak about theory, they bear in mind that theory presupposes the reproduction of life: “Its element is freedom, its theme oppression.” Language of theory, by its nature, thus can be neither nor practical. Insisting on the good sides without sublating in the negative whole transfigures its own opposite: violence. (Adorno and Horkheimer, 2002[1944]:181) Horkheimer then concludes, that “[t]he special sciences, and especially contemporary political economics, are unable to derive practical profit from the fragmentary questions they discuss.” (1972 [1937]:228) Such incapacity derives from their specific role in relation to reality. Both kinds of theoretical structure derive their statements about real relationships from basic universal concepts where the relationships are taken as necessary and both are alike when it comes to logical necessity. The difference occurs as soon as we turn from
logical to real necessity involved in factual sequence. Natural scientists are able to prove various causal effects, e.g. that certain processes in an organism lead to its destruction. However, it leaves untouched the question whether any influences may alter the causal character of such processes or change them in their totality. (1972 [1937]:228)

Postone maintains that Traditional and Critical Theory still grounds critical theory in the contradictory character of capitalist society. Traditional theory assumes the essential immutability of the relation of subject, object and theory which results in the inability to think in the unity of theory and practice. Consequently, capitalist society is characterized by blind mechanical necessity which diverts human powers from the general good. (2006:181-182) In contrast to traditional theory, the dialectical character of critical theory grasps the intrinsic interrelatedness of subject and object.

Horkheimer points out the fact that the isolated consideration of particular activities requires for its validity an accompanying awareness of its own limitations. (1972 [1937]:197) Contemporary economics is partly aware of its theoretical limits. New branches within economics validate its theoretical achievements, but almost exclusively by empirical methods. This is the case of behavioral and experimental economics whose aim is to confront established economic theories with data directly from the field. However, in the part of the thesis dedicated to critique of positivism is seen that this empiricist approach can do more harm than good. An awareness of its relativity in the relationship between theoretical thought and facts is by critical theorists not enough to “bring the concept of theory to a new stage of development.” The missing part is a radical reconsideration of the knowing individual as such (Horkheimer, 1972 [1937]:198-199), especially in contemporary economics. The following subchapter makes the importance of the critical theory to economics more explicit.

1.3 The Bridge Between Economics and Critical Theory

Critical theory disposes of early Frankfurt’s economists Friedrich Pollock, Henryk Grossman and partially Franz Neumann. Before we start to deal with ‘hidden’ economic insights placed in philosophy of critical theory, it seems necessary to briefly outline what has been accomplished by the thinkers in economics explicitly. Without any devaluation of their former contributions,
works of economists belonging to critical theory could hardly elevate contemporary economics. Firstly, their focus can be seen to some extent and from today’s perspective as obsolete. Pollock was mainly concerned with the Soviet planned economy, National Socialism or social aspects of introducing automation. Grossman focused on general Marxian economics, especially on the law of accumulation and the theory of economic crisis. However, despite Pollock’s slight progressivity, both of them can be considered rather as orthodox, ‘old fashioned’ Marxists, compared to their currents at the Institute. The subchapter presents how economics (or rather political economy) is reflected in critical theory’s researches.

Pollock greatly contributed to demystifying Soviet form of economy for which he established a term “state capitalism” in contrast to “private capitalism”, whereas state capitalism is defined in two typical varieties – its democratic and totalitarian form.\(^5\) (1941) Pollock takes over the traditional claim that market is centrally constitutive of social relations under liberal capitalism. (1941:207) As Postone articulates one of Pollock’s conclusions, people within the social relations determined by market confronts one another in the public sphere as “quasi–autonomous agents” since “the market is the source of all non–conscious social structures of necessity; it constitutes the basis of the so–called ‘laws of motion’.” (2006:173, 176) Pollock makes another valuable remark when analyzing the role of state capitalism. State in such a form of socio–economic order is supposed to eliminate the economic causes of, *inter alia*, “cumulative destructive process (…)”. (1941:217) Both of these features, i.e. cumulative destructive process and quasi–autonomy of economic agents, play the key role in the following chapters and they are developed further as the intrinsic attribute of contemporary economics.

Grossman’s work (1922) stresses crises caused by a capitalist economic mechanism. In his opinion, such crises occur when a merchandise of a definite value cannot be sold within the limits of the mechanism. This is the assumption on which theories of over–production or under–consumption are built up. Grossman deals with established Marxist variables with a special focus on accumulation of capital. In closing parts of the article, he concludes with an interesting, empirically verifiable point that the process of accumulation does not stop, even in periods of great depressions. (1922) In another work, Grossman divides the research into two layers: firstly,

\(^5\) By following Pollock’s tradition, the issue was famously developed by Cliff, for whom soviet bureaucracy played the same role as bourgeoisie in capitalist countries, with the same tools of economic policy: decreasing wages, increasing intensity of labor (in Marxian language higher rate of exploitation) and increasing productivity. (1974:79-90)
the method underlying *Capital* is reconstructed which consequently prepares the base for the new perspective on Marx’s system of theory. Grossman then describes economic presuppositions of the breakdown of capitalism which by theoretical economic means fill the proclaimed gap between extensively elaborated theory of political revolution and neglected economic aspects in the Marxist tradition. (1929)

On the edge of economics and political theory was Franz Neumann. His contribution however falls mainly into the latter. Despite confronting central economic questions, the context of Neumann’s late works rather deals with political freedom (1953) and the character of state (1957). Contemporary generation of critical theorists recently had discussed economic policy of redistribution and developed e.g. ‘principle of parity of participation’ (Fraser, 2007); ‘tripolar theory of justice’ (Fraser and Honneth, 2003; partly summarized in Maialeh, 2015) or trichotomy of critique, explanation and normativity with a compromised understanding of socioeconomic and politically–cultural aspects of recognition. (Hrubec, 2013) However, all of these theoretical concepts are placed mainly in the field of political and social theory and philosophy. Common denominators with critical theory might be also found in Robinson (2004), whose recent ‘panoramic’ analysis of global capitalism provides useful structuring of stated problems.

Unfortunately, excluding above mentioned authors, any link to economics has become rare, fragmentary and semi–finished; and all of that in favor of other social sciences, philosophy especially. For instance, Postone confirms in one of his notes that the Frankfurt School replaced political economy with philosophy. (2006:191) The very first question is then why incorporate a broader scientific and philosophical context into contemporary economics? To answer the question, it has to be understood that social sciences, and contemporary economics especially, went through inner specialization and emancipation from external influences. Economics has thus brought a sum of many relevant and important insights; however, interpretation of these insights is limited by the borders of its emancipation. The integral part of any scientific knowledge must

---

Honneth’s theory is based on ‘recognition’, which makes him close to Taylor, for whom the identity of human beings is shaped by recognition, which means it does not exist in itself and its ontology is intersubjective. (1994) This approach opposes Fraser’s dualism with the claim, that any injustice is a matter of the central category – recognition, while redistribution is a derivative one.
be an exceedance of the authority of specialization. Philosophy does not serve at this place as a summation of knowledge, but it strives to interpret insights of the specialized science in structural relationships and grasps tendencies that exceed our immediate empirical world.

Critical theory begins with abstract determinations. As Horkheimer writes, “it begins with the characterization of an economy based on exchange.” (1972 [1937]:225) When Antonio (1983:325) speaks about critical theorists’ outcomes that consist of constituting “a cultural as well as economic critique”, he does not mean any developed apparatus of knowledge, enabling systematic analysis of the economic order, but rather a general direction of the critique. The following lines therefore present hidden and forgotten political economy in critical theory. Due to its main philosophical, sociological and psychoanalytical orientations, critical theory does not provide a conceptual framework of political economy and its points are rather fragmented, obscured, indeterminate and undeveloped. Nonetheless, despite these rare connections to economics, such fragmentation and theoretical underdevelopment in the field provide new standpoints and critique, so valuable for encapsulated contemporary economics.

Contemporary economics and critical theory might have more in common that it could be seen at first sight. McCloskey’s study attempts to approximate literary criticism and economics. The author claims that economic theory is itself “a species of criticism.” Like Marxism and psychoanalysis, “bourgeois economics of the school of Adam Smith is literally a critical theory.” Marxism is then seen as a conscious reaction to all its doctrines and psychoanalysis as an unconscious reaction to its doctrine of conscious rationality. (1989:111) This kind of understanding of critical theory is however not common among traditional critical theorists.

Critical theorists are, in their inner struggles for human emancipation, often confronted with questions of how such emancipated society should look like. Beside illegitimacy of the question and undue assurance of answers, such as the fulfilment of human possibilities or the richness of life, Adorno, with his tenderness claim the very elementary: “that no–one shall go hungry any more.” (2005 [1951]:156) Instead of utilizing the technical capacities when it is the question of abolishing hunger, the economic system rather utilizes and develops them for aesthetic purposes of mass consumption. (Adorno and Horkheimer, 2002 [1944]:111) Adorno continues, that the naïve supposition of an unambiguous development towards increased production is the only direction permitted by the contemporary socioeconomic system, integrated into a totality dominated by quantification, hostile to any qualitative difference. If we think
emancipated society, we have to attach emancipation from precisely such totality which has little in common with increased production and its human reflections. In simple language, increased production, ruled by quantitative and not qualitative aspects, does not contribute to the very natural human needs. Production forces are not the deepest substratum of man, but express his adaptation on them. Such society is compelled “under a confused compulsion to the conquest of strange stars.” (2005 [1951]:156) Adorno concludes, that a mankind which no longer knows scarcity may soon intuit the delusory of all arrangements adopted to get rid of scarcity; those arrangements hitherto made in order to escape scarcity, which reproduced both wealth and scarcity itself on a larger scale. (2005 [1951]:156-157)

Unemployment, economic crises, militarization etc. – the broad conditions of the masses – are still actual, according to Horkheimer, not anymore due to limited technological possibilities, but due to the circumstances of production. Contemporary production is not geared to the life of the whole society; it is geared to the power–backed claims of individuals as a result of the principle to look out just for oneself. (Horkheimer, 1972 [1937]:213) The course of history for critical theorists is the necessary product of an economic mechanism. The mechanism contains protests generated by the order itself and the idea of self–determined human race where man’s action is no longer determined by the mechanism of a blind necessity, but by his own decision. Economic subjects believe they act according to personal determination, although their complicated calculations exemplify the working of an incalculable mechanism. (Horkheimer, 1972 [1937]:195, 229)

Also seen is the direct connection between the development of technology and rapidly increasing concentration and centralization of capital. (Horkheimer, 1972 [1937]:235) It implies, that the forces of production and the production itself serve in the interest of domination instead of human needs. A skepticism consequently occurs when the development of productivity enhances the possibility of emancipation while it leads to greater repression. (Horkheimer, 1973) A slightly more optimistic vision was provided by Kalivoda, for whom historical human existence, based on dominion, must formulate repression in the dialectical totality with progress, brought by the repression itself within conflicting organization of society. (1968:80) The conflicting society develops tools of repression not to repress human instincts in general, but the rulers use them to repress the rest in order to create better conditions for their own reconciliation with nature. Repression is, as Kalivoda puts, only one side of the process, while the other creates
better conditions for satisfaction of human needs. (1968:80) Another Czech author – Kosík, notes that the freedom and equality of simple exchange is “developed and realized in the capitalist system production as inequality and lack of freedom.” (1976:32) His contribution therefore strives to expose the phenomenally equal and free system – which according to critical theory hypostatizes phenomenal aspects of reality and thus inevitably leads to apologetics – in the essence of its contradictions.7

In Adorno, it is shown that in times of undeveloped material production it could be proclaimed with some reason that there was still not enough for all. On the contrary by now, objective preconditions have changed. In the face of the immediate possibility of surplus even the most narrow–minded bourgeois must see the superfluous restriction. The imperative of the master–morality – who wants to live must seize the opportunity for himself – has become a miserable lie. (2005 [1951]:96) By the same token Farr explains Marcuse’s Hegelian statement “This world contradicts itself” in a sense that this contradiction consists of perpetuation of injustice and inequality. It is manifested in extreme poverty on one hand and unbridled wealth on the other. The contradiction arises from the fact that society contains resources to overcome scarcity and potentially liberate itself but the more wealth the society accumulates the more oppressive it becomes. (2008) Marcuse’s views on eradication of poverty and biological character of human needs are further interpreted for instance by Hohoš (2013).

Postone shows that critical theory grasps capitalism’s basic social relations as contradictory through an immanent critique. He argues that its dialectical historical dynamic is intrinsic to the society and points beyond itself – “to that realizable ‘ought’ which is immanent to the ‘is’ and which serves as the standpoint of its critique.” Such a critique is immanent and more fundamental than the one which opposes the reality to its ideals. The notion of social contradictions hence exceeds the narrow interpretation of the basis of economic crises in capitalism. In addition, social contradictions refer to the very structure of a society, a “self–generating ‘non–identity’ intrinsic to its structures of social relations”, which are not a “stable unitary whole.” Social contradictions are therefore precondition of immanent social critique

7 The relationship between freedom and equality was majorly built on heritage of the French Revolution. Balibar (2015) therefore uses the term ‘egaliberté’ which excludes freedom without equality. The relationship between researched inequality and unfreedom, which is presented in the thesis, is inspired by Balibar’s work.
itself, which allows theoretical self-reflexivity. Postone concludes that the fundamental categories of the critique of capitalism must be expressed in its social contradictions. (2006:170-171)

A rich man is the realization of the general spirit, but ‘on his own initiative’. Such a man results from “the truly irrational predestination of a society held together by brutal economic inequality (…)”, supported by “the supreme might of the law by which society reproduces itself.” (Adorno, 2005 [1951]:185-186) Only a negligible minority remain privileged, “but the structural possibility suffices to preserve the illusion of equal opportunities (…)” (2005 [1951]:194) Adorno adds, that the powerless individual is unable to calculate his economic fate in advance; rigidity of the class–membership is forgotten. Downfall of the individual is decided by “an opaque hierarchical structure in which no-one, scarcely even those at the very top, can feel secure: an egalitarian threat.” (2005 [1951]:194) Habermas (1967) follows the line and derives consequences – enforced existential minimum makes the costliest and the most generous life the only way to survive.

The bridge between critical theory and economics is, without any doubts, unsteady. Various directions of the critical theory however gravitate toward laws of the production process and confronts its intrinsic moments that relates to human unfreedom. The platform of stated questions is unequal distribution of resources and material deprivation in general. These questions are much closer to economics and therefore plays the central role for the rest of the thesis.

1.4 Inequality and Freedom on Their Aesthetic Foundations

The previous subchapter depicts the bridge between critical theory and economics in dark colors. As it shows, critical theory frequently concerns inequality as the intrinsic outcome of the production process. The present subchapter shows that even aesthetic moments of critical theory relates to the issue of economic inequality. As Schelling (1799) put, art begins where knowledge is missing and wherever art is, there science must go. For Wellmer (2004), the artistic piece broadens frontiers of the worlds meaning and subject by incorporating utopic perspective which
makes the critique conceivable at least. The following lines reveal how it is relevant to inequality in economic distribution.

Economic actors, processes and effects, as well as in other social phenomena, are reflected in artistic forms. Gartman refers to a social source that inevitably and unconsciously carries economic and political struggles and reflects them in form. Such reflection – he claims on the basis of Bourdieu’s and Adorno’s theories – is only possible when culture is freed from practical necessities. (2011:66) Kosík reminds Schelling, Smetana and Dembowski, for whom art was a kind of free human doing that is not subject to outside necessity, independent from extraneous purposes. (1976:124) By this, art helps to reveal the noxious antagonisms of the present society, in economics particularly.

Adorno’s theory of ‘mass culture’ and Bourdieu’s theory of ‘popular culture’ are insightful in several economic aspects. Gartman suggests that both authors share a fundamental idea that the manifestation of culture in modern capitalism, including art, music, consumer goods etc., is “inextricably linked with the unequal structures of power and wealth.” Modern society is seen as “a structure of domination founded on the unequal distribution of material resources.” For both of them, such structure of economic domination creates “a system of cultural domination that unintentionally legitimates its material inequalities.” (2011:41) Bourdieu and Adorno also share the idea that the defining difference between ‘high’ and ‘low’ culture is an autonomy from the economic purposefulness, i.e. from the force to “make money by pleasing masses.” High ‘critical’ culture represents potential freedom in the world of subjection to material production. (2011:51, 54, 69) Similarly, Gorz (1989b) for whom autonomous activities must not be motivated by exchange, but by general goals like good, beauty, truth and so on.

Bourdieu’s theory of ‘popular culture’ works on the assumption that a scarcity of material resources forces the working class to be concerned with acquiring the necessities of life. They thus internalize a set of unconscious dispositions, ‘habitus’ that privileges the function over the form of appearance. Gartman then summarizes that the bourgeoisie has sufficient economic capital “to instill a habitus conditioning a taste of freedom” which reveals itself in “a distance from necessity by a concern for aesthetic form or appearance.” (2011:50) The taste is a historical relation of domination deriving from sufficient resources which enable to be uninterested in the practical value of culture. (2011:43) The aestheticized good distinguishes the consumer apart from the masses of humanity whereas aesthetic judgements are based on disinterestedness.
According to Kant’s aesthetic theory, aesthetic pleasure is not practical or useful, based on the subject’s necessity to possess the physical existence. This finally results in the inferiority of the rest, because the lack of resources dictates those who live in scarcity to be concerned with the pay–off culture. Such cultural superiority then not only legitimates economic inequality, but from its superior position claims even more.

The problem arises from the “hierarchical and differentiated nature”, which makes some seem superior. (Gartman, 2011:50) The dominant class is seen as selfless when dedicating its resources, which it has above the base struggle for survival, on cultural products that have no immediate benefit. The dominant class transcendences the mere animal pleasures and operates above the heteronomy of nature. Culture, as a realm of autonomous and self–conscious efforts, devoid of material interests and necessities, thus legitimates such inequalities by symbolically displaying them to make them deserving of their unequal rewards. (2011:43, 50-51, 54) The former disinterestedness suddenly becomes a tool operating to historically secure the dominance. (2011:43) The result of such a culture is an interestedness employed on the competitive market.

In Pascalian Meditations Bourdieu introduces the term “Realpolitik of the universal” as a political struggle aimed at defending institutional and intellectual autonomy. He puts the struggle into the context of the “unequal distribution of the social conditions of access to the universal (…)” (2000:80) Gartman summarizes his conception of the universality of culture’s ascesis⁸ as “activity beyond the inequality and oppression of the economy” which provides “an implicit critique of these injustices, bringing them to consciousness.” (2011:54) To put it differently, his theory criticizes social inequalities which are structurally overlooked and which facilitates the monopoly of universality by those with privileged economic status. (2011:67) Bourdieu’s conception corresponds in this regard with Adorno’s insistence on the autonomy of culture. (2011:54) In Bourdieu’s later work he holds that the institutional protector of these interests must be the state. (Gartman, 2011:66)

For Adorno, art helps to define and to remember ugliness of a given era. Art should not integrate or mitigate ugliness, or reconcile it with its existence through humor that is more offensive than all the ugliness there is. (1997 [1970]:48) Instead, art exposes the ugliness in its form in order to denounce the creative force behind it. In an aphorism, where Adorno touches Veblen’s theory of luxury, it is said that the promise of happiness in luxury, which attaches to the

---

⁸ The term „ascesis“ refers to self–discipline.
non–fungible, necessarily presupposes economic inequality and society based on fungibility. (2005 [1951]:120)

Bourdieu’s theory contrasts with Adorno’s assertion of interclass human needs universalism. (2011:50) Adorno’s universalism lies in the bestowal of the same needs to workers as well as to bourgeoisie, to assert themselves free, self–determining individuals. “The repetitive and formulaic character of cultural goods, their utter standardization, makes them more ‘cosy’ and predictable and capable of answering to the individual’s need for security and for meeting the producer’s need for predictability in the market.“ (Witkin, 2002:5) For such reasons, the homogeneous mass culture provides the illusion of individuality to satisfy these needs. Adorno’s theory argues that culture is a priori interested and gives consumers immediate sensual pleasure and “a soporific, a superficial satisfaction for needs that prevents people from taking action to create a more just and equal society” and thus “an interested, commodified culture legitimates the status quo by accommodating the victims to the inequalities of capitalism.” (Gartman, 2011:43) Culture is commodified and serves as a substitute for consumers’ denied needs in capitalist production, such as individuality and freedom, in favor of profit. The lacking individuality and freedom leads to superficial diversion and easily consumable differences. As Gartman (2011:58) reads Adorno’s theory, the greater economic freedom of the early bourgeoisie led its members to demand high culture, requiring a sustained exercise of intellectual abilities cultivated in their leisure time. In sum, Adorno holds that this inauthentic aesthetic is imposed on all of society by the market and serves to legitimate inequalities. (Gartman, 2011:44)
Summary

As has been noted, critical theory evaluates production process in its entirety as the prime matter of interest, subsequently the matter of critique. Economically read, the compulsion retakes the shape of competition which forces humans to conquer new areas, intensively by conquering new zones of personal life or extensively by geographic expansion, which leads to conquering ‘strange stars’; ideas of indefinite growth. Within this context, “brutal economic inequality” (Adorno, 2005 [1951]:185) is seen as the inseparable part of the social reproduction. Society reproduces itself by the realization of the general spirit, which refers to the dominant socioeconomic mechanism – in our particular case market mechanism. Equal opportunities expose the structural possibility, but conceal a hypothetical character of the economic success. The equality rather lies in the threat of market imperatives which are imposed upon economic agents. Competing individuals, rationally avoiding the situation of economic misery, thus constitute a society that must be still richer in order to preserve its own existence. When critical theory urges that “no–one shall go hungry any more”, it points out at the fact that economic misery and poverty are just one side of the coin, whereas the second is represented by enormous wealth, both acting as the result of production process. In the eyes of an economist, critical theory therefore asks elementary questions of creation and allocation of wealth; it basically confronts contemporary economics and its basic principles constituting economic inequality. Additionally, inequality in economic distribution is not considered by critical theory as one of many phenomena of socioeconomic world. Inequality is understood in its systemic entirety, as a result of the systemic determination based on self–producing impulses of the system itself. On the other hand, economics often inspects inequality with empirical methods that require more isolated definition of the problem. The next chapter follows up these questions and reveals how contemporary economics deals with the issue of inequality.
2. CONTEMPORARY ECONOMICS AND INEQUALITY
2.1 Introduction to Inequality: History, Methods and Data

Despite that classical economists and their contemporaries in other social sciences were significantly focused on inequality in economic distribution and the question of inequality indeed played the central role, social scientists in the last century and economists paradoxically the most, partly overlook the question of how wealth (in its broadest sense) is distributed. A proponent of these classical economists and their contemporaries was Adam Smith who had been convincing us that the demand of those who live by wages increases with the increase of aggregate wealth. By this he has inspired many thinkers of political economy. Empirical findings however do not fully correspond to such trickle–down idea.

It seems enormously difficult to rigorously capture all necessary factors of inequality. Europe was a highly unequal rentier society with intergenerational spillovers of inherited wealth in the early 20th century. At the same time, the United States were already a society with high inequality but the distribution of wealth was predominantly self–made. Today´s inequality is in addition affected by the role of super-managers. Each of these examples has different driving forces and researching inequality means using different variables and methods according to the ‘nature’ of inequality.

Following the classics, Malthus (1998 [1798]) predicted a misery of the masses based on the “iron law of wages” in combination with population growth. Ricardo (2001 [1817]) puts fixed land supply into play, because as the land becomes more and more scarce the land–owners are supposed to capture an ever–growing fraction of national income. Marx (2015[1867]) sees the process of accumulation on competitive markets as the main diverging factor. Rousseau as one of the first problematized the relationship between private property and inequality, distinguishing inequality in its full richness as natural and moral. (2013 [1755])

It is evident today that none of them was fully successful in his predictions and all of them underestimated partly equalizing power of economic growth. A ‘renaissance’ of the issue appeared around the middle of the 20th century. The one who seemingly overestimated the equalizing power of economic growth was Kuznets (1953, 1955). He presents his curve hypothesis – inequality follows an inverted U–shaped development over economic progress. Recent studies, e.g. Cornia and Kiiski (2001), however present that the assumed shape is
empirically untenable. On the other hand, during the recent decades the question of wealth distribution has arisen again. Economic research in the field is mainly empirical as the data availability and their quality is incomparably higher than classical economists had and even higher than Kuznets had at his disposal half a century ago.

One of the most complicated and simultaneously the most important aspect in researching economic inequalities are just considering methods and data, both in terms of availability and quality. Despite enormous advances, contemporary economics still faces difficulties with interpretation of inequality, various tendencies on different societal levels, comparability or at the end technical side of measuring of inequality itself. With wide–range databases and growing data availability the proper classification has an increasing importance. Survey data are often used as the source for interpersonal inequality measurements. These datasets are provided for example by Luxembourg Income Study Database or Luxembourg Wealth Study Database; World Bank Living Standard Measurement Studies etc. Survey data are used by influential Milanovic’s researches (2005, 2002). Practical problems related to data surveys are mainly response rate, under–reporting at the top income level and omission of the very poor population as noted by Anand and Segal (2008) and researched by Korinek et al. (2006).

Another source of data for measuring inequality are tax data which were firstly used by Kuznets (1953). These data were also extended and systematized in the World Wealth and Income Database. Problems with tax data includes tax evasion (e.g. one third of the wealth of the top 0.1 % in Norway is in offshores, viz Alstadsaeter, Johannesen and Zucman, 2016) and tax–exempt incomes – e.g. tax data in the United States capture only 60 % of the national income and such data obviously does not reflect the bottom income strata. Most of capital income is, for obvious reasons, not reflected as well.

Distributional national accounts (DINAs) are the last frequently used source of data. These accounts are supposed to resolve discrepancies between micro and macro level and also derive measures of the distribution across households’ groups.

Quantifiers of inequality are also widely known. The most common measure is Gini coefficient. This measure of statistical dispersion says by means of Lorenz curve what fraction of aggregate population owns what fraction of aggregate income, usually on national or global level.
Another measure are top shares and less used Pareto coefficients. An interesting study on the relationship between Gini coefficients and top shares was elaborated by Alvaredo (2011). The last but not least measure is the Theil index which can be interpreted as income–share weighted average of the logarithmic difference between each economic unit´s income and mean income.

To use Gini and Theil indexes in international extent requires a method which converts national currencies into a common numeraire. Two main options are market exchange rates and purchasing parity power. Whereas the latter takes into account price differences across countries and therefore generates lower, most likely even underestimated values of inequality (due to possibly overestimated incomes of developing countries), market exchange rates suffer with ‘traded sector bias’, which omits domestic prices of internationally non–traded goods and services, which most likely leads to the opposite – an overestimation of inequality. Additionally, purchasing parity power – the application of the law of one price to a basket of goods – is usually calculated by three different methods: Geary–Khamis method used by Penn World Tables (PWT); Elteto–Koves–Szulc (EKS) used by the World Bank (WB); and less used Afriat index.9 A combination of market exchange rates and purchasing parity power is Exchange Rate Deviation Index (ERDI), however it has limited applicability in the issue of inequality.

Milanovic (2005) further distinguishes three concepts of world income inequality. Firstly, the author refers to inequality among countries based on their average per capita income, with each country as a unit. Second concept refers to inequality among individuals in the world, with each individual assigned the average per capita income of individual’s country of residence. Third concept focuses on inequality among individuals in the world with each individual assigned his income. Concrete results for each concept are depicted in Fig. 1. (Milanovic, 2013)

Economists also distinguish relative income inequality and absolute income inequality. The relative one stays constant when incomes change proportionately, absolute inequality stays constant when incomes change by the same amount. It must be also noted that income is still the most common reference point representing economic inequality, nevertheless other variables like consumption and, especially capital in recent times, help capture real economic differences with higher interpretative preciseness.

---

9 Differences in results can be significant according to used method, e.g. GDP of India in 1990 was estimated about 15 % higher by PWT (GK) than in case of WB (EKS).
2.2 Production Process: Attributes and Decomposition of the Output

The following subchapter offers an overview of how the output of modern economies is distributed and what makes the composition of the output. For this purpose, we consider the role of capital, labor and wealth.

Firstly, it is shown what actually is the result of production process and its development. The discussion on population growth and its role on economic output was famously held by Malthus (1998 [1798]) who believed that population growth leads to falling wages and inevitable poverty. Conversely Kremer (1993) believed that population growth produces more ideas/innovations and thus the population growth has a positive effect on economic growth. The Table 1 below depicts the development of growth and population.

Table 1 World Growth Since Industrial Revolution

<table>
<thead>
<tr>
<th>Average annual growth rate</th>
<th>World output</th>
<th>World population</th>
<th>Per capita output</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1700</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>1700-2012</td>
<td>1.6%</td>
<td>0.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>incl.: 1700-1820</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.1%</td>
</tr>
<tr>
<td>1820-1913</td>
<td>1.5%</td>
<td>0.6%</td>
<td>0.9%</td>
</tr>
<tr>
<td>1913-2012</td>
<td>3.0%</td>
<td>1.4%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Source: Piketty (2014)

It can be seen that during the recent century global society experienced the highest growth rate per capita. By the sum of demographic and productivity growth we get income growth. Income is the first variable when considering inequality and subsequent lines present its rough classification. Income is at the national level the sum of net domestic output and net foreign income. Net domestic output is generally described as a function of labor and capital, more concretely as GDP minus capital depreciation. Depreciation can vary with asset mix (e.g. tangible fixed assets and financial assets) or geography. (Hsiang and Jina, 2015) Net foreign income is the sum of net foreign labor income and net foreign capital income. In order to calculate income, it is
also viable to sum up capital income and labor income which allows to capture shares of capital and labor on national income. Such division of income is known as factor income.

The Fig. 2 depicts that capital share on national wealth is growing in advanced economies (Piketty and Zucman, 2014); an increase in capital share at global level was captured by Karabarbounis and Neiman (2014). When considering government, the situation gets complicated much more. For more detailed decomposition of pre–tax income and disposable income on the example of the United States see Piketty, Saez and Zucman (2016).

Wealth is another variable which is crucial to understand when researching inequality. Private wealth equals the subtraction of liabilities of households from households’ assets (financial and non–financial). Public wealth equals the similar subtraction but instead of households the government is taken into account. National wealth is then the sum of private and public wealth, while it can be further decomposed as the sum of domestic capital and net foreign assets. Piketty (2014:113–139) shows how the nature of wealth is changing over time, for instance the declining share of agricultural land and increasing share of housing on national wealth. As shown in the Fig. 3, the significance of private wealth is increasing during the last four decades. Private wealth is given by the sum of non–financial and financial assets minus financial liabilities (household and non–profit sectors). On the other hand, average return on private wealth has a downward trend, as shown in the Fig. 4.

Piketty also refers on differences in distribution of labor and capital incomes. According to his analysis, capital income is more concentrated than labor income: top 10 % owns 20–30 % of total labor income and 50–90 % of total capital income. The bottom 50 % owns 20–30 % of total labor income and 0–10 % of capital income. Gini coefficients are then calculated between 0.2 and 0.4 for labor income distribution and between 0.6 and 0.8 for capital income distribution. (2014)

The salient is the situation on the labor market. Probably the most common feature is skill premium which relates to both ‘textbook’ points on labor income inequality derived from marginal productivity: the nature of work that the worker is able to perform and relative scarcity. The rise in the skill premium vastly affects wage inequality – according to Goldin and Katz (2010) the rise in the skill premium explains 60–70 % of the rise of the wage inequality in the United States between 1980–2005. On the other hand, Card (2009) did not find any significant evidence that immigrants, classified by education (college/high school), would have an impact on
native wage inequality. Labor market institutions also play a key role: strong correlation between the decline in union density and rising top 10% income share (Jaumotte and Buitron, 2015) in combination with minimum wage policy, examined in details e.g. by the Center on Wage and Employment Dynamics (UC Berkeley) and top tax rates (Piketty, Saez and Stancheva, 2014; Bertrand and Mullainathan, 2001) heavily contributes to deepen labor market inequality.

When referring to income shares, it is inevitable to mention the question of the top 1%. The increase in the top 1% income is too relevant to be omitted, especially in the context of the United States. Decomposition of labor income of the top 1% over the past century in the United states shows that the labor component of mixed income as a share on national income is stagnating, while other compensations has grown significantly since 70’s. (Fig. 5) In case of capital income of the top 1% we observe an increase as a share on national income. The decomposition of the increase is depicted in details in Fig. 6. (Piketty, Saez and Zucman, 2016)

In order to capture wealth inequality, researchers have to overcome many methodological difficulties related to estate tax multiplier method, capitalization of investment income or survey data with top–end correction. Uncertainty also arises when considering offshore wealth. (Zucman, 2015) One of the most insightful studies on the topic was written by Saez and Zucman (2016). In the case of the United States, authors come up with the following numbers:
Table 2 Thresholds and average wealth in top wealth groups, 2012

<table>
<thead>
<tr>
<th>Wealth group</th>
<th>Number of families</th>
<th>Wealth threshold</th>
<th>Average wealth</th>
<th>Wealth share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Top Wealth Groups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Population</td>
<td>160,700,000</td>
<td>$343,000</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Top 10%</td>
<td>16,070,000</td>
<td>$660,000</td>
<td>$2,560,000</td>
<td>77.2%</td>
</tr>
<tr>
<td>Top 1%</td>
<td>1,607,000</td>
<td>$3,950,000</td>
<td>$13,840,000</td>
<td>41.8%</td>
</tr>
<tr>
<td>Top 0.1%</td>
<td>160,700</td>
<td>$20,600,000</td>
<td>$72,800,000</td>
<td>22.0%</td>
</tr>
<tr>
<td>Top .01%</td>
<td>16,070</td>
<td>$111,000,000</td>
<td>$371,000,000</td>
<td>11.2%</td>
</tr>
<tr>
<td><strong>B. Intermediate Wealth Groups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottom 50%</td>
<td>144,600,000</td>
<td>$84,000</td>
<td>$1,820,000</td>
<td>22.8%</td>
</tr>
<tr>
<td>Top 10-1%</td>
<td>14,463,000</td>
<td>$660,000</td>
<td>$1,310,000</td>
<td>35.4%</td>
</tr>
<tr>
<td>Top 1-0.1%</td>
<td>1,446,300</td>
<td>$3,950,000</td>
<td>$7,290,000</td>
<td>19.8%</td>
</tr>
<tr>
<td>Top 0.1-0.01%</td>
<td>144,600</td>
<td>$20,600,000</td>
<td>$39,700,000</td>
<td>10.8%</td>
</tr>
<tr>
<td>Top .01%</td>
<td>16,070</td>
<td>$111,000,000</td>
<td>$371,000,000</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

Source: Saez and Zucman (2016)

Particularly interesting is the development of the top 0.1 % wealth share. The Table 2 depicts the share of total household wealth held by the top 0.1 % as estimated by capitalizing income tax returns. It can be seen in a rapid increase of wealth of the top 0.1 % since late 70’s. For the composition of the growth see Fig. 7. Conversely, the magnitude of wealth held by the bottom 90 % is declining since the same time period. The composition of the bottom 90 % wealth is depicted in the Fig. 8. The inverted development between top and bottom wealth holders is also observable in income. Put together, we see that the share of income and wealth of the bottom 90 % wealth holders have been declining since 80’s (Fig. 9) and conversely the share of income and wealth of the top 1 % wealth holders have been rising since the same time period (Fig. 10). (Saez and Zucman, 2014) The same trend is confirmed by many others, e.g. Duménil and Lévy (2011).

Average growth rate of GDP per person for the top 0.1 % was 0.72 %; and 2.3 % for the bottom 99.9 % between 1950 and 1980. Between 1980–2010 average growth rate of GDP per person for the top 0.1 % was 6.86 % and 1.83 % for the bottom 99.9 %. (Jones, 2015)
Authors attribute these changes to saving rate. While the average saving rate has been 9.8% over 1913–2013, the saving rate at the top was fold higher and at the bottom oscillates around zero in the recent decades (Fig. 11); more detailed depiction of the saving rate of the bottom 90% is seen in the Fig. 12.

The view of the top 1% was confronted by Acemoglu and Robinson (2014) who oppose general Piketty’s conclusions, summarized in (Piketty, 2014). Beside the role of the top 1% also formula $r > g$ which purportedly does not explain historical patterns of inequality authors point at imperfect elasticity between labor and capital, which might be also identified in Piketty’s work. Acemoglu and Robinson argue with the example of South Africa and Sweden for which they run statistical regression. According to their analysis, the development of the top 1% went through the same pattern in both countries, however their national inequalities were substantially different.$^{10}$

In spite of partial uncertainties, the dynamics of production process allows basal conclusions. Firstly, aggregate wealth has increased enormously during the last century. It is also apparent that changes affecting inequality the most are placed in late 70’s and early 80’s; wealth and income shares of the bottom social strata is declining while wealth and income shares of the top strata are rising. Wealth share of the top 0.01% in the United states is six times larger than in late 70’s; saving rate at the top wealth shares is significantly higher than for the bottom 90%.

2.3 Quantification of Global Inequality

Most researchers throughout the world would agree that global income inequality is high. Estimates and calculations nevertheless exhibit ambiguous results, or at least, there is no simple answer as to whether global inequality is increasing or decreasing. Despite the fact that most papers incline toward increasing inequality, it would require tremendous effort to conjure highly confident research on global inequality. Considering recent and widely discussed works of e.g. Milanovic (2016), Piketty (2014), Atkinson (2015) or Stiglitz (2012), we rather focus on the most

---

$^{10}$ Empirical challenge of Piketty’s work (2014) was also held by Magness and Murphy (2015), however their corrections are rather formal with no change in general trends.
respected academic papers which have remarkably contributed to the issue of measuring global income inequality in the recent two decades. The aim is to provide an influential sample of what the development of inequality is; it is not meant to be a complete review of the subject.

Global inequality itself is the product of converging and diverging factors. From the first group, we might name catch–up growth in developing countries, migration from poor to rich countries or diffusion of technologies through trade. On the other hand, the rise in top–end inequality within countries, international tax competition and evasion or rising inherited wealth are supposed to cause greater divergence on global scale. Research results are structured according to method – Gini results based on purchasing parity power and Gini results based on market exchange rates. Researches are then summed up according to interpretation of inequality: 1) increasing, 2) constant or ambiguously interpreted and 3) decreasing.

Dorwick and Akmal (2005) deal with the question whether inequality values based on PPP and market exchange rates converge since globalization makes national states trade a bigger fraction of their GDP. By using Deininger and Squire’s (1996) data for within–country inequality and GDP PPPs from Penn World Table (PWT 5.6). Authors present that global Gini coefficient decreased from 0.659 in 1980 to 0.636 in 1993 when using standard PPP conversion factors (Geary – Khamis method) for measuring relative incomes. On the contrary by using their own ‘Afriat’ conversion factors the inequality slightly rose from 0.698 to 0.711.

Milanovic (2005) used his own dataset of household surveys for within-country inequality and PWT and World Bank data for PPP. He informs about increasing Gini coefficient from 0.622 to 0.641 between 1988 and 1998. Milanovic comes out with other calculations – as if he used GDP per capita instead of household surveys, Gini coefficient would increase almost by 2 percentage points. In his previous work (2002) Milanovic observed an increase from 0.628 to 0.660 between 1988 and 1993 as the result based on household surveys for 91 countries. Between–country inequality explains 75 % – 88 % of overall inequality, depending on whether the author uses Gini or Theil index. Real incomes of the bottom 5 % of the world population decreased by one–fourth, while the richest quintile went up. The world top 1 % receive as much as the bottom 57 %, which means that 50 million of the richest receive as much as 2.7 billion poor. Milanovic continues, that the ratio between average income of the world top 5 % and world bottom 5 % increased from 78:1 in 1988, to 114:1 in 1993. UNDP (1999) adds that the ration of

Milanovic (2013b) also uses Theil’s mean log deviation. Such analysis is easily decomposable and at the same time the importance of each component does not depend on the rest of the decomposition. This attitude is also shared by Anand and Segal (2008). It allows measuring global inequality by the index value and decomposing the aggregate value into two main factors – location and social class. His results show (see Fig. 13) that the importance of location prevails class affiliation over time, which subsequently confirms that between–country inequality has become decisive in explaining global inequality.

Sala–i–Martín (2006) used Deininger and Squire’s (1996) and United Nations University – World Institute for Development Economics Research data (UNU–WIDER) for within–country inequality; GDP PPPs from PWT 6.0. Based on these datasets the author found a decrease of the Gini coefficient from 0.660 to 0.637 between 1980 and 2000. Sala–i–Martin therefore presents that countries were converging. However, he reminds, if China is excluded from the sample, we would get results that sign economic divergence on the interpersonal level. In this particular case, Gini coefficient would increase from 0.620 to 0.648 which represents an increase of global interpersonal inequality by 4.4 %. (2006:388) When computing logarithm of income, the method also used e.g. by Schultz (1998), inequality in 2000 is higher than in 1970.

Bhalla (2002) used his own data for within–country inequality; as a source of GDP PPPs he used World Development Indicators and PWT 5.6. Bhalla recorded a reduction from 0.686 in 1980 to 0.651 in 2000. This means that median person in the developing world is slightly catching up world richer counterparts.

Bourguignon and Morrison (2002) found no change in the Gini coefficient between 1980 and 1992, which remained at 0.657. Authors also used their own data for within–country inequality and Maddison’s data (1995) for GDP PPPs. Bourguignon and Morrison found in their sample of 33 countries that from 1820–1920 inequality grew according to every method. Income share of the top quintile grew from 1970 to 1992. From 1820 to 1992 the Gini coefficient grew by 30 % and Theil index grew by 60 %. Their results also show that higher social mobility decreases inequality. Authors further claim that inequality in the early 19th century was mainly due to within–country disparities, while later on the driver was between–country inequality.
Dikhanov and Ward (2001) came up with an increase in Gini from 0.683 to 0.668 during the period of 1970 – 1999. They used Milanovic’s (2002) data for within–country inequality and World Bank data for PPPs.

The previous researches above were calculated by using PPPs. The second option is to compare national incomes through market exchange rates. Dorwick and Akmal (2005) argue with increasing Gini from 0.779 to 0.824 between 1980 and 1993. Milanovic (2002) had recorded an increase as well, concretely from 0.782 to 0.805 between 1988 and 1993. Three years later (Milanovic, 2005) he presented an increase from 0.778 to 0.794 between 1988 and 1998. Finally, Korzeniewicz and Moran (1997) who identified an increase of Gini from 0.749 to 0.796 between 1965 and 1992. Authors also use the Theil index to prove that between–country inequality is the most important in capturing global interpersonal income inequality, while between–country inequality explains roughly 90 % of interpersonal global inequality. (1997)

Among other influential empirical researches we might find Cornia and Kiiski (2001) whose research covers 80 % of the world population and 91 % of the world GDP. Authors claim that 59 % of the world population lived in countries where inequality is increasing, meanwhile only 5 % of the world population lived in countries where inequality is decreasing. (2001:21) The research shows that since the ‘80s there has been a significant increase in inequality in both developing and developed countries. To be adequate, their analysis shows that liberalization of domestic financial and job markets led to the increase in inequality, as well as privatization did.

Schultz’s (1998) research covers 93 % of the world population. The variance in the logarithms of per capita GDP PPPs increased worldwide between 1960 and 1968; and decreased since the mid ‘70s. Schultz also argues that subsequent convergence in intercountry incomes offset any increase in within–country inequality. In contrast to Korzeniewicz and Moran (1997) and Milanovic (2002), Schultz assigns two–thirds of world inequality to inter–country differences. Further, three–tenths to inter–household within–country inequality, and one–twentieth to between–gender differences in education. If China is excluded from the world sample, the decline in world inequality after 1975 is not evident. Schultz’s research also proves the intuitive fact that the bigger the sample is, the higher the chance of estimate errors is.

Minoiu (2007) analyzes poverty based on kernel density estimates for 94 countries. Minoiu’s outcomes show that global poverty rates are highly sensitive to the choice of smoothing
parameter. As the result, the estimated proportion of people who live for 1 USD/day in 2000 varies by a factor of 1.8, while the estimated number of people who live for 2 USD/day in 2000 varies by 287 million people. According to Minoiu’s research, 23–27% of the world population lived for 2 USD/day in 1990, whereas Sala–i–Martín identifies only 16% of the world population. This can be explained by using income clusters in case of Minoiu’s research, the difference might also reveal why Sala–i–Martín identified decreasing global inequality. As the author admits, there exists serious concern about the validity and robustness of poverty analysis based on kernel density estimation on grouped data.

In summary, it can be claimed that increasing inequality in recent decades was detected by Milanovic (2002, 2005), Dikhanov and Ward (2001), Korzeniewicz and Moran (1997), Cornia and Kiiski (2001). Constant or ambiguously interpreted inequality was detected by Dorwick and Ackmal (2005), Schultz (1998) and Bourguignon and Morrisson (2002). Decreasing inequality was detected by Sala–i–Martín (2006) and Bhalla (2002). Still, most researchers agree with increasing global inequality since the ’80s. An eloquent in this regard is Fig. 14 which was, based on author’s previous researches, introduced by Milanovic (2013). The sample includes 144 countries and each country/year represents one observation. It must be also noted that both Sala–i–Martín and Bhalla use quintile shares which most likely explains their results; whereas Milanovic (2002, 2005) and Dikhanov and Ward (2001) calculate PPPs for consumption.11

2.4 Inequality, Growth and Other Social Phenomena

The following subchapter reveals an interrelatedness between inequality and economic growth and put the issue of inequality to a broader socioeconomic context. Economic growth thus complements the core idea of production process as the result of the process itself. Elaborated literature also suggests that theory dealing with these issues transfers from theories of capital accumulation to theories of human capital.

11 For more details on variances in income and consumption inequality see well known Krueger and Perri (1995) or the newer study of Aguiar and Bils (2011).
The first one is Gailbraith et al. (1999), who argue that the Gini coefficient tends to undervalue high incomes, for which they research inequality through Theil index. According to authors, Theil index is more appropriate for measuring changes in income within countries. Their results show that liberalization contributes to generally rising inequality. Authors also claim that economic growth equalizes economic disparities and hence increasing inequality since the ‘80s was caused by lower growth rates.

Aghion et al. (1999) did not find a substitution effect between inequality and effectivity in cases of imperfect capital markets. This implies that convergence depends vastly upon the existence of perfect capital markets. When considering imperfect capital market, authors conclude that the level of wealth does not converge. Further, according to Aghion et al. (1999), faster growth is rather a matter of more egalitarian countries. On the other hand, economic growth might increase wage inequality within and between education groups. The research also shows that technologies are not neutral and especially general purpose technologies (GPT) significantly drive wage inequality.

In cooperation with Howitt, Aghion (1992) claim that vertical innovations, a fruit of competitive research sector, constitute the underlying source of growth. The optimum is derived from differential equations which reflects intertemporality of current and past costs on research and development. Authors also incorporate ‘creative destruction’ – new research destroys rents of the previous one. Growth is then mainly a function of the magnitude of resources allocated to innovation process. Authors continue with modelling particular equilibria, e.g. innovations are divided into ‘drastic’ and ‘non–drastic’, while the latter allow that the other subjects realize profit despite an innovation was introduced. Aghion and Howitt conclude, that laissez–faire environment shrinks the magnitude of innovations due to ‘business–stealing effect’. (1992) Single–sector growth model was also elaborated by Romer (1990), who, however, assumes the product as non–rival. The similarity with Aghion derives from the fact that Romer, too, incorporates the magnitude of capital (human) in research and development as the foremost driving force of growth. Innovation process, consuming today’s resources with an intention to use them in the future, is then considerably sensitive on interest rate.

---

12 This idea is frequently assigned to J. A. Schumpeter, however the first who elaborated the issue was Marx and Engels – we read in Communist Manifesto that old industries are destroyed and replaced by new industries as a result of the very motive to survive (2008 [1848]), which basically represents the antagonistic character of society on macro–level.
Later on, Aghion (2002) developed Schumpeterian growth theory. Upon growing inequality in the United states and Great Britain since the ’80s, Aghion deals with wage inequality (skill premium) in the context of technologies. Author presents two main effects, supply and demand–oriented, that explain rising skill–premium and therefore wage differences. ‘Market size effect’ says that increasing supply of skilled labor generates increasing monopolistic rent deriving from innovations. Based on that, the whole sector is growing as well as skill–premium.\textsuperscript{13} The second effect concerns GPT, since diffusion of technology requires greater amount of skilled labor, the demand for skilled labor is growing and thus skill–premium as well. The issue of technological changes and their negative impacts on wage inequality are summarized in Aghion and Howitt (2009). An interesting viewpoint on skill–biased technical changes in the context of inequality provides Acemoglu (2002).

Further, Aghion (2002) also briefly discusses ambivalences of new technology implementation, because costly restructurialization of production process may indeed lead to enhancement in productivity in the long run, but also to temporary reduction in productivity. Author also introduces coefficient of proportionality which measures inter–sectoral spillovers. This redirects back to Aghion and Howitt’s article (1999) because their ’business stealing effect’ might be also seen in this perspective. The higher the coefficient of proportionality is, the easier the diffusion of innovation among sectors is and hence the higher the growth it generates. Aghion however leaves behind the crucial fact that the higher the coefficient of proportionality, the lower the initiative to innovate and the lower the growth it generates.

Alesina and Perotti (1996) tested a hypothesis whether higher inequality leads to socio–political instability and through higher uncertainty decreases investments and growth. Socio–economic instability is not measured by changing governments as in many other studies, but by social instability index that is composed of numerous social phenomena. Their results suggest lower inequality causes rapid growth (e.g. in South–East Asia). The question of capital taxation is also briefly discussed – taxation reduces propensity to invest with negative effect on growth, but on the other hand reduces social tensions with positive effect on growth. The net effect of capital taxation thus remains unclear.

The question of capital taxation was discussed also earlier in Alesina and Rodrik (1991). The authors define two social groups, workers and capitalists, and for each group formulate

\textsuperscript{13} Aghion and Howitt admit that the effect is not corresponding with early 20th century data.
utility function with regards to capital taxation. The role of government is to maximize weighted average of welfare for both groups. In democratic society, results show that the more unequal the distribution of wealth, the lower the rate of growth. Economic policies maximizing growth are then optimal only for governments representing the ‘capitalist’ group. To conclude, Alesina and Rodrik posits that democracies with lower inequality grow faster and that redistribution of wealth from the top quintile to middle class supports economic growth.

Bandyopadhyay and Parantap (2005) report that characteristics of industrial countries like skill-intensive technologies, low barriers to knowledge spillovers and high redistribution have a positive growth–inequality correlation. The opposite characteristics, assigned to non–industrial countries, have a negative correlation between growth and inequality.

Similar division was earlier elaborated by Barro (1999), who identified that higher inequality slows down economic growth in poorer countries, meanwhile accelerates economic growth in advanced countries – economic growth slows down with higher inequality in countries where GDP per capita is lower than 2000 USD/person/year and accelerates with higher inequality in countries where GDP per capita is higher than 2000 USD/person/year. Redistribution of wealth then might cause a decrease in growth rate in advanced countries and increasing growth in developing countries. Barro also discusses the fact that poor cannot afford investments in human capital. This implies that redistribution in favor of poor, who would consequently afford investments in human capital which has a big rate of return, might lead to the increase in average aggregate productivity. On the other hand, rising income, at least in classical Keynesian view, leads to rising saving rate and economic growth at the end. These effects are therefore ambivalent. Barro also mentions that income share of the top quintile rises with rising GDP per capita; however, it decreases when GDP reaches 3 500 USD/capita/year which is in correspondence with Kuznets curve. The question is whether these results would be obtained if Barro used e.g. decile or even top 1% computation.

Berg and Sachs (1988) observed an inverse relationship between growth and inequality. The article focuses on debt crises and restructurization of national debts. They claim that extending the maturity of the debt is closely related to higher inequality. This account presumes that higher inequality decreases economic performance of the country and leads to rescheduling of the debt etc. Authors conclude that internationally oriented countries (in terms of trade) have lower probability of restructurization. On the other hand, such orientation usually requires
lower real wages and devaluation of currency and therefore initial inequality should be relatively small. Empirical evidence on effect of trade on economic growth, despite the uneasiness to establish a causality between the two, was also provided by Frankel and Romer (1999). They conclude that trade has a large and positive effect on income.

De la Croix and Doepke (2003) emphasize the status of fertility and education. By using data for 68 countries, authors posit that fertility–differential derives from the fact that poor parents with many children cannot afford investments in human capital of their children and the next generation has more poor with no significant contributions to growth. According to authors, it does not matter how many children are born, but to whom, as they apply trade–off between ‘quality’ and ‘quantity’ of children. Their ‘social engineering approach’ then suggest rather to liberalize an access to education instead of redistributive tax policies.

One of the most famous articles on the topic was written by Deininger and Squire (1996). Authors compiled a new dataset for 108 countries with 682 observations, but they did not identify a systematic relationship between growth of aggregate income and inequality measured by Gini coefficient. During 88 periods of growth, in 45 cases there was a decline of inequality, in the rest of the 43 cases there was an increase of inequality. During these periods, the lowest quintile experienced growth of its income in 77 cases and decline in the remaining 11 cases. Statistically significant relationship, based on the income of the lowest quintile, was detected between aggregate growth and poverty reduction which leads them to conclusion that positive growth makes poor better–off, negative growth makes them worse–off. Additionally, Kuznets curve pattern corresponded only to 5 countries, 4 countries had the opposite pattern and for the rest of countries the pattern was statistically insignificant.

Galor (2009) reminds that during industrialization, where physical capital accumulation is a prime source of economic growth, inequality enhances the process of economic development by channeling resources to those whose marginal propensity to save is higher. Later stages, as Galor explains, requires due to capital–skill complementarity more human capital and human capital becomes the prime source of growth. Author concludes with a discussion on credit constraints: more equal distribution of income, when considering credit constraints, stimulates investments in human capital and economic growth at the end. As economies become wealthier, credit constraints might become less binding and the aggregate effect of income distribution on economic growth becomes less significant.
Gomez and Foot (2003) research age structures and their impact on income distribution. Authors claim that credit constraints serve as an intensifier of income inequality. Such inequality is further unhealthy for economic growth since it leads to redistributive policies which harm private ownership, because private profit which stems from investments cannot be fully appropriated. They also incline to suggest that more egalitarian countries grow faster than unequal countries, similarly as Aghion et al. (1999).

Perhaps the most famous article on the relationship between growth and inequality was written by Kuznets (1955). The general idea is as follows: countries start with low economic performance and low inequality. During their economic development, inequality is rising simultaneously with economic performance. In later stages, economic growth generates, through inter-sectoral migration, converging forces that result in economic growth with decreasing inequality. Kuznets also states four factors impeding concentration of savings: i. government intervention; ii. demographic changes; iii. dynamic free market; and iv. structure of top incomes with lower growth potential. Nevertheless, those parts referring to insufficient data and Kuznets’s own conclusion became often forgotten, especially that the article “is perhaps 5 per cent empirical information and 95 per cent speculation, some of it possibly tainted by wishful thinking.” (1955:26) Aghion and Bolton (1997) attributed Kuznets U–curve to credit market imperfections which cause different behavior among the poor and the rich. Imperfections especially on the capital market plays the crucial role in e.g. Gomez and Foot (2003), Aghion, Caroli and García Penalosa (1999) or Mookherjee and Ray (2003).

Korzeniewicz and Moran (1997) confront Kuznets’s ‘modernization paradigm’ (1955) with Schumpeterian ‘creative destruction’. By following contemporary research on inequality, authors focus on between-country inequality in contrast to Kuznets’s within–country inequality which under current globalizing conditions has significantly lower explanatory power. Authors argue that between 1970 and 1990 lower income countries had decreasing inequality, middle income countries had stagnating inequality and high income countries had increasing inequality. Therefore, their results stand in opposition of what Kuznets assumed. From the examples of South Korea and Taiwan, authors argue that these countries experienced enormous increase of income per capita without rising inequality.14 The authors also point out a rapidly rising

---

14 To challenge authors’ partial conclusion, Korzeniewicz and Moran totally neglect political aspects of the economic success in South Korea and Taiwan
inequality since the ’80s. Korzeniewicz and Moran concludes that if we substitute Kuznets’s ‘modernization paradigm’ with ‘creative destruction’, and hence stationarity with continual processes of development, a “constant drive toward inequality” prevails.

Lundberg and Squire (2003) firstly follow Kuznets’s ‘mechanistic’ heritage, but the most interesting part of their paper lies in separate causal analysis of growth and inequality. They use Deininger and Squire (1996) data and extended their dataset for 125 countries with 757 observations. For calculating GDP per capita authors use PWT. After composing vectors of variables for growth, equality and common vector of variables for growth and equality (inequality), they got the following results: firstly, growth and inequality should be analyzed together since several variables are statistically significant only when both equations for growth and inequality were employed. Secondly, expansion of education leads to lower inequality but at the expense of slower growth. This substitution effect however might be solvable by policymakers, e.g. by improving Sachs–Warner index or equalizing distribution of land without losing growth rate. The common (for growth and inequality) equation estimates show that equality negatively affects growth at 10 % significance level. Growth has high statistically significant negative impact on equality, quantitatively however relatively small. Authors conclude that civil liberties generates conflict between growth and equality; conversely education, redistribution of land and lower inflation supports both growth and equality.

The article written by Persson and Tabellini (1994) researches the relationship between growth and inequality in two periods: from 1830 to the 2WW and from 2WW onward. Authors accentuate, as was the case of Gomez and Foot (2003) later on, that inequality harms growth since it leads to taxation of growth promoting activities. The model however suffers with estimate errors. The measure of inequality in the model is income share of the top 20 %, which is today partly criticized on Piketty’s work. In any case, inequality purportedly explains roughly one–fifth of growth variances. Persson and Tabellini’s model is rather applicable on democracies. The same is valid for their findings, inasmuch as equality has a positive effect on growth in democracies which is in contradiction with Barro (1999) or Bandyopadhyay and Parantap (2005). According to authors’ computations, growth is mainly driven by capital accumulation, human capital and knowledge usable in production processes.

15 From social sciences, other than economics, we may mention Gorz (1989a) who, based on his qualitative analysis, concludes that education is the most effective way to fight polarized society.
A controversial question whether inequality is bad for poor or rich was the subject matter of van der Weide and Milanovic (2014). They criticize that other researches consider growth and inequality homogeneously, i.e. how overall inequality affects average growth. Authors calculate impacts of overall inequality on different income groups in the United states between 1960 and 2010. Authors conclude, that high overall inequality hurts only income growth of the poor, while the positive effect on growth is exclusively reserved for the top end of the income distribution. This also offers an alternative explanation for why the relationship between average income growth and inequality is so fragile, since those two effects from the different ends of the income distribution may offset each other. Incomes of poor (the lowest 40 %) were growing faster in the ´60s and ´70s, while incomes of rich (top 40 %) have been growing faster since the ´80s. Based on authors´ computations, total inequality seems to be negatively associated with growth of the poorest and positively with growth of the top decile, while there is no statistically significant effect on growth of the middle of income distribution. The article tends to conclude that rich have been getting richer at the expense of the poor.

Many of today´s questions regarding the relationship between growth and inequality in OECD countries over the past 30 years were researched recently by Cignano. His econometric analysis suggests that “income inequality has a sizeable and statistically significant negative impact on growth,” and that, Cignano continues, “redistributive policies achieving greater equality in disposable income has no adverse growth consequences.” (2014:28)

Another recent study elaborated by Berg and Ostry (2013) claims that in the cross–section of developing countries more equal countries tend to grow more. On the other hand, there is no such correlation for rich countries and the study says nothing about the direction or even existence of any causality, however difficult it is to reveal a rigorous empirical causal relationship.

A possible link can be seen, even intuitively, between inequality and social mobility. Corak (2013) shows that the higher the inequality is, the less the mobility across generations the country experiences. The study measures inequality as the Gini coefficient for disposable income in 1985 and intergenerational mobility is measured as the elasticity between paternal and son´s adult earnings. Corak’s results (Fig. 15) clearly show that the lower the social mobility the country has, the higher the inequality is captured.
The discussion on whether wealth is predominantly inherited or self–made has been held by Modigliani (1986, 1988) and Kotlikoff and Summers (1981) and Kotlikoff (1988). The first claims that 80 % of the wealth in the United States is self–made while the latter claims the complete opposite. This is based on whether wealth comes from the past (inherited) or the present (self–made). The Kotlikoff–Summers–Modigliani controversy was re–examined by Piketty (2011) and corrected by Piketty, Postel–Vinay and Rosenthal (2013), in more details in Piketty and Zucman (2015), since Modigliani’s zero–capitalization and Kotlikoff’s and Summers’ full capitalization (of past inheritance flows using economy’s average rate of return) were theoretically inconsistent and gave unreasonable outcomes. The role of inherited wealth is then depicted in Piketty and Zucman (2015) who provide the example of France (Fig. 16) due to data availability. Generally, about 50 – 60 % of total wealth comes from inheritance in developed countries like France, United Kingdom or Germany; between 40 and 50 % in Sweden. (Piketty and Zucman, 2015) Benchmark estimates for Europe and the United States (Fig. 17) were then elaborated by Alvaredo, Garbinti and Piketty (2015).

Nevertheless, differences are observable also among developed countries themselves. In Anglo–Saxon countries, inequality was significantly rising (Fig. 18), while continental Europe and Japan (Fig. 19) more or less persisted on the values right after the 2WW. It suggests itself, especially in the case of Anglo–Saxon countries, that inequality can be linked to tax rates. Top income tax rates (Fig. 20) and income inequality in Anglo–Saxon countries (Fig. 18) show, that top income tax rates and income inequality were changing inversely. Piketty (2014) also makes use of top inheritance tax rates (Fig. 21) through which he points out differences in overall inequality among developed countries.
Summary

The second chapter follows up the challenge of the critical theory raised in the first chapter and presents how inequality in economic distribution is reflected in contemporary economic research. To summarize empirical findings of inequality in economic distribution, we might claim the following: there are expectable methodological difficulties in both measuring inequality and making connections to other socioeconomic variables. Most of the authors inspected rising global inequality, supported by all major quantitative methods used in economics. Also, wealth and income shares of the top are rapidly rising, especially in Anglo-Saxon countries since the ’80s, which also corresponds to differences in saving rates between the top and the bottom share. In the context of the thesis it is important to note that the period of widely–recognized rising inequality corresponds to the period of political releasing market mechanism.

When concerning production process, it is a must to research relationship between growth and inequality. None of the models however includes all relevant variables; every author works on different assumptions about included variables and estimate error or multicollinearity play their roles. To conclude, the majority of authors incline toward negative relationship between growth and inequality. This prevailing statement, that more egalitarian societies stimulate growth, should be, however, taken into account with relatively low explanatory power. Firstly, it is still not clear if the relationship between growth and inequality is statistically relevant. Secondly, if the relationship is present, it is not clear if the relationship is causal. And lastly, if the relationship is causal the question is what causes what – growth causes inequality or inequality causes growth? Equal society drives growth or rapid growth equalizes society? Further, the relationship between inequality and growth is affected by measures that might cause rising between–country inequality and declining within–country inequality or *vice versa* (e.g. in the case of China). Overall global inequality then depends on what effect prevails. These questions require their own separate research since it is very complex theoretical interplay with highly diversified national histories and politico–economic conditions. The chapter, despite all outlined ambivalences, equips the following parts with observed data which show that the ‘trickle–down’ idea, adopted by the neoclassical theorists, is not backed by empirical evidence. The subsequent part of the
thesis critically contextualizes these empirical findings with the theoretical and methodological context of the critical theory.
3. DIALECTICALLY–CRITICAL REFLECTION
3.1 Critique of Positivism: From Metaphysical Ontologism to Mathematical Formalism

As was indicated, quantitative economic researches have limits in providing in–depth explanations of the issue of inequality. The previous chapter showed that economic research of inequality in economic distribution is in vast majority carried out from a positivist standpoint. This produces both pros and cons of the research. Firstly, empirical economic studies on inequality presents valuable ground with robust data analysis that provides a basal and in a certain sense, even an advance picture of our immediate world. On the other hand, critical theory demands more than ‘superficial’ correlations and summations. For that, its methodological critique is supposed to reveal an intuitive logic behind empirical façade. Horkheimer teaches us that facts presented to us through senses are socially performed: firstly, through the historical character of the object and secondly through the historical character of the perceiving organ. (Horkheimer, 1972 [1937]:200) The following lines put contemporary economic research into these methodological contexts of the critical theory and concerns not only that–which–is, as the previous empirical part does, but also that–which–is–not; in other words, the present chapter confronts the given facts with that which they exclude.

For positivism, which has assumed the judicial office of reason, every trial is prejudged. When the unknown in mathematics becomes the unknown quantity in an equation, it is already known before any value has been assigned. The equation of mind and world, Adorno and Horkheimer claim, is resolved as a reduction which condemns the world to be its own measure. Value judgements are mere chatter; however, the noncommittal vagueness does not make it more transparent – its vagueness and quasi–scientific reluctance to be linked to anything which cannot be verified, works as an instrument of control. 16 (2002 [1944]:18, 19, 118) The scientific method is an activity which reveals the objective content and meaning of facts. The proper scientific method is to the degree to which it through itself exposes, interprets and substantiate the richness of reality that is objectively (K. K.) contained in the researched particular fact. “Scientific method

---

16 As it will be shown in the following chapter, this is not our case. Each unknown that is included is based on critical theory’s insights, i.e. it does not work as an instrument of control, but the contrary – it is a controlled instrument.
is a means for decoding facts.” (Kosík, 1976:26) Fact is nontransparent coded reality. As Habermas put, if analytically empirical science does not step out of its positivist limits, it does not produce ideas of social goals, priorities or programs (1967:85). If such a science does not make the step out, a misery of theory lies in the fact that it is supposed to be ad hoc derived from particularities that are practically given and technically solvable. (Habermas, 1967:84) By the same token, Michňák posits that positivist reduction deprives science of its human substance as it excludes the question of meaning and existence. (1965b) Simply put, as long as positivism does not have exact scientific methods for inspecting the essence and purposes (happiness, good, beauty…) at a disposal, it transforms them into metaphysics.

It is basically part of ideology which advocates status quo: The ideology “exploits the cult of fact by describing bad existence with utmost exactitude in order to elevate it into the realm of facts. Through such elevation existence itself becomes a surrogate of meaning and justice.” (Adorno and Horkheimer, 2002 [1944]:119) Ideological aspects are not merely meaningful and justiciable – that which fits into the context of social utility is also regarded as natural. (Adorno and Horkheimer, 2002 [1944]:147) Authors explains the fixation on status quo by the alleged triumph of subjectivity, “the subjection of all existing things to logical formalism,” which is paid with the obedient subordination of reason to what immediately exists. Knowledge, on the other hand, does not consist in mere perception, classification and calculation, but also in the negation of what immediately exists. Mathematical formalism therefore arrests thought at mere immediacy.¹⁷ (Adorno and Horkheimer, 2002 [1944]:20) Even the insoluble and irrational is formalized to keep the world safe from the return of the mythical. Any deviation of thought from the actual, touching the outside of the jurisdiction of existence, is no less self–destructive “than it would be for the magician to step outside the magic circle drawn for his incantation.” (Adorno and Horkheimer, 2002 [1944]:19) Similar but more direct critique can be also found in Husserl (1972). Such subject is then free from all romanticism. Subject’s positivist sublimation into a transcendental and logical subject forms the new reference point of reason – the legislating authority of any action. (Adorno and Horkheimer, 2002 [1944]:22) Such a world, reduced to symbols and formulas, is then easily manipulable. (Michňák, 1965b)

¹⁷ The subchapter ’Methodological Notes’ explains why mathematical formalism in the last chapter does not arrest thought at immediacy.
In the preface to the *Dialectic of Enlightenment* from 1947 it is read that positivist’s focus on observation of facts and the calculation of probabilities is supposed to protect the cognitive mind from charlatanism and superstition but simultaneously such focus prepares arid ground for the acceptance of charlatanism and superstition. This leads to fall of technologically educated masses into despotism and upon uncomprehended senselessness it shows the weakness of contemporary theoretical understanding. (Adorno and Horkheimer, 2002 [1944]:xv-xvi) The despotism triumphs when those educated masses arrange facts in such a way, “that they can be grasped as quickly and easily as possible. Wrenched from all context, detached from thought, they are made instantly accessible to an infantile grasp.“ (Adorno, 1991:85)

For Marcus, empiricism is a form of reductionism depending on the fallacious assumption of formal logic. By such, the universe can be explained as discrete points interconnected by formal relations. This allows reductionism to demand the fallacy of formal induction. (Marcus, 1975:15) According to him, what is implicit to contemporary economics is the acceptance of the fallacious postulate that price and utility of commodities are in formal correspondence. In traditional Marxian view these two are qualitatively so distinct that no mathematical solution of their interconnection can be possible; in other words, price and utility cannot be systematized by formal mathematical interpretation. (1975:33) All of that is by definition in contradiction to the third Descartes´ maxim – to commence objects that were the simplest and the easiest to understand in order to grasp, little by little, complex phenomenon. Such derivation is to be applied throughout to all science, not only in mathematics. The world is thus captured by a deductive chain of thought. (Descartes, 2003 [1637]:14)

Such deductive chain requires a collection of facts in all the disciplines – the gathering of great masses of details in connection with empirical inquiries. This creates a pattern which is much like the rest of life in a society dominated by industrial production techniques. As well as in the early 20th century’s sociology, contemporary economics is based on laborious ascents from the description of social phenomena to detailed comparisons. Then, the formation of general concepts is allowed. The true empiricism depends upon complete inductions which supply the primary propositions for a theory, although empiricists are still far from such inductions. (Horkheimer, 1972 [1937]:191-192) Weber discusses the problem in the chapter “Objectivity” in *Social Science and Social Policy*. In brief, historians or experts in criminal law (examples
provided by Weber himself) do not rest on the fullest possible enumeration of all circumstances but on establishing of connections between isolated elements. (1949 [1903-1917]:113-163)

Only then humans feel saved – when all possible facts are gathered and there is no longer anything unknown. The fear of unknown has determined the path of demythologization of enlightenment in a mythical sense – enlightenment is radicalized mythical fear, the pure immanence of positivism in which nothing is left outside, while the mere idea of the ‘outside’ is the source of fear. (Adorno and Horkheimer, 2002 [1944]:11) Positivism then strives to embrace all phenomena, but not in their dialectical totality, but as a mere summation of facts. An inability to gather all facts however keeps positivism in a trap: “It takes abstraction and thematization, a project (K. K.), to select out of this full and inexhaustible world of reality certain areas, aspects and spheres, which naïve naturalism and positivism would then consider to be the only (K. K.) true ones and the only reality, while suppressing the ‘rest’ as sheer subjectivity.” Kosík adds, that the “physicalist image presented by positivism impoverishes the human world, and its absolute exclusiveness deforms reality, because it reduces the real world to but one (K. K.) dimension and aspect, to the dimension of extensity and of quantitative relations.” The physical world, a “thematised mode of cognition of the physical reality” (1976:11), provides only one of the possible images and emphasize only particular aspects of objective reality, however essential they might be.

Adorno therefore accuses positivism of reducing the detachment of thought to a reality. Thought hesitates to be more than a “mere provisional abbreviation for the factual matter (…)”. (2005 [1951]:126) The idea of penetrating the empirical world is possible only from the detachment which is a safety zone for positivists, but a field of tension for critical thinkers. To operate with terms without distance is child’s affair – thought must aim beyond its object because it never reaches it. Positivism is thus the more childish the more it believes that the object can be reached. In such a case, a transcending thought “takes its own inadequacy more thoroughly into account than does one guided by the control mechanism of science.” (2005 [1951]:127) The task of science is reduced to accumulation of facts and establishing functional, easily surveyed connections between them. The division of labor in science must enable to locate the desired intellectual commodity in the required variety. Already the compilation is often made with regards to particular industrial administrative interests. The role of philosophy is supposed to be different. It is not a synthesis, a basic science, but “an effort to resist suggestion, a determination
to protect intellectual and actual freedom.” Philosophy is the voice of contradiction “which otherwise would not be heard, but would triumph silently.” However even philosophy today serves science like a kind of “intellectual Taylorism”: to improve scientific production methods and rationalize the accumulation of knowledge while preventing the waste of mental energy. Just as Machiavelli wrote for the purpose of the former rulers, today scientists pander to economic and political committees. (Adorno and Horkheimer, 2002 [1944]:201-203)

Positivist physicalism substitutes a certain image of reality for reality itself and promotes a certain mode of appropriating the world as the only true one. Positivism thus denies the inexhaustibility of the objective world and its irreducibility to knowledge (countering materialism), and secondly, positivism reduces the wealth of human subjectivity, formed historically (K. K.) through the objective conditions, to one single mode of reality. Consciousness investigates both theoretical–predicative form of substantiated rational and theoretical cognition, and pre-predicative, holistically intuitive form. Denying the first leads to irrationalism and forms of “vegetative thinking”, while denying the latter ends up in rationalism, positivism and scientism with inevitable irrationality as their own complement. (1976:11, 12)

Finally, this is also mirroring e.g. in scientific categories of subjectivity and objectivity, whence positivism perceives them inversely. For Kosík, science is based on the possibility to distinguish the essential and the peripheral as the intrinsic objective sense of facts. (Kosík, 1976:26) However, by now, “[O]bjectivity means the non–controversial aspect of things, their unquestioned impression, the façade made up of classified data,” that is what Adorno assigns to the subjective. (2005 [1951]:69) Such objectively valid data are, for Adorno, rather objective statements of how subjects perceive reality and themselves. The perversion of science therefore lies in the fact, that instead of quality of the subject matter criteria rather focus on objectivity of results. Scientific exactness, imposed in order to eradicate dishonesty of scholasticism, then faces precisely the same dishonesty while extrapolating its results. It is impossible to research partial data of any social phenomena and conclude these data with general validity; at least not in the scale in which specificities of a piece of plumbum refer to specificities of all plumbum, simply given the fact that human beings have not the same character as physically–chemical materia do. Eradication of totality, which stands beyond strictly scientized methodology, makes isolated social research untruthful. The question of the essence is tabooed and science clings to a mere phenomenon. (Adorno, 1967:21-23, 27-28) Objective reality then turns into objectual reality – a
reality of objects. (Kosík, 1976:53) In sum, research on a partial phenomenon has no general relevance and therefore must be extrapolated with low external validity. Dishonesty of scientization then consist in alleged objectivity of its results, in contrast to invariance–based objective results in natural sciences.

In spite of the critique, there exists rare credit given to positivism by critical theorists. Antonio stresses that emancipation must be rethought in the context of objective ideological, material and social constraints. Because of that, he sees the extreme anti–positivism of certain critical theorists as unfortunate, from time to time causing them to ignore techniques and ideas of sociology that could contribute to the empirical dimension of their research. (1983:348) Techniques and ideas of sociology can be easily exchanged with techniques and ideas of economics. According to Kilminster, the aim is not to uncritically embrace positivist methods but selectively harmonize them with the dialectical method which is necessary for the empirical moment of immanent critique. (1979:240–264) Antonio adds, that some inaccuracies in Dialectics of Enlightenment could have been avoided if its empirical moment were enlarged. In sum, injection of economics to critical theory and vice versa is supposed to be beneficial to both disciplines.

Also, Kosík, despite all accusations, understands bright sides of positivism in destroying pseudoconcrete\(^\text{18}\). In doing so, positivism opposed metaphysical concepts with its understanding of \textit{materia} as objects and processes rather than something transcending behind phenomena. Positivism has conducted a purification of philosophy from the theological concepts of reality, but on the other hand one–sidedly reduced all reality to the physical one. The credible destructive and demystifying role of positivism was however corrupted by its scientism. (1976:20)

To conclude, under positivist domination, anything which goes beyond the correlation is banished as unclear and as verbal metaphysics. The purified word in its rationalized form has become a straightjacket of positivism which reduces the world to registering those blind and mute data. The language itself has become impenetrable and mirrors its extreme antithesis – spells. (Adorno and Horkheimer, 2002 [1944]:133–134) Positivism is thus not immune against the extreme dualism of mathematical formalism and metaphysical ontologism. For that, the dialectical conception of the ontological and gnoseological aspects of structure and system must play the key role in economic research. As Kosík clarifies, the conception of the relationship

\(^{18}\) More on the term ‘pseudoconcrete’ in the following subchapters.
between ontology and gnoseology “allows one to detect the disparity (...) between the logical structure (model), used to interpret reality, (...), and the structure of this reality itself.” Kosik follows, that the model is by definition of a lower order than the described area of reality and interprets this complex reality only approximatively and interpretation of the model beyond the limits of this approximation is false. This depends on the describing phenomenon – the aim is to exhaust the essence of the phenomenon, not only several facets. (1976:21) As we will see in subsequent parts, the emphasis on quantity has also led to decay of subjectivity and qualitative being has been declared non–existent. (Michňák, 1965b) This warns us against ontologization of positivist methods and demarcates their possible role within dialectical approach.

3.2 Dialectics as a Reaction to Positivism

The aim is to grasp a higher necessity behind empirical phenomena and confront economic supremacy of reified sensible facts; to question its appropriateness and reasonableness. In doing so, philosophy plays the central role. As Kosik says, „naive consciousness finds philosophy to be a world turned upside down“. (1976:133) Contemporary economics, full of certainties of ordinary consciousness and fetishized reality, accentuating free human action, is worth of this act.

Dialectics is supposed to abolish the division of reality into two ontological spheres: rational and irrational. For the purpose of this dissertation dialectics is tasked, similarly as to put by Bonefeld (2014), with subverting the economic categories by revealing their broader social basis. It teaches us to discover the admission of falseness. For Adorno, dialectics was always “the principle of constantly and successfully turning the tables.” (2005 [1951]:244) Critical theory conceives dialectics ‘non–dogmatically’, i.e., among others, that it rejects traditional Engels’s idea of dialectics as a science of the general laws of nature, human society and thought. (Engels, 1947 [1878]) Nevertheless, our understanding follows both Hegelian and Marxian dialectics, closely corresponding to classical economics, where totality is produced and reproduced by antagonistic relationships\(^\text{19}\) of its agents. Profit interests and antagonist relationships make up the

\(^{19}\) For instance, Michňák (1965a) interestingly emphasizes not only disharmony of particular interests, but also the progressive fact, however mediated by force, that satisfying of one’s needs has become the subject of effort of others.
objective motor of the production process “which the life of all men hangs by, and the primacy of which has its vanishing point in the death of all.” Society, therefore, stays alive not despite its antagonism, but by means of it. (Adorno, 2004 [1966]:320) The movement of society is antagonistic from the outset (Adorno, 2004 [1966]:304); the essence of the society is contradiction, the society is by virtue of its contradictions. On the other hand, critical theorists have developed the dialectical concept further and posit that not only individual interaction constitutes society, but also society is the substance of the individual: “Just as objectivity without the subject is nonsense, subjectivity detached from its object is fictitious.” (Bonefeld, 2014:63)

Arthur (2004:64) explains dialectics as a method dealing with a given whole and demonstrating how it reproduces itself, articulated on the basis of purely systematic considerations and grasping phenomena in their interconnectedness. Bonefeld (2014:89) nevertheless opposes Arthur’s systemic dialectics in a sense that dialectics should not be understood as a closed logical system, which follows the tradition of the critical theory more rigorously. For Bonefeld, dialectics is a method (of course, much less for Hegel) of presenting social categories in a way which unfolds “the social genesis of the whole system of real economic abstractions.” (2014:5-6) Dialectics does not pacify the contradiction, nor does it reconcile the antagonism, but rather presents the economic categories on a social basis. (Bonefeld, 2014:69)

The aim thus remains Marxian – to show relations in their perverted form of economic objectification.

Adorno develops the idea, that dialectical thought refuses to affirm particular things in their isolation and separateness since it designates isolation as a product of the universal. He continues, that dialectical mediation is not “a recourse to the more abstract, but a process of resolution of the concrete in itself.” (2005 [1951]:74) The subject put into infinitely complex relationships and decentralization of the subject, by which the subject consequently valorizes its objective cognition, led Adorno to his concept of ’negative dialectics’ (2004 [1966]), which was also further grasped and interpreted by Honneth (2009). The subject should be simply viewed both within things and outside them – the viewpoint which is supposed to react on positivists’ isolationism. According to Kosík, “[a]ll activity is one–sided because it pursues a particular goal, and therefore isolates some moments of reality as essential while leaving others aside.” (1976:5)
In this context of confronting romanticist wholeness with practical one-sidedness we might find Goethe, Hegel, Marx and among others also contemporary economists.\textsuperscript{20}

As seen by Marcuse also, for whom dialectical thought understood all facts as stages of a single process in which subject and object are joined – that truth can be determined only within the subject–object totality. All facts thus partly embody subjectivity. (1960 [1941]:vii-xvi) Dialectics and totality goes hand in hand also when applied on economic phenomena. As Mandel claims, such phenomena “are [thus] not viewed separately from each other, by bits and pieces, but in their inner connection as an integrated totality, structured around, and by, a basic predominant mode of production.” (1976:18) Cartesian explanation, in reflection on man, however identifies subject and object separately. In contrast, genuinely critical explanation signifies not only a logical process but also a concrete historical process. In this context, social structure as a whole and the relation of the theoretician and society are transformed. Therefore, both the subject and the role of thought are changed. The acceptance of an “essential unchangeableness between subject, theory, and object thus distinguishes the Cartesian conception from every kind of dialectical logic.” (Horkheimer, 1972 [1937]:190)

Horkheimer interprets Weyl’s requirement on any theoretical system which lies in the fact that all parts of the system should intermesh thoroughly and without friction. Harmony which is lacking contradictions and the absence of any possible elements which would have potentially an influence on the observable phenomena, are, according to Weyl, necessary conditions. (1972 [1937]:190) For critical theory, however, contradictions are the very core. In Farr’s review of Marcuse’s dialectics he interprets a famous statement “This world contradicts itself” as the problem of modern society which accumulates wealth and hence potential of liberation but on the other hand it becomes more oppressive. (2008) Marcuse’s understanding of dialectics was predominantly influenced by Hegel for whom dialectics is not a method that is simply applied to phenomena, but for whom things in themselves are dialectical. The aim of dialectics is then to expose outlined contradictions and see things as they are. The latter means that things are not understood only within a given frame of established facts, but rather in their unactualized potential. For this reason, dialectical thinking is \textit{negative} thinking as it negates the given frame of established facts. (2008) In a society that focuses on facts the potential for liberation is

\textsuperscript{20} Kosík’s concrete totality has nothing to do with the non–dialectical neoromantic concepts of wholeness which hypostatize the whole over its parts and mythologize it; see Kosík (1976:28-29)
unrealized, however big the potential can be. Farr concludes, that Marcuse’s theory is dialectical to the extent that it identifies the coexistence of oppressive and liberating mechanisms in advanced industrial society. (2008)

A dialectical analysis therefore emphasizes future possibilities which distinguishes it from positivism – “what was” and “what is” are moments in an analysis of “what is coming to be” and “what can be,” which makes a dialectical analysis immune to positivist reification of existing social arrangements. (Antonio, 1983:344) However, values that define possible social structures are in an immanent contradiction between ideology and social reality. Hence, future possibilities are mediated by analysis of existing material, cultural, social and political constraints. The historical nature of dialectics thus differs from arbitrariness, abstractness, idealism and ahistorical utopianism. (Wellmer, 1974:46-47)

Possibilities are also the subject of interest in one of the most significant chapters on Critical Theory’s dialectics. A Note on Dialectics by Marcuse refers on concepts that disregard the fatal contradictions which constitutes reality and at the same time which abstracts from the very process of reality. Dialectical thought grasps reality by comprehending its contradictory structure. Marcuse describes here the dialectic method as exceeding pure philosophy – it does not suffice to comprehend reality by defining what things really are, but their mere factuality should be also rejected. Dialectical thought thus becomes negative in itself. It is supposed to break down the self–assurance and self–contentment of common sense and to undermine the confidence in the language of facts. Dialectics also helps demonstrate that unfreedom is embedded at the core of things and their contradictory forces leads necessarily to qualitative change. (1960 [1941]:vii–xvi) The dialectical contradiction goes to the basic factors and forces of destructiveness as well as of possible alternatives beyond the status quo. Dialectics does not furnish theorists with some extrarational standards, but drives Reason itself to recognize the extent to which it is unreasonable and victim of unmastered forces. These forces increase wealth and productive apparatus on the one hand. However, on the other they keep man enslaved to the prevailing conditions. (1960 [1941]:vii–xvi) Marcuse claims that the negation that dialectic applies is not only a critique of conformist logic, which denies the reality of contradictions, but also promises and potentialities themselves are in our reality, “the established system of life”, are denied. Dialectical logic is critical in the sense that “it reveals modes and contents of thought which transcends the codified patterns. (…) Dialectical analysis merely assembles and reactivates these
modes and contents; it recovers tabooed meanings and thus appears almost as a return, or rather a conscious liberation of the repressed.” (1960 [1941]:vii–xvi) As Marcuse points out, dialectical thought begins with the experience that the world is unfree. It is seen in the perspective of the Hegelian ontological category: “not being a mere object, but the subject of one’s existence, not succumbing to external conditions, but transforming factuality into realization.” (1960 [1941]:vii–xvi) This makes dialectical thought necessarily destructive with a potential of theoretical liberation and liberation of thought. The divorce of thought from action and theory from practice is for Marcuse part of the unfree world. The aim is to prepare the ground for their possible reunion. This calls for an ability to develop a logic and language as a prerequisite. (1960 [1941]:vii–xvi) The “real” has to sustain itself in conditions of its existence, in a life–and–death struggle, may be blind or even unconscious. For Marcuse, reality is the “constantly renewed results of the process of existence” where “that which is” becomes “other than itself”. This implies that identity is the negation of inadequate existence – the subject maintains itself in being other than itself. Reality is thus a realization – a development of subjectivity. (1960 [1941]:vii–xvi) In explaining why reality is other and more than that codified in the logic and language of facts Marcuse makes use of avant–garde literature as the inner link to dialectical thought: “the effort to break the power of facts over word, and to speak a language which is not the language of those who establish, enforce, and benefit from the facts.” (1960 [1941]:vii–xvi)

In Kosík (1976), dialectics is after the “thing itself” and systematically searches for a way to grasp reality. Nevertheless, the “thing itself” does not show to man immediately. In order to understand it, we need not only a certain effort but also a detour. The detour is the only (K. K.) path to truth, despite mankind’s attempt to shorten the path to truth and seek to intuit the essence of things directly.21 As Kosík puts, dialectics helps to distinguish between the idea of a thing and the concept of a thing. “Real existence” and phenomenal form of reality are diverse and often contradict the law (K. K.) of the phenomenon, its structure and hence its essential (K. K.) inner kernel and the corresponding concept. (1976:1, 5, 9)

On the contrary, it is a must to avoid reductionism at this place. Reduction assumes a rigid substance with irreducible elements – the phenomenon is explained when reduced to its essence, to an abstract principle and general laws. As Kosík explains, critical materialist approach does

21 One of these ‘shortcuts’ is empiricism – everyone understands more than is sensually perceived – individuals are historical agents who automatically rely on both rational and sensual cognition.
not only dynamize an immutable substance, but the dynamics itself and the dialectics of being are posited as the substance. The substance therefore does not amount to reducing the phenomenon to a dynamized substance, but it is “cognition of the laws of movement of the thing itself.” It says that the ‘substance’ is the very movement of the thing and the thing in motion is the substance. Put differently, with a focus on human agents, “the substance of man is objective activity (praxis), not some dynamized substance in man.” (1976:13)

In simpler terms, Kosík understands dialectics as a materialist method of scientific clarification of socio–human reality, as a method of intellectual reproduction of society and explication of social phenomena on the basis of the objective activity of the *historically conditioned man* (K. K.).

### 3.3 Dialectical Totality and the Pseudoconcrete

Based on such materialist dialectics as a method of scientific clarification of socio–human reality, Kosík formulates the category of totality. Firstly, we must set distinctions that set apart Kosík’s conception of totality, absorbing materialism and dialectics, and the structuralist conception of totality. For the latter, totality arises from the interaction of autonomous series of structures. The dialectical character conversely emphasizes the relationship between contradictions and totality, contradictions within totality and the totality of contradictions; the totality which is formed by contradictions and the lawful character of contradictions that constitutes totality. Materialistically conceived totality, for Kosík, arises from man’s social reproduction. (1976:30-31) In his terms, the category “grasps reality in its internal laws and uncovers necessary internal connections under superficial and haphazard phenomena (…).” Totality is “juxtaposed against the standpoint of empiricism that dwells on such haphazard phenomena and cannot arrive at a comprehension of the development of reality.” (1976:17) Kosík’s totality thus derives from materialist dialectics of lawfulness and randomness, parts and the whole.

Nevertheless, we should not hoodwink ourselves into the blind belief that totality is just a mere methodological precept for investigating reality. The concept, as Kosik argues, has degenerated in two ultimate trivialities: that everything is connected with everything else; and the whole is more than the sum of its parts. (1976:18) It would be too naïve to think that human
cognition can grasp phenomena in their ‘totality’ in the sense of all relations, processes, properties, briefly of all aspects of reality. This question was also raised by Hayek: “The object of scientific study is never the totality of all phenomena observable at a given time and place, but always only certain selected aspects (…). The human mind indeed can never grasp a ‘whole’ in the sense of all the different aspects of a real situation.” (1943:55) This is however the simplistic positivist position at which Kosík attacks – opinions as to whether the cognition of all facts is relevant or not are based on the rationalist–empiricist idea that cognition proceeds by the analytic–summative method. By contrast, dialectics overcomes the atomist idea of cognition as a summation of things by depicting reality as a whole not only in objectivity of its relations, facts and processes, but also as the very “process of forming them (K. K.), their structure and their genesis.” (1976:23-24) Similarly Adorno, who claims that society is not a summation of all its parts – social atlas does not represent society (1967:31); further Parsons who sees irreducibility of a social system into a mere resultant of individual activities. (1950) Simply put, totality is not a sum of all facts and does not signify all facts, meanwhile dialectically understood totality represents the viable, intellectually reproductive (in contrast to positivist reductionism) alternative for grasping – in our particular instance – socioeconomic reality, where facts are comprehensible only in the context of the whole.

False totality is thus based on synthetization which leaves aside its contradictory character and works with facts that correspond to the abstract principle of faux totalization and synthetization – to an empty static totality without contradictions. Outside totality, as Kosík adds, contradictions are formal and arbitrary. The result is that the richness of reality is treated as an irrational residue beyond comprehension; the whole picture of reality is distorted and it neglects its details. It does not mean that details are not registered, but they are not understood since it fails to grasp their significance: “Instead of uncovering the objective sense of facts (details), it obfuscates it.” (Kosík, 1976:28) The wholeness of the investigated phenomenon is decomposing into two autonomous parts: that which goes along the principle and that which contradicts the principle and therefore is an outlier as the rationally unexplained residue of the phenomenon. (Kosík, 1976:28, 30)

Totality in its genetically–dynamic conception means to explain reality as a “structured dialectical whole, within which and from which any particular (K. K.) fact (or any group or set of facts) can be rationally comprehended.” (Kosík, 1976:19) Facts serve as the cognition of
reality only if they are understood as facts of a dialectical whole, i.e. not as immutable, further irreducible atoms which, agglomerated, compose reality. (Kosík, 1976:19) Isolated facts, Kosík says, are “abstractions, artificially uprooted moments of a whole which become concrete and true only when set in the respective whole.” (1976:22) The dialectical conception of totality claim that parts not only internally interact both among themselves and with the whole, but also the whole cannot be reducible in an abstraction above the facts, “because precisely in the interaction of its parts does the whole form (K. K.) itself as a whole.” (1976:23) This is where the unity of parts and the whole comes from.22

Empiricism therefore often slithers into mysticism because without putting facts into a structure of meanings it tends to omit the question of what they actually signify. Inspired by von Bertalanffy, we might argue as follows: it is apparently not sufficient to study parts and processes in their isolation; conversely, it is necessary to solve the decisive problems within the whole that unifies them, to be concerned about results of dynamic interaction of parts and drives which makes the behavior of parts different when studied in isolation or within the whole. (1968:31) These structural similarities, to which von Beralanffy references, help, according to Kosík, to a more profound investigation of the specificity (K. K.) of phenomena.23

Inappropriate understanding of totality led Kosík to the concept of pseudoconcrete. For him, economic categories must be dialectically analyzed in order to capture their internal organization in a given economic structure. Only then economic categories acquire its own real sense. (1976:114) The author further explains, how the destruction of pseudoconcrete should be carried out. For the purpose of this dissertation it is deviated from Kosík’s original approach and a new one is adopted and developed in the following lines. The present approach is based on a ‘reduction’ of man to the level of utilitarian praxis which helps to fix the unstable bridge between critical theory and economics.

The concept of pseudoconcrete is described as the collection of phenomena of the everyday environment and routine atmosphere which “penetrate the consciousness of acting

22 This dialectical approach of the interaction of parts led analytical Marxists in 80’s to researching micro–foundations of social motion.
23 The model proposed in the last chapter therefore concerns the dynamic interaction of economic agents. Their behavior is modelled in dialectical totality, which means that isolated agent can reveal her preferences. On the other hand, the agent within the whole is dominated by objective conditions imposed by the market mechanism.
individuals with a regularity, immediacy and self-evidence” that, Kosík continuous, “lend them a semblance of autonomy and naturalness” and constitutes the world of the pseudoconcrete. The world includes: external phenomena which are played out on the surface of essential processes; procuring and manipulation within fetishized praxis; routine ideas (external phenomena) projected into man’s consciousness through fetishized praxis, constituting ideological form of the movement of this praxis; fixed objects giving the impression of being natural conditions, not immediately recognizable as the result of man’s activity. It reminds of a passage from the *Dialectics of Enlightenment*, whose authors point to the doctrine that action equals reaction which maintains the power of repetition over existence which revives the old illusion that, by repetition, humankind could identify itself with repeated existence and so escape its power. But the more the illusion disappears, the more the repetition and regularity imprisons human beings in the cycle of objectified laws of nature, to which they are devoted for subsistence reasons as free subjects, however defined by self-preservation through adaptation. (Adorno and Horkheimer, 2002 [1944]:8) The autonomously objectified subject decays and positivistically registers the given, subjugated to a power which hands him over to the operations of many purposes. (2002 [1944]:157)

Pseudoconcrete further says that the essence manifests itself in the phenomenon, but only to a certain extent. The essence is *partially mediated* (K. K.) by the phenomenon and the phenomenon indicates something other than itself. The essence, unlike phenomena, does not show itself to man directly. On the other hand, if the essence did not appear in the phenomenal world at all, then the world of reality would be “the other world”, distinct from that of phenomena, which would have no internal relation to the essence. Such phenomenal world can be described and exposed in its structures, but not necessarily in the relationship between the phenomenal world and the essence. (1976:2-3, 4) To capture the phenomenon, Kosík writes, is to investigate and describe how the thing manifests itself in the phenomenon and how it hides in it. It means that grasping the phenomenon mediate *access* (K. K.) to the essence. Without grasping the phenomenon, the essence would be beyond reach. The real world (in its opposition to that of pseudoconcrete) is neither a world of transcendence opposed to a subjective illusion, nor the real opposed to the unreal. As Kosík puts, it is a comprehension of reality as the “unity of production and products, of subject and object, of genesis and structure.” (1976:7) The subject–object
dialectical unity thus follows the leading direction of critical theory, at Kosík’s times developing especially by already mentioned Marcuse (1960 [1941]).

In the world of pseudoconcrete, however, the phenomenal aspect of the thing is recognized as the essence and the crucial distinction between the phenomenon and the essence disappears (K. K.). (1976:3) In Kosík’s understanding of reality as the unity of the phenomenon and the essence, the latter could be unreal as the phenomenon and vice-versa due to their isolation which gives the one or the other the status of the only ‘authentic’ reality. Since the essence is not manifested to us directly and it is partially mediated by the phenomenon, to grasp the essence we need science and philosophy: “If the phenomenal form and the essence of things were conterminous, science and philosophy would be superfluous.” (1976:4) Philosophy is thus a “systematic and critical effort directed at capturing the thing itself, at uncovering the structure of things, at exposing the being of existents”. (1976:4) In this sense, dialectics enters as cognition – in dividing the one, which is a constitutive of philosophical cognition, “in order to intellectually reproduce the structure of the thing, i.e., to comprehend it.” (1976:4, 5) Dialectical abstraction is the distance of science from which things and events are seen undistorted, and it is thus the only way to grasp the structure of the thing, i.e. to understand the thing in its totality. Nonetheless, the regular human action incites ‘routine thinking’ which takes an ideological form.24

As had been noted, dialectics is a critical thinking that strives to grasp reality and the ‘thing itself’. Dialectics thus cannot be connected with doctrinaire systematization or romanticization of the routine. Conversely, dialectics confronts the apparent autonomy of the immediate everyday interaction – the world of pseudoconcrete. Such thinking exposes a “real world under the world of appearances; the law of the phenomenon behind the appearance of the phenomenon; real internal movement behind the visible movement; the essence behind the phenomenon.” (Kosík, 1976:6) The prime goal is to abolish the world of pseudoconcrete. In doing so, dialectics dissolves fetishized material and immaterial artefacts in order to penetrate to their reality. At the same time, dialectics does not deny the existence and the objective character

---

24 The ideological form can be also approximated by the Real and the Symbolic. These terms are borrowed from Žižek–Lacanian treatment. (e.g. Žižek, 2000). The Real refers to the sphere prior to any categorization and classification, not accessible to us. The Symbolic is the instance commonly referred to ‘reality’, which symbolizes the Real. However, the Real cannot be wholly reflected by the Symbolic, discrepancies between what the Real is and the Symbolic mediates remain and hence the Real and the Symbolic stand in a conflict. In order to preserve the Symbolic, the mediated remain must be veiled, for which ideology is in charge.
of phenomena, but rather refutes the fictitious independence through their mediatedness and abolishes their fictitious independence with proving their derivative character. (Kosík, 1976:6, 7)

3.4 Instrumental Reason and Contemporary Economics

What is the role of reason in contemporary economics? From Descartes to Spinoza we see that reason becomes a means to avoid darkness and obscurantism. By this, it is automatically thought about reason in terms of means which leads to reason’s instrumentalization. Contemporary economics is not an exception and internalization of the logic of reason as means is most likely the most developed among social sciences. Purely scientific reason however cannot distinguish whether justice is better than injustice or whether protect people against tyranny and slavery. The intuition brought into light by the critical theory even says that value–neutrality, immanent to instrumentalized scientific reason, prevents people from fighting an oppression. Despite that Habermas comes up with a critique of the concept through communicative rationality in ’80s, instrumental reason became one of the central subject matters for critical theorists.

Horkheimer (1947) distinguishes subjective (instrumental) and objective reason. The latter recognizes purpose and end – reasoning challenges the end and becomes its criterion. Subjective or instrumental reason works with purpose and end as well. The difference is that it focuses on means – the role of reason is to challenge means. Both dimensions of reason have always been present, however the dominance of the subjective one is nowhere clearer than in contemporary economics. In Horkheimer’s later essay we read that instrumental reason explores not in order to understand, but in order to reign. (2012 [1949-67]) Hegemony of economics among other social sciences is then symptomatic, especially when contemporary economics advocates the supremacy of those purposes dictated by the relations of production. (Adorno, 1991)

For the dominant mode of reason, dialectical reason is unreason. It becomes itself reasonable only when it encompasses and cancel the dominant mode. Dialectical thought is thus an attempt to confront the coercion of logic by its own means. The existing can be overstepped only by means of a universal derived from the existing itself. (Adorno, 2005 [1951]:72-73, 150) Similarly Kocyba and Schum, for whom economics has been reduced into a set of calculating
rationalities, self–looped in assessment of these rationalities, which derives from the concept of assessing rationality. (2002)

Not only capitalist mode of production but also orthodox Marxists are accused of domination of instrumental rationality by critical intellectuals. They supposedly instrumentalize natural world as a mere material means to human ends. Natural world is conceptualized as a set of means to achieve externally imposed human ends and becomes a victim of human oppression. (Gartman, 2011:59) The author further interprets *Dialectic of Enlightenment*: in order to dominate nature humans must also dominate themselves by “renouncing their own natural needs so as to muster the self–denying labor to appropriate nature.” The crucial conclusion is that enlightened instrumental reason is supposed to free humans from natural necessity but it “ultimately enslaves nature and humans to a logic alien to both”. In capitalist mode of production, it eliminates the material basis for opposition by “producing a perverted consciousness that reduces human needs for individuality and freedom to the consumption of superficially differentiated, standardized goods” which reproduce the system. (Gartman, 2011:59)

Further, an importance of Simmel grows with progressing ‘monetization’ of society. As a great inspirator for critical theorist he sees money as the clearest form of instrument which inclines to obscure the difference between means and goals and to become the goal in itself. Money as a pure possibility in fact does not provide the definite satisfaction. The danger for the subject\(^{25}\) of being ‘liberated’ by money is part of the general pattern of human freedom. As Simmel continuous, the subject “gained freedom, but only freedom from something, not liberty to do something. Apparently, he gained freedom to do anything – because it was purely negative – but in fact he was without directive, without any definite and determining content.”\(^{26}\) (2005 [1900]:405)

As was already outlined, contemporary positivist economics avoids normative analysis and complex reasoning. Rationality is basically perceived as inner consistency of choices or

---

\(^{25}\) Simmel used the term ‘peasant’.

\(^{26}\) This concept of freedom was retaken by another critical theorist Erich Fromm. Similar resolution of freedom, nevertheless in a wholly different context, can be found in libertarian thinker Nozick (2001 [1974]). His distinction recognizes ‘negative’ and *agreement-based* (R. M.) ‘positive’ rights. The first claim autonomy which cannot be intervened by others, while the latter relate to rights to receive something.
maximization of the agent own utility. This redirects us to the very crucial feature of instrumental reason – value–neutrality. Adorno and Horkheimer explains that bourgeois society is ruled by equivalence – it reduces things to abstract quantities to make them comparable. The irreducible is illusion; consigned to poetry. (2002 [1944]:4-5) The fated enlightened necessity, which is today manifested in market imperatives, evolved as the logical conclusion and predominates every rationalistic system – as myths entail enlightenment, the more deeply enlightenment entangles in mythology. (Adorno and Horkheimer, 2002 [1944]:8) In such a rationalistic system, all births are paid for with deaths, fortunes with misfortunes: “While men and gods may attempt in their short span to assess their fates by a measure other than blind destiny, existence triumphs over them in the end. Even their justice, wrested from calamity, bears its features; it corresponds to the way in which human beings (...) looked upon their world from within a society of oppression and poverty.” As authors conclude, “for both mythical and enlightened justice, guilt and atonement, happiness and misfortune, are seen as the two sides of an equation. Justice gives way to law.” (Adorno and Horkheimer, 2002 [1944]:11-12) With regards to value–neutrality of the methods of reason, authors claim, that equivalence is thus the instrument which regulates rewards and punishment, and by its equal valuelessness conceals the hierarchy, urgency, justice and subjective values, which means that it does not originate in freedom in the end: fetishes had been subject to the law of equivalence; now, equivalence itself becomes a fetish. (Adorno and Horkheimer, 2002 [1944]:12) As a result, quantitative measurability substitutes rational value judgments. (Gorz, 1989b) All knowledge is thus false, and true only when the question of good or evil cannot be applied.

Science by obeying the imperative thus excludes value judgements and rationally justifies only the effectiveness of the means. The appropriateness of the goals when dealing with human behavior remains outside science, for otherwise science would lose its scientific character, and scientific reasoning reduces itself to mere issues of action techniques (K. K.), radically divorced from ‘subjective’ human values and goals which are abandoned to unreason and irrationality. Humans are therefore provided with instructions on how to use resources efficiently to reach a given goal without confronting rationality of the goal itself. (Kosik, 1976:58) Contemporary

27 Critique on these concepts of economic rationality was already elaborated e.g. in Sen (1991). The dissertation however implements totalizing ‘economistic’ approach which argues that every human action is rational.
'scientized' economics has set the goal, currently taken as given, which is based on von Neumann and Morgenstern 2007 [1953], who established a new perspective on microeconomics. Economic agents’ goal is to achieve maximum advantages with minimum expended energy, which constitutes the very bottom of agent’s rational and efficient behavior. On the other hand, the ‘cunning of reason’, the ‘intention of nature’ or the wisdom of the ‘invisible hand’, says Kosik, do not sufficiently grasp the fact that the result of interacting individuals differs from what they had originally intended – the result of conflicting interests, performed by individuals themselves, does not coincide with their intentions (1976:141); intentions which might be originally ‘reasonable’.

Leppin’s axiological theory (1968), inspired by Kant, nevertheless posits that development of value consciousness stems from the difference between ‘what is’ and ‘what should be’, by which it follows the outlined discourse of the descriptive and the normative. The author distinguishes three concepts of value. Firstly, the subjective concept recognizes the source of value in personal motives. Secondly, the objective concept sees the source of value in the essence and qualities independent on man. And lastly, relational concept describes relations between objective world and the subject. Leppin claims that subject assigns the world a value character, and therefore objective qualities cannot be assessed without subject. The subject however discerns contradictions of inter–subjective value systems, that leads him to a quest for objectivity. This subject then becomes lost in ‘subject–objective value antinomy’. Further, it inevitably leads to distinction between final and instrumental values: for instance, satiating hunger is final value, while consuming bread represents instrumental value. The possible threat outlined by Leppin occurs when man succumbs to the reign of instruments; when society is pushed to produce more and more bread while it stays still hungry; when the intentionally reasonable production ceases to be ‘reasonable’. The idea is observable even earlier. In 1937, Horkheimer states that the activity of society is “blind and concrete in the bourgeois economic mode, that of individuals abstract and conscious,” based on the proposition that tools are prolongations of human organs to state that the organs are also prolongations of the tools. (1972 [1937]:200, 201)

In any case, instrumental reason requires an intertemporal frame. For Kosik, an individual in the world of procuring is always in the future (similarly as for Adam Smith) and turns the present into a means for individual’s ends. An individual thus lives in the future, neglects that
which is and anticipates that which is not, therefore lives in nothingness and inauthenticity. (1976:42) Such ‘Cartesian´ reason in its consequences is subordinated to its own unreasonable and irrational products. The reason ceases to be independent and reasonable, while its products manifest themselves as the very seat of reason and autonomy. The reason becomes unreason outside the individual reason. Cognition of these transcendent laws is called science, subjecting to being called freedom in the sense of freedom as ‘the recognition of necessity’. Further, the reason leaves aside what is irrational and simultaneously establishes the irrational as a form of its own existence. (Kosík, 1976:56-57) Radically put, reason turns into faith whose fanaticism is the mark of its untruth. The secret awareness of its inherent flaw and the immanent contradiction that lies in making reconciliation a profession of its own. The paradox of faith then degenerates into fraud and faith’s irrationality into rational organization in the hand of enlightened who steer society toward barbarism. (Adorno and Horkheimer, 2002 [1944]:14) Radical religiosity of contemporary economics seeks to reconcile spirit and existence of this kind.

Despite expanding potential of freedom, tolerance to superficial diversity consists of incomparability of values, which consequently leads to inability to define a direction of an agent’s action. (Štěch, 2013) The principle of tolerance therefore may support the oppressors in society that is already repressive, i.e. unequal – tolerance metamorphoses into indifference to injustice. Adorno and Horkheimer posits that despite each party receives its due in an exchange, economic reason results in social injustice. The reign of the universal reason, however particular it is, serves as the instrument of privilege within inequality. Clever people become dunces; reason turns into unreason; reason acts as an instrument of adaptation. (2002 [1944]:174, 185). “Means and end are inverted”, says Adorno (2005 [1951]:15) when describing reduced and degraded man who powerlessly resists the magic that transforms him into a façade. The façade consists of the subjugation to the production process that is tempted to regard as the result of our free choice. (2005 [1951]:27) Although “the nearer the sphere of immediate, physical existence is approached, the more questionable progress becomes, a Pyrrhic victory of fetishized production.” (2005 [1951]:117) In the times of ‘corporate capitalism’, reason is silent about ends and is reduced to a tool for calculating means. Valueless instrumental reason consecrates technological advance as the highest humanity and serves uncritically the institutions that objectify it in routines, processes and products. (Antonio, 1983:333) Reason is the organ of calculation, neutral to any end and its element is coordination. There are no substantial goals for reason, all affects
are equally remote to it and stand against mythology. If all affects are of equal value, Adorno and Horkheimer say, then self-preservation offers the most plausible maxims for action and dominates the form of the system. Rationally enforced self-preservation had thus become the reified drive of each individual on the one hand and destructive natural force on the other – pure reason become unreason, a procedure free from any content. (2002 [1944]:69-71) Society as the permanent and organized compulsion then perpetuates the threat from nature by reproducing itself in individuals’ systematic self-preservation. (Adorno and Horkheimer, 2002 [1944]:148)

Instrumental rationality was always present but did not reign society. It is also worth to note, that instrumental reason will be always needed to secure reproduction of society. Critical theory has been arguing with poetical reason or normativity. Today, most of such arguments are already absorbed by instrumental reason. Hauser concludes, that truly rational and emancipated society uses instrumental reason in order to avoid pressure of ‘internal nature’. (2013)

3.5 ‘Rational’ Attitude Towards Self-Preservation

The previous subchapter refers to instrumental reason; while the present subchapter reveals that such a form of reason by consequence gives rise to ‘rational’ attitude towards self-preservation. For Adorno and Horkheimer, the system is the form of knowledge which deals with facts; while facts consequently assists the subject in mastering nature and self-preservation becomes the constitutive principle of science. Even the ego, by the authors referred to as “the synthetic unity of apperception”, to which Kant assigns the whole of logic, is both the product and the condition of material existence. (2002 [1944]:68) “The system’s principles are those of self-preservation.” (2002 [1944]:65) A close interrelatedness between methodological positivist’s attitudes and self-preservation is then more than obvious.

Reason, “the legislating authority of any action” (Adorno and Horkheimer, 2002 [1944]:22) derives from the materialistic moment of physical29 violence. (Adorno, 1967b)

---

28 There are however various opinions on the issue. For the differences see e.g. Machovec (2006 [1983]) and Adorno and Horkheimer (2002[1944])

29 Biological aspects of the phenomenon were raised by Maslow who refers on homeostasis – an automatic mechanism of all living organisms which strives to preserve their natural living conditions. To be
Natural components of humans are inseparable from any analysis dealing with human behavior. They are always present, in any time and at any place. By this, we exceed phenomenal aspects of any particular space–time or epoch, also a fixation of Marxist tradition on class division etc., which has prevailed Marx’s constancy of hunger and sex. The first inspirational dualism (for Marx and especially for Freud) of this kind might be found in Schiller: “Hunger and love are what moves the world”. (in Cotti, 2007) For Kalivoda, who combines Marxian and Freudian approach, these materialist instinct layers of human existence are the essential factors of natural existence of man – his “biopsychic energy”30 which drives him to a permanent conflict with reality. (1968) Dissatisfaction of these essential factors decomposes formerly dualistic concept of Éros as the instincts are sexual and self–preserving.

In Marx’s (2009 [1844]) is read that subjects of human instincts exist beyond and independently of human himself. Thus, man has to turn to ’the Outside’ in order to reconcile his instincts and desires. Economic activity of man, which is in orthodox Marxist perception the base, is for Kalivoda, in a certain sense, the superstructure of the biopsychic forces. Economic activity is therefore secondary, a mere social projection of man’s instincts (1968:62), or as Machovec similarly explains, ‘internal nature’ leads to utilitarian action in ‘external nature’. (2006 [1983]) Attributes of these instincts were also captured in a literally artistic form, e.g. by surrealist André Breton: “In the clamor of crumbling walls, among the songs of gladness that rise from the towns already reconstructed, at the top of the torrent that cries the perpetual return of the forms unceasingly afflicted with change, upon the quivering wing of affections, of the passions alternately raising and letting fall both beings and things, above the bonfires in which whole concrete, his first finding says that ‘physiological drive’ is the strongest motive in human action. The second finding explains that unsatisfied physiological needs make other needs non–existing. (1943:373-374)

Valuable philosophical foundations of the biological drive were also put by Spinoza: „Conatus sese conservandi primum et unicum virtutis est fundamentum. [The endeavor to preserve oneself is the first and only basis of virtue]“ [1677] Plattner for instance summarizes Hobbesian, bourgeois view on human nature as follows: „All men are governed by selfish passions, above all the desire for their self–preservation, and no man has a greater right to what is necessary for his own preservation than does any other man. Each man is the sole judge of the best means to his own preservation; therefore, all men are naturally free. But men’s selfish passions put them into perpetual conflict with one another. It is in this sense that Hobbes’s natural man is evil. (…) [F]or object of men’s strongest desire, self–preservation, is threatened by their very efforts to achieve it.” (1979:128)

30 Similarly, another Czech philosopher Mukafovský used the term of ‘anthropologic constant’. Despite similarities of these two terms, both insist on different nuances.
civilizations conflagrate, beyond the confusion of tongues and customs, I see man, *what remains of him, forever unmoving in the center of the whirlwind. Abstracted from the contingencies of time and place*, he truly appears as the pivot of this very whirlwind as the mediator par excellence.” (1997 [1970]:138)

Everyone has to play the game, regardless of conditions he faces: “In the woeful idiocy they practice, their empty horror, they are able to vent their impracticable woe, their crass fear of death, and yet continue to repress it, as they must if they wish to go on living.” (Adorno, 2005 [1951]:241) Successful are “[o]nly those who subject themselves utterly pass muster with the gods.” (Adorno and Horkheimer, 2002 [1944]:5) Agents are subjugated to market forces, while they experience success to the extent to which they follow market rules. Objective necessity, rationality based on exchange detaches itself from the idea of reason. It is beyond control of agents. On the other hand, economic laws are for critical theorists socially constituted and these laws only manifest themselves as laws of economic nature. In Lukács’s (1978) language, economic laws have established themselves as ‘a second nature’. Bonefeld however clarifies, that the fact that man has to eat says nothing about the mode of subsistence and what it entails. Therefore, society, not nature, is the point of critical departure. (2014:57) Agents are compelled to expenses (in the broadest possible sense) in order to gain access to the means of subsistence, for which they compete on the market. Agent faces over–determining structured framework. Such an agent is an investor, an entrepreneur of labor power, seeking for access to the means of subsistence. Legal equality masks the fundamental inequality – as put by Bonefeld: “economic compulsion is a form of freedom that is experienced in and through a constant struggle to secure her living existence.” (2014:106) That is to say, known from the very Marxian times, that each agent has to expand her capital, so as to preserve it, only by means of progressive accumulation. (2015 [1867])

A rational whole serves the self–preservation of the dominated social whole. The immanent reason inevitably turns into a means of enforcing the particular interest and the individual is confronted by universal power: “The power of all the members of society, to whom as individuals no other way is open, is constantly summated (…) in the realization of the whole, whose rationality is thereby multiplied over again.” (Adorno and Horkheimer, 2002 [1944]:16) Authors follow, that individual’s behavior is standardized as the only natural and rational one – individuals become things of success and failure, whose criterion is their self–preservation –
“successful or unsuccessful adaptation to the objectivity of their function and the schemata assigned to it.” Those who act “without any rational reference to self–preservation, revert to the realm of prehistory.” (Adorno and Horkheimer, 2002 [1944]:21-22) The subject is allegedly free from mythical thought and ambiguous meanings and reason becomes a universal instrument to the all–encompassing economic apparatus. The exclusivity of logical laws, authors claim, stems from the compulsive character of self–preservation as the latter constantly magnifies into the choice between survival and doom. (Adorno and Horkheimer, 2002 [1944]:23) It touches existentialists´ ‘existence precedes essence’ – the essence is constructed when human beings are already in the world. The essence can be made only when human beings are able to remain in the world. Man, therefore, exchanges essences by “abandoning one´s own soul to the supporting and nurturing life of the world.” (Klages, 1932:1409) The whole reproduces itself by imposing its universality on the social whole, whose self–preservation corresponds to its subordination to the whole. Sanction of economic praxis has been internalized and became a `second nature´ of the individual. (Adorno, 1967b:40)

Famous interpretation of Homer´s Odysseus by Adorno and Horkheimer (2002 [1944]) depicts the correspondence of the main character and contemporary economics based on self–preservation, illustrating the intertwinement of myth and rational labor. For Odysseus, the realms of time have been namely transformed into the tripartite division in order to combat a mythical prehistory and to liberate the present moment from the power of the past by reviving the irrecoverable past. In doing so, the past is placed as usable knowledge in the service of the present: ego as the bearer of the divine substance owes its existence to the sacrifice of the present to the future. (2002 [1944]:25, 35, 40) The sacrifice is a behavior pattern drilled into the subjugated, “by which they reenact against themselves the wrong done to them in order to be able to bear it.” (2002 [1944]:41) The self still remains trapped in the context of the natural, seeking for preservation through overcoming one another. Read economically, savings represent materialized activity of the past which come back to life in the present, actualized in the competitive struggle motivated by self–preservation. Or as Valenčík et al. (2014:77) put: “Our existential world (Dasein) is the world of relating to the future (search for meaning) and actualizing (zpřítomňování) the past.”

A common denominator with Kosík´s three–dimensionality of time is also detectable. Based on traditional Hegelian dialectics, the difference between animal and human craving is that
the latter interpose a mediating element – labor – which is an elementary model of dialectics itself. Except the fact that man lives in a world of his own artefacts and the animal is tied to conditions of nature, the humanized craving forms the three-dimensionality of human time: it transcends the nihilism of its animal craving and in this act of restraint uncover a future as a dimension of its being. The animal is controlled by time, whereas man controls time through his ability to resist immediate satiation which sets the present as a function of the future, while making use of the past. (1976:121-122) Hence, man’s preconditions are rooted in the past, conditions of his action are anchored in the present and consequences of his action reach into the future. Man thus sees nature in a double light: as a power and objectivity that has to be respected independently of him and as a mere material in which human intentions and meanings are realized.

Anyone who wants to survive must not listen to the temptation of the irrecoverable. Odysseus, in contrast to his comrades, who have plugged their ears with wax, is able to hear tempting calls. Workers concentrate to look ahead and ignore the rest, Odysseus is bound to the mast and denies yourself the happiness the closer and closer it approaches. Adorno and Horkheimer conclude, that workers thus reproduce the life of the oppressor as a part of their own, while Odysseus cannot step outside his social role. (2002 [1944]:27) The bourgeois stoicism eases the privileged to see suffering as a possible threat for themselves (2002 [1944]:76). Adorno says in one of his aphorisms, commenting those privileged who seem to spare the pursuit of their own interests: “But the possibility [of doing so] is purely formal, for the privileged are precisely those in whom the pursuit of interests has become second nature – they would not otherwise uphold privilege.” (2005 [1951]:31). Therefore, not only workers, but also capitalists are bounded to conditions of their reproduction, while the neglect of these conditions means their extinction.

Odysseus, free of practical cares, is allowed to build up self–mastery: “Precisely the strength which is detached from self–preservation benefits self–preservation: in the struggle with the feeble, gluttonous, undisciplined vagabond or with those who have basked in idleness.” (Adorno and Horkheimer, 2002 [1944]:44) What is not used to serve self–preservation is used to self–preservation – the more an individual has above what he needs, the more likely he will keep himself alive – the superiority of nature in the competitive struggle is confirmed and only adaptation to it is a way to self–preservation, whence asceticism has been always glorified as a
social precondition of becoming wealthy (e.g. Adorno, 2005 [1951]:186). Adorno and Horkheimer claim it is the principle of bourgeois disillusionment – the external schema for the internalization of sacrifice which makes survival virtually dependent on death. (2002 [1944]:45) An individual in his *apparent* freedom is a product of society’s economic and social apparatus – the harshness of competitive society. (2002 [1944]:125) An individual succumbs to the universal mechanism of competition in their “petrified otherness”, with a “subtler means of adaptation from weakness” (Adorno, 2005 [1951]:135-136); individuals’ personalities are levelled out. And since all the content of the self comes from society, the self–sufficient individual has become “a mere receptive organ of the market (…)” (2005 [1951]:149), a shell without content.

“The individual as a rule must simply accept the basic conditions of his existence as given and strive to fulfil them” (Horkheimer, 1972 [1937]:206) Such adaptation to conditions of production external to man causes him deformations. Nevertheless, such deformations are not a sickness in man but in the society and mode of production itself. The will to live becomes dependent on the denial of the will to live: “self–preservation annuls all life in subjectivity.” The living has made itself a mere thing, equipment of the production: “The ego consciously takes the whole man into its service as a piece of apparatus. In this re–organization”, Adorno continues, “the ego as a business manager delegates so much of itself to the ego as business mechanism, that it becomes quite abstract, a mere reference point: self–preservation forfeits its self.” The separation of character traits both from their instinctual basis and from the self, causes man to pay for his inner organization with increasing disintegration. (2005 [1951]:230-231) In the light of this duality, all the achievements of adaptation described by social psychology or cultural anthropology are mere epiphenomena. (Adorno, 2005 [1951]:229) The pressure of adaptation annuls subjectivity and dominates the insights of specialized sciences from its meta–position. The next subchapter follows the pressure of adaptation in more details.

---

31 Pavlík when interpreting Adam Smith’s work outlines an interconnection between self–oriented ‘asceticism’ (as a significant determinant of the capitalist system) and morality. (2001b:939)
3.6 Metamorphosis of the Subject and its Objectification

Adorno and Horkheimer maintain that individuals are overwhelmed by demonstration of freedom of choice and the charm of not belonging to the system. However, in both cases they remain mere objects. (2002 [1944]:118) That is why self-preservation of the particular depends on conditions of the objective. Economic success is the function of subject’s adaptation to the objective. The threat of natural, animal and vegetative existence is back in play. (Adorno and Horkheimer, 2002 [1944]) The success in market capitalist society is based on providing countervalue, which means that the subject must perform in the market. Hauser interprets Adorno’s understanding of self-preservation with implications to subjectivity as follows: individuals obey laws of capitalist economy as long as they are interested in their self-preservation. ‘Rational’ attitude towards self-preservation led to the conquest of nature, while individual’s subjectivity springs out right from the conquest. On the other hand, ‘rational’ attitude towards self-preservation leads to the acquiescence to capitalist economy and individual’s subjectivity disappears. (2005:26-30) In other words, individual pays for minimizing the risk of extinction with his subjectivity.

As the result, man became the object of exchange since man had subjected himself to the principle of reality – or as Voswinkel specifies – the object of changing external market forces which form subject’s fluidized selfhood (2011), ending up in ‘reflexively controlled self-presentation’ (Luhmann, 1970) or ‘reflexive conformism’ (Voswinkel, 2011). The pioneer in the field, except Marx, was however Lukács (2000 [1923]), who labeled the subject adapting on autonomous systems of calculation as ‘reified’. The adaptation finally causes a decay of subjectivity. Honneth, inspired by Lukács’s concept of reification, deciphers physiognomy of capitalist organization of society through Adorno’s understanding of relationship between exchange and reason. It is claimed, that as individuals are forced to behave according to the scheme of exchange in still more spheres of their lives, the richness of their rationalities is reduced to egocentric utilitarian calculation. (2011)

For Kosík, *homo oeconomicus* is exactly the subject who objectifies himself. The subject becomes integrated in a trans-individual whole. The subject abstracts from his subjectivity and then metamorphoses into an object, a mere element determined by the system. A man becomes an abstract, analyzable and mathematically describable unit, the real metamorphosis of man
performed by capitalism which establishes and develops economics as a *science*, where the individual becomes the general, the stochastic, the lawful. In order to make such transformation, contemporary economics stands over individual purposes, becomes independent of them and the social relations among individuals transform themselves as an autonomous natural force over them. (Kosík, 1976:50) *Homo oeconomicus* is thus a functioning element of a system, whose essential features were defined in order to make the system running (Kosík, 1976:51) – a reified moment of praxis. (Kosík, 1976:86)

Human beings are being averted from the principle of the self – species are becoming identical to one another through isolation within the compulsively controlled collectivity. The oppression of collectivity affects all human beings regardless their social status: “It is the servant which the master cannot control at will.” (Adorno and Horkheimer, 2002 [1944]:29). The market appropriates humans´ capacities to make them fit to the production. Humans have been endowed with an individuality, different from all others, so that it could all the more surely be made the same. (Adorno and Horkheimer, 2002 [1944]:9) The platform for human interaction forces them into conformity and negation of each individual. The triumph of repressive *égalité* degenerates the equality of rights into the wrong inflicted by equals, while “[a]ny attempt to break the compulsion of nature by breaking nature only succumbs more deeply to that compulsion.” (Adorno and Horkheimer, 2002 [1944]:9) Human beings are therefore reduced to mere objects of administration which conjures up an illusion of objective necessity before which they feel powerless. “Poverty as the antithesis between power and impotence is growing beyond measure, together with the capacity permanently to abolish poverty.” (Adorno and Horkheimer, 2002 [1944]:30) The power of the system over human beings increases as they rationally endeavor to escape the compulsive power of nature.

Despite possibly manifested passivity, man will always find himself in a network of relationships through his existence which is one of his activities. The entanglement of the individual in the network confronts him as the practical–utilitarian world. Objective relationships thus manifest themselves as a world of procuring – a world of means and ends. (Kosík, 1976:37) The individual exists in a “ready-made system of devices and implements” and procures them as they in turn procure him and penetrate his entire life: “The everyday appears as the anonymity and tyranny of the impersonal power which dictates every individual’s behavior, thoughts, taste and even his protest against banality.” (Kosík, 1976:46) Procuring expresses itself in the
phenomenally alienated form, in the environment of everyday manipulation and ready–made ‘things’ in which man himself is transformed into an object of manipulation. The world of procuring is the ready–made and given surface of reality, which does not appear as the world formed by the man himself but as a ready–made impenetrable being.  

In this world, things acquire meaning only insofar as they are manipulable. (Kosík, 1976:39-40) The world of objectivity (manipulation and procuring) might engulf an individual so completely that his subjectivity disappears and objectivity exposes itself as the real subject: “[m]an might disappear in the ’external’ world because his is the existence of an objective subject which exists only by producing a subjective–objective historical world” (Kosík, 1976:47); the content of subjectivity itself becomes “a mere function of the production process.”33 (Adorno, 2005 [1951]:214) Man is real only when he develops those abilities that are required for the operation of the system. The rest of abilities are private and romantic, irrelevant and unreal. The man is real only as an element of the system. (Kosík, 1976:54–55) Adorno reacts that the more the subject adjusts himself to external relations, the more he becomes a thing for himself. The subject is divided into two parts – as a continuation of the machinery of social production and as a residuum opposing ‘rationality’ and perishing into curiosity. (1967b:50) Bonefeld adds that economic progress requires a constant adjustment from the agents. (2014:24) “Man receives from society what she puts into society.” (Bonefeld, 2014:220) The person is then objectified in the economic thing, while the economic thing subjectifies itself. Under the compulsion of the unintended (R. M.) universal, individuals are mere character masks of economic forces. (Adorno, 2004 [1966]) This is obviously interlinked with Freudian ‘death impulse’ – instead of active engagement in things man inclines to be dominated by objectivity.

To conclude with the epiphenomenal role of specialized sciences, it can be seen that e.g. psychology–based behavioral approaches in economics, suggesting an elaboration and objectivation of psychology34, “uncritically accepts the phenomenal form of reality as though it were reality itself. (…) Not theory, but reality itself reduces man to an abstraction. Economics is a system and a set of laws governing relations in which man is constantly being transformed into

---

32 The impenetrability was demonstrated on Kafka’s character Josef K. in Maialeh (2015)
33 Horkheimer says the same when positing that masses „act as mere functions of the economic machine”. (1972 [1937]:237)
34 Fisher for instance criticizes biochemization and hence individualization of psychic diseases which consequently depoliticizes them. (2009)
the ‘economic man’. ” (Kosík, 1976:51-52) Subjectivistic economics is ideological: it explains
market processes through psychological moments, which can be however classified as mere
randomnesses accentuating phenomenon instead of the essence. (Adorno, 1967b:43) Also Kosík
criticizes ‘psychologization of economics’, which strives to present economic laws as
objectivation of psychology. (1976) Behavioral and experimental ‘opposition’ to mainstream
economics, famously advocated by Orrell (2012), accuses economics of pythagorianic
ideologism (i.e. cosmos composed of numbers). Nevertheless, Orrell’s critique relies on a naïve
Leninist idea, that the difference between the essence of being, unknowable for Kant, and
phenomenological appearance, is seen in what has not been yet recognized in the empirical
world. The suggested solution then relies in advanced methods of description, e.g.
implementation of fractal distribution instead of Gaussian, which more adequately reflects
volatility of economic phenomena and such a theory consequently more adequately corresponds
to empirical world. Such an approach elucidates that economists cannot avoid what Sartre called
‘Stalinist statistical fetishism’. Behavioral and experimental economics therefore rely on a naïve
idea that summation of various facts constitutes truth about the whole, which was labeled by
Kosík as ‘false totality’. As has been shown, it is impossible to gather all relevant facts – a claim
posited not only by critical theorist, but also e.g. by Austrian thinkers. Secondly, a sum of
particularities does not constitute the whole.

*Homo oeconomicus* therefore does not answer “What is man?” but rather how the man
should be to keep the system of economic relations in motion. Economics transforms, subjugates
and adapts individuals to its objective mechanisms – methodology gets ontologized. (Kosík,
1976:52-53)
Summary

The chapter points out at insufficiency of positivist approach in complex socioeconomic questions. Positivism in its desperation strives to embrace all phenomena, however not in their dialectical totality, but as a mere summation of facts. An inability to gather all facts nevertheless keeps positivism in a trap – the task of science is then reduced to accumulation of facts and establishing functional, easily surveyed connections between them. Scientific exactness, imposed in order to eradicate dishonesty of scholasticism, then faces precisely the same dishonesty while extrapolating its results. It is impossible to research partial data of any social phenomena and conclude these data with general validity. Dishonesty of scientization then consist in alleged objectivity of its results, in contrast to invariance–based objective results in natural sciences. Such positivist critique theoretically contributes to the explanation of the empirically–oriented chapter’s results and its ambivalences, when it refers to limits of empirical method. Further, self–preservation offers the most plausible maxims for action and dominates the form of the system, in which everything and everyone is instrumentalized into object. The acting agent therefore undergoes objectification, since the agent reflexively adapts her subjectivity to external market conditions in order to gain resources for her self–preservation.

To complement these results, dialectical concepts of totality and the pseudoconcrete are introduced. Dialectics subverts economic categories by revealing their broader social basis and exposes the movement of society as antagonistic from the outset. Totality is not a sum of all facts and it does not signify all facts, meanwhile dialectically understood totality represents the viable, intellectually reproductive (in contrast to positivist reductionism) alternative for grasping socioeconomic reality, where facts are comprehensible only in the context of the whole. Totality in its genetically–dynamic conception means to explain reality as a structured dialectical whole, from which any particular fact can be rationally comprehended. The following chapter therefore combines two things: firstly, empirical evidences of the second part that present the current state of inequality in economic distribution; and, secondly, methodologically–theoretical insights of the critical theory that refers to social and instinctual determination of economic agents. Combination of these two parts is constitutive for a new agent–based model of economic
inequality that reveals whether market mechanism is the converging or diverging factor of the production process.
4. INTERACTION OF HETERONOMOUS\textsuperscript{35} AGENTS AND MARKET–BASED INEQUALITIES

\textsuperscript{35} Heteronomy in our understanding refers to action that is influenced by an external force; the state or condition of being ruled, governed, or under the sway of the Outside.
4.1 Methodological Notes

In order to make critical theory’s insights compatible with contemporary economics we are forced to settle down several ambivalences. These ambivalences appear on the surface of the research; however, they do not affect the core idea and do not lead to unintended and disqualifying compromises neither in critical theory nor in economics. The goal is not to synthetize these two irreconcilable (?) intellectual disciplines. The aim is to utilize selected topics of the critical theory, which are at least partially compatible and which can possibly contribute to overcoming stated problems in contemporary economics. Therefore, the role of the critical theory is rather inspirational than dogmatically constitutive. Economic reading of the critical theory, incorporating new professions to established orders, is thus in line with traditional Smithian claim, that “systems which have universally owed their origin to the lucubrations of those who were acquainted with one art, but ignorant of the other; who therefore explained to themselves the phenomena, in that which was strange to them, by those in that which was familiar; and with whom, upon that account, the analogy, which in other writers gives occasion to a few ingenious similitudes, became the great hinge on which every thing turned.” (Smith, 1982:51)

We follow a long tradition of economic thought. The most famous proponent of the direction we would like to follow is Nobel Prize laureate Wassily Leontief. His inspiration stemming from Marx’s labor theory of value, Quesnay’s *Tableau Économique* and Walras’ General Equilibrium system produced a unique perspective on the whole production process. The input–output analysis, whose inseparable part was also Pierro Sraffa, is a typical example of how particular insights (both methods and contents) inspired by Marx might be useful and consequently widely recognized in economic mainstream. Another author was Michal Kalecki, whose Marxian equations of reproduction (1968) have resonated among modern economists as well. Of course, the proposed model offers different points of view on the production process (compare to Sraffa, Leontief or Kalecki) since it concerns the question of inequality in economic distribution from the critical theory’s perspective. On the other hand, the general idea of

---

36 It does not mean that Leontief disregarded the issue of inequality. Once he said: „I think problems of income distribution will increase in importance. As I mentioned before, labor will be not so important, and the problem will be just to manage the system. People will get their income allocated through social security—already now we get it through social security, and we try to invent pretexts to provide social security for people. Here, I think, the role of the government will be incredibly important, and those
combining quantifiable analytical tools with deeper (and slightly perverting) theoretical understanding remains.

Contemporary economics is vastly based on mathematical apparatus through which economists formulate relationships among relevant variables. Conversely, critical theorists, e.g. Horkheimer (1972 [1937])\textsuperscript{37}, were skeptical about expressing social relations by mathematical symbols which are supposed to make up its appearance as a rational relationship of quantifiable things. The novelty of the following parts lies in the fact that despite the agent is depicted as a mathematical point, the depiction also encompasses agent’s antagonistic\textsuperscript{38} character towards Outside – her dialectical totality. By this we fulfill insistence of numerous critical theorists. Namely, Antonio (1983) criticizes extreme anti–positivism which ignores techniques and ideas necessary to the empirical dimension of any critical research. Kilminster (1979) similarly calls for harmonizing positivist methods with dialectics in order to capture the empirical moment of immanent critique. Also, Kosík (1976) recognizes bright sides of positivism in opposing metaphysical concepts with its understanding of materia as objects and processes rather than something transcending behind phenomena. Without any doubts, extreme anti–positivism and hostility against systemization (primarily against its artificial and unscientific forms) occasionally retakes ideologically motivated dogmatic forms, which, in a few cases, brought critical theorists to the crossroads. The anti–positivist debate was held mainly from 40’s to 60’s due to the fact that leading intellectuals of the critical theory had to flee to the United States where the economists who try to minimize the role of the government, I fear, show a superficial understanding of how the economic system works.“ (Leontief 1998:130)

\textsuperscript{37} For instance: „The subject is no mathematical point like the ego of bourgeois philosophy; his activity is the construction of the social present.” (1972 [1937]:210-11) or pejoratively put, that “[f]or any datum it must be possible to deduce all its determinations from theoretical systems and ultimately from mathematics; thus all finite magnitudes may be derived from the concept of the infinitely small by way of the infinitesimal calculus, and this process is precisely their ’production‘.” (1972 [1937]:198)

\textsuperscript{38} Social antagonism is understood as a propensity of individuals to general distinction from others, i.e. recognizing himself/herself within society, which is based on pursuing their own interests and needs. In this sense, social antagonism is mirrored in competitive relationships among agents as a result of natural drives of individuals. Such ’Kantian approach‘ also encompasses individual freedom as an autonomy from determination of the ’internal nature‘ (i.e. pressures of instincts) and from the determination of the ’external nature‘ represented by social relations. A bright point on the issue is provided in Pavlík (2004). In more general sense, relationships among agents are antagonistic because their interests on the market are irreconcilable in principle. Similarly, in biology, competition is a form of indirect antagonism, i.e. that two and more organisms compete for resources necessary to survive (for instance for oxygen), which clearly describes the stated problem of the proposed model.
dominance of empiricism was strong at that time. Now, the debate is over; however, the context of the thesis, in which direct interaction of positivist methods and critique of positivism plays an important role, requires further clarification.

Firstly, it is crucial to understand from what critical theory’s anti–positivism stems out. Critical theorists in fact, when researching their findings carefully, generally oppose *ontologization* of positivist methods, not positivist methods themselves. Critical theorists attack on positivism as a *paradigm*, as an interpretative direction toward truth and as an approach to the problem itself. Such orientation, according to critical theorists, results in multilevel naivety. The first complaint relies on the fact that it does not reflect the subject–object dialectical unity and isolates the agent as an independent mathematical point. However, the subject–object dialectical unity recognizes the fact that objective conditions, external to and uninfluenceable by the subject, penetrates subjective consciousness since the subject is forced to act within these objective conditions. On the other side, the subject changes and forms these objective conditions through the subjective action.

Secondly, ontologization of positivist methods pushes researchers to extrapolation based on empirical results. The naïve positivist approach hence relies entirely on existing facts. Let us provide an example on David Hume: despite he opposes the institution of slavery, Hume on the other hand expresses conviction about negroes’ inferiority. (2011 [1777]:372, 452) Of course, an empirical moment of the 18th century shows that there never was a civilized nation, art and sciences established by black people. Ontologized positivism could therefore interpret these facts in a sense that black people are principally of a lower kind. That is to say that such an approach takes existing facts as being absolute and automatically omits broader social, political, economic and historical conditionality. This inevitably passes images of reality off as the reality itself. Critical theory’s dialectical critique of positivism thus focuses on how facts *came to be* and not only what facts *are*. It does not mean that observable facts are irrelevant or that general validity

---

39 There can be also found few ‘hypocritical’ and ‘dogmatic’ examples within critical theory. Despite the justifiable insistence on resolution of base and superstructure and hence on the fact that everything is ruled by production relations, we still have to bear on mind limits of it. For instance, the cultural decay in Adorno’s critique is frequently associated with capitalist formation. This is undoubtedly partly relevant, however selected phenomena, which have little to do with the capitalist mode of production (e.g. Adorno’s critique of jazz music), might have different decisive factors which are related to the 20th century in general or to specific local conditions. But still, in general terms, we observe that more and more elements of superstructure are becoming similar throughout the world as the capitalist mode of
of factual knowledge is negligible. On the contrary, they mediate the substance of social reality. But still, they do not represent the substance. The true endeavor to penetrate the substance, an activity immanent to any dialectical research, therefore devalues the idea (not methods) of positivist descriptivism as the only source and criterion of truth. Critique of positivism that is present in the third chapter therefore outlines why traditional economic models cannot be applied and demarcate the crucial difference between the proposed model and traditional ones.

For critical theorists, it is important to refuse this part of positivism. On the other hand, rising complexity of researched problems increases the importance of utilizing positivist analytical methods. For that, the most important and challenging is to keep them in their instrumental function. These methods must serve as ones of many means that uncover social reality. By this we manage positivist value neutrality which is applied on already defined (and thus value burdened) problems from the critical theory’s point of view. Critical theory argues that defining the problem itself is a manifestation of values. Based on this conviction, critical theory sees positivist drawbacks not in utilizing positivist methods for partial analysis, but in relying on them when we define the problem itself. The proposed thesis follows this approach: mathematical formalism shall be applied only when the problem is already defined and only when mathematical formalism is subordinated (as a supportive moment) to dialectical analysis. This is crucial for the proposed economic model since it deals with non–linear dynamic system for which mere essayist and narrative approaches are insufficient. In our particular case, mathematical formalism is a clarifying element that enables the structurally–genetic (respectively dialectical) analysis to be more transparent. In other words, the symbolic logic is kept in a corridor of mathematical logic of outlined relations.

As Jindřich Zelený (1962) interprets Capital, the aim of Marx’s dialectically–logical and structurally–genetic inference is to mediate necessary immanent relations of the subject. The inference is based on a new understanding of logical inference which interprets objectively existing necessity of the subject, “while the ‘necessity’ is understood in a sense of processually–contradictory concept of self–developing substance.” (Zelený, 1962:101) He also suggests to distinguish mathematization, formalization and transformation of mental contents into ahistorically reasonable forms, probably in order to avoid debate on differences between production is extensively spreading out. Naturally, such a ‘nivelization’ is happening in spite of formerly different historical, economic or generally cultural background.
traditional deductive (formal) inference and dialectically–logical inference. The debate is in fact based on dualistic contraposition of form and content. The proposed thesis however overcomes the metaphysical contradiction between ‘purely logical’ and ‘factual/empirical’. Based on Zich (1958) interpretation of logic as a science researching forms of thought applied in modern science, Zelený adds that logic researches what is universal and what is the nature of the universal in modern scientific thought. He continuous, that if we focus on the universal separately from particularities, scientific thought provides new important knowledge. However, abstraction from the particular is conducted through variables. (1962:157) Therefore, we do not refer to the contradiction form–content, but universal–particular in various forms, contents and procedures applied in modern scientific thought. The superficial difference among forms of expression through the thesis does not collide with the unifying content of the thesis. Hence, the mathematical part stays as a mere instrument, it does not instrumentalize reason as it is criticized in the critical theory and hence it cannot get ontologized. The supportive role of mathematics enables to mediate necessary immanent relations of the subject. Additionally, we might gain more reliable results by grounding these methods to a defined theoretical frame (in this particular case the unpositivistic frame of the critical theory) and, as the result, operate with positivist methods even better than positivists do themselves. 40

Here we see common denominators with late Marx and analytical Marxism. The proposed model is agent–based which requires individualistic reading of the critical theory. Microeconomic foundations of Marxian though were overlooked for the most of the time. Authors willingly forgo subjective aspects in Marxism, even though they stood in the center from the former times: “In place of the old bourgeois society, with its classes and class antagonisms, we shall have an association, in which the free development of each is the condition for the free development of all.” (Marx and Engels, 2008 [1848]:26)

One of those who raised these microeconomic foundations was Elster. He mostly focused on questions of how capitalist mechanisms work on the individual level, especially by use of game theory. For him, traditional Marxist assertions of macrostructures and long–run trends are, without reflecting the individual component, mere speculations. (1982) Despite the author discusses obsolete bipolar rhetoric of the class struggle between capitalists and proletariat the general idea remains valid. Roemer (1982) shares Elster’s views and posits that methodological

40 An extended discussion is also provided in Rozental (1962).
individualism should not be necessarily linked only to bourgeois social sciences. Marxist analysis should be on the other side reconciled with this approach, manifesting itself e.g. in already mentioned game theory, since the analysis requires an individualistic base. Sensant (1988) conversely aims at individualists. According to him, individualists should not disregard Marxian theory just because it is not primarily equipped by individualistic microstructure.

These approaches however have their own opponents among neo–Marxists. One of them was Wolff (1990). The author perceives methodological individualism as too narrow. Human action that is based on self–interest, Wolff claims, is not universal to human history. Such presumption stays in the center of classical and neo–classical economics while it is not compatible with basic human experience, nor can it grasp the logic of collective action. He marks analytical tools like ‘Prisoners dilemma’ or ‘Free riders’ as inappropriate since they assume only egoistic preferences. This is however the typical weakness of anti–classical argumentation. The thing is that every human action, even to most altruistic one, is explainable from the position of egoistic preferences, i.e. through classical utility theories.

A bit less skeptical view about possible reconciliation between Marxism and methodological individualism was provided within continuing debate in Theory and Society. Weldes (1989) recognizes Elster´s focus on the importance of micro–foundations for macro–social theory, however Elster´s call for micro–foundations should not reduce the subject matter into methodological individualism. Weldes claims that social science ought to be methodologically anti–reductionist (1989:127) and that is needed for construction of the present economic model. The following Table 3 makes the distinction clearer:

**Table 3 What is Explanatory of Social Phenomena?**

<table>
<thead>
<tr>
<th>Properties of and relations among aggregate social entities are irreducibly explanatory</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relations among individuals are explanatory</td>
<td>Anti–reductionism</td>
<td>Methodological Individualism</td>
</tr>
<tr>
<td>Yes</td>
<td>Radical Holism</td>
<td>Atomism</td>
</tr>
</tbody>
</table>

Given the fact that critical theory’s dialectical totality understands determinative forces in their wholeness, we might derive that economic agents exist in subject–object dialectical unity. Economics is on the other hand notoriously narrow in its understanding of the human action and social phenomena which is manifested in neglecting conditions of the action: as Bonefeld (2014) claims, just as objectivity does not exist without the subject, the subjectivity does not exist without its object. In our understanding, personal motives of agents relate to the subjective while the concrete agent’s action is happening within and at the same time is subordinated to historical objective conditions that independently exist beyond her control. Resultant agent’s action is then both the vector of subjective and objective forces and hence the model must depict an interplay of social determinants and instinct structures. None of them is fully governed by agent’s will, therefore any free–choice or preferential ranking cannot play the role on the defined abstract level. This means that if we reformulate the Table 3 (individual determinants vs. social determinants) we would not end up with methodological individualism, which is recognized in both contemporary economics and cited papers of analytical Marxists, but the general methodological approach that respects dialectical totality of the critical theory rather favors anti-reductionism. Methodological individualism seems to be insufficient since the dialectical focus of the thesis does not allow to interpret individual and social phenomena only through properties of relevant individuals, since social changes cannot be defined as mere summation of individual actions. It means that individual and social being is neither determined by subjective capacities nor by objective external conditions, but only by both of them. Shiell (1987) discusses Marx’s opinion on the relationship between the parts and the whole and concludes that Marx was methodological holist and ontological individualist. The proposed model suggests that our standpoint is rather the opposite which corresponds with Weldes’ (1989) conclusions. In any case, the proposed model is inspired (on a certain level) by Smithian idea of spontaneous order, which is anchored in methodological individualism, where expediency of individual’s action is realized via causal processes. On the contrary, causal processes are put into context with uninfluenceable over–determination of external forces (market imperatives), which gives a new dimension of agent’s action. This new dimension is however not a novelty for classical Smithian school of

41 In this sense, both kinds of forces have objective attributes. Despite instinct structures are intrinsically linked to the agent, instincts remain uncontrollable to agent’s will and they manifest themselves as outer to the agent. This clarifies why agents, despite innerness of determinative instinct structures, are classified as heteronomous.
thought: Pavlík explains (2001:921), that an implementation of such a ‘theoretically–historical approach’ requires both the ‘known principles of human nature’ and ‘the circumstances of their external situation’.

This is very close to what constitutes the dialectical totality of agents’ action. The model is supposed to present ‘the decisive substantive elements’ (Horkheimer, 1972 [1937]:234), the base of unchanging factors of the capitalist–market production process that is immanent to any particular phenomenon of the process; a structured dialectical whole, from which any particular fact can be rationally comprehended (Kosík, 1976). In this sense, despite the uniqueness, novelty, or one might even pejoratively put ‘strangeness’ of the proposed model, it is not so far from classical economists. Let us go with Adam Smith as an example: Stewart (Smith, 1985:22) interprets his approach as follows: In the absence of direct evidence, “when we are unable to ascertain how men have actually conducted themselves upon particular occasions” we must consider “in what manner they are likely to have proceeded, from the principles of their nature, and the circumstances of their external situation.” He follows, that ‘[t]he known principles of human nature”; “the natural succession of inventions and discoveries”; “the circumstances of society” — these are the foundations on which rests Smith’s thinking “whatever be the nature of his subject”; astronomy, politics, economics, literature, language. “In most cases, it is of more importance to ascertain the progress that is most simple, than the progress that is most agreeable to fact; for…the real progress is not always the most natural”. This exactly corresponds to the idea of the model, which, based on ‘the known principles of human nature’ (defined by the critical theory in our case), grasps human action ‘upon particular occasions’ and ‘the circumstances of their external situation’ beyond ‘the progress that is most agreeable to fact’. Pavlík develops Stewart’s interpretation further: the simplest/general direction of progress does not necessarily have to correspond to facts since these facts (immediate reality) are [co–]determined by incidents which may not occur again and which are not a part of the general measures and tendencies in society. Simply put, Smith strives to explain the general motion

42 It is obvious that the proposed theoretical model is unable to provide detailed explanation of a multitude of all stochastic particularities. By ‘any particular fact’ we understand any fact that is explainable as a systemic in a sense it derives from the natural propensity of men – in Smith e.g. “the propensity to truck, barter, and exchange one thing for another” (2001 [1776]); ‘the known principles of human nature’.

43 Of course, Smith accentuated mutual alignment of rational elements while the proposed model exposes their irreconcilable conflict.
through single causal principle. The result is a uniform interpretation of all teleological aspects of the order without being a reductionist or making simplifications; where the unifying causal principle structures incoherent phenomenal *materia* and establishes its unity in diversity. (2001a:915-917, 922) In other words, “exclusion of final causes from the theoretical image of the functioning of market economy was necessary in order to grasp its functioning as the spontaneous order.” (2001a:917) As Menger says, the aim of theoretical research is to “ascertain the *simplest elements* (C. M.) of everything real, elements which must be thought of as strictly typical just because they are the simplest” (1985:60), which corresponds to the simplest possible definition of the proposed model.

However, ontology in positivism says that truth is defined as a set of statements that accurately describe reality. The vast majority of economic models are therefore defined precisely in this line. More concretely, the positivist ‘captivity’ put emphasis on the most accurate description of reality. The economic model then becomes a descriptive tool for which the reduction of reality should be the lowest possible, i.e. with minimum unrealistic assumptions. The proposed model is on the other hand an ’epistemologically–diagnostic’ tool which strives to grasp the decisive abstract market forces: ‘the unifying causal principle that structures incoherent phenomenal *materia*.’ These abstract forces represent the Real (Lacan), which, in other words, is the intangible force that establishes the abstract logic of motion. Therefore, the proposed model is not reductive, as it could seem on the first sight (based on its assumptions), but rather abstract; it reacts on Kosík (1976) who posits that reality is what reduces man.\(^{44}\) The aim of the model is *not* to describe reality, but to inspect these abstract market forces – *the Real*. This follows fundamental critical theory’s approach which opposes an affirmation to reality (Hrubec, 2011), particularly stressed by Adorno (2005 [1951]), with the aim of true cognition which derives from the detachment of phenomenon and the essence, being and appearance.

On the other hand, it does not mean that the economic agent is dominated by the structurally–genetic market forces. The agent is apparently objectified by these external forces which affect her action and within which the action is happening. But the agent at the same time modifies conditions of the structurally–genetic market forces through her action. Therefore, we

\(^{44}\) The abstraction however does not mean that the ‘intangible’ whole stands above its ‘real’ parts but the model depicts mutual dialectical interdependency of these two spheres: the whole creates parts as well as parts creates the whole.
do not work with a one-sided dominance, neither the dominance of the subjective nor the dominance of the objective, but with subjectively-objective dialectical totality.\textsuperscript{45}

Although the model transcends particularisms of immediate empirical world, it on the other hand totalizes the agent’s action and therefore every move that the agent takes in reality is explainable by the proposed model. In this sense, the contrary is true: regular economic models may not use so reductive assumptions but their interpretation is reduced to immediate reality. While the proposed model adopts ‘reductive’ assumptions on immediate reality, on the other hand it emphasizes and isolates the abstract logic of motion which allows to explain any action that agent takes in immediate reality. In Lacanian terms, every action that agent takes in reality symbolizes\textsuperscript{46} the Real and manifests itself in immediate reality. Based on that, the main difference between regular economic models and the proposed model is that regular models concern reality (the Symbolic) and the proposed model concerns the Real – abstract structurally-genetic patterns behind the law of substantial motion. This fact disqualifies most of contemporary economic models and explains the novelty (uncommonness) of the proposed model.

The thesis does not present a universal method against which Caldwell warns us (2003:244-245). It does not suggest a single and only method through which the outlined issue is researachable. The thesis rather reconciles/moderate methodological fundamentalisms which are so symptomatic for both critical theory and contemporary economics. It is also important to understand that critical theory criticizes the manner of use of positivist methods, not positivist methods themselves. Positivism does not have monopoly on mathematical, formal logical or empirical tools. On the contrary, even Marx himself built up his contribution on classical political economy, German idealism and French socialists; i.e. not everything that is criticized is deplorable in principle. In sum, utilizing these tools beyond dogmatized contextual frame may give more reliable results and may contribute to de-ontologization of these tools. Critical theory conversely has to adopt more systematic and analytical approach to current social phenomena, since the complexity of these phenomena is advancing and poses a threat of selective blindness.

\textsuperscript{45} Cartesian rationalization scheme of subject and object duality, which is at the same time the basal framework for contemporary economic models, signs that the inspiration for the proposed model is highly limited.

\textsuperscript{46} Originally, the duality was the Real and the Symbolic.
4.2 Market–Based Inequalities: A Fundamental Concept Through Probabilistic Drive Towards Divergence

Contemporary economic research reflects all habitual, egoistic, altruistic, bigoted, logical and whatever actions of economic agents; however, research that would focus on the very basic principles of economic agents’ reproduction has disappeared. Theoretical analysis of inequality as the result of these basic principles of social reproduction is not a privileged phenomenon on which dialectical critique is applied. It is neither incomplete, partial or one–sided analysis which generates results for this particular segment of social reality, on which causality of economic categories is further detected. In contrary, the process of inequality penetrates to the essence of the production process, i.e. of the process of creation and distribution of wealth in its all–embracing sense.

Kosík posits, that a theoretical analysis exposes social being in the system of economic categories once they are conceived as an expression of people’s objective praxis in their interconnected social relations as a particular historical stage of development. (Kosík, 1976:117) The model comes with an explicative principle of inequality in economic distribution for which it uses mathematical methods to outline the phenomena as a system of repetitive regularities. The model thus abstracts to the utmost from agent’s subjectivity, randomness and idiosyncrasies. Therefore, we assume homogeneous preferences (identical agents) in order to depict that individual differences principally do not drive inequality, i.e. that divergence is captured even among agents with the same decision–making process; and that inequalities stem from the production process itself. Beside the market–isolating effect, it is necessary to understand that the proposed model concerns abstract principles of the market mechanism – the Real. As was shown in previous chapters, critical theorists detect a decay of subjectivity (objectification of the subject) in the researched sphere which constitutes the second argument against subjective attributes.47 Furthermore, we observe for instance individuals or companies operating under market conditions. This implies that subsequent modeling can be used on different levels.

47 In the subchapter dedicated to aesthetics in the critical theory we also read that differentiating processes (personalization, subjectification…) are detectable mainly on the very surface of everyday life, which means the sphere of the immediate reality, not the Real of structurally–genetic principles.
The spirit of the model can be further accused from being a totalizing economism that rationalize every move of the agent, similarly as the praxeological approach of Austrian economics does. Every agent’s action is explained economically, since every action is happening in a space–time with a certain degree of scarcity and opportunity costs. That is to say that in order to grasp the all–embracing totality of the agent, her action needs to be totalized according to governing principles, from which all particular purposes are derived.

The aim of the following subchapter, which is based on previous chapters, is to decide whether agents\textsuperscript{48} organized by market forces tend to create or reduce economic disparities over time. The attention is also turned to general economic theory with an inspiration in Schumpeterian, Keynesian and neoclassical theories, all respecting foundations of the critical theory. Research on existing literature related to agent–based dynamic modelling has been also conducted. The proposed issue of inequality directs to auction theory; therefore, the sample of examined literature includes well–known Cassady (1967) and newer Krishna (2009), but also Riley and Samuelson (1981) and McAfee and McMillan (1987). Research on modelling of macro–environment with microeconomic foundations embraces e.g. Korotayev et al. (2006). In game theory, especially researches of Camerer (2003), Shoham and Leyton–Brown (2009), Valenčík (2008) and Baik and Jung (2015) were inspected. On the other hand, however insightful these (and some other) studies are, their authors provide too specific formulations of researched problems. These narrowly–defined models are then hardly transferable to the general theoretical frame not only of inequality, but to the general frame of market forces themselves. In this sense, the subchapter applies, despite its triviality, an innovative formulation of agents’ interaction, and by using mathematical apparatus it introduces a new framework of agent–based dynamic modelling.

In the issue of inequality, we must work on the assumption that inequality is, in general, the result of certain creation and appropriation of wealth (resources). Intrinsic features of the production process and concurrently the most influential attributes to researched inequality is profit maximization and a certain level/form of competition. As Horkheimer reminds, production within competitive market leads to innovations. However, there is no too profitable industry or too productive employee in the quantified world. Economic rationality knows ‘more’ and ‘less’,

\textsuperscript{48}The term ‘agent’ is used intentionally instead of subject since economic agents, as showed in the previous chapter, loose her subjectivity and exist as an objectified entity.
but not ‘enough’, which consequently relate to infinite goals. Any slowdown or stagnation brings destruction. (2012 [1949–67]) As we have learned in the previous chapter on self-preservation and objectification of the subject, the constellation of these attributes causes that every single agent who is ruled by market forces has to adjust her behavior to them, i.e. maximize profit due to competitive pressure. If any agent does not accept these imperatives in the long run, then the agent loses her competitiveness and the agent is excluded from a given market. Every agent whose reproduction depends on resources from the market thus obeys such rules and agent’s behavior is beyond any preferential ranking – the agent is alleged to prescribed agencies of power.

For reasons mentioned above we assume Schumpeterian growth theory as a starting point for modeling. The reason is that Schumpeterian theory allows to capture an ‘infinite’ growth by innovation strategies of agents; the so called theory of ‘creative destruction’ which highly corresponds to the dialectical (and thus dynamical) character of the thesis; ‘[t]he dual nature of progress, which always developed the potential of freedom simultaneously with the reality of oppression (…).’ (Adorno, 2005 [1951]:146) Nonetheless Schumpeterian theory assumes loans as the source of innovation.\footnote{Further explanation of Schumpeter’s views of capital market as the ‘headquarter of capitalist economy’ is provided by Kurz (2012)} Not only because of broad literature dedicated to ‘credit constraints’, covered also e.g. by already cited Gomez and Foot (2003), Galor (2009) or Aghion, Caroli and García Penalosa (1999), such an assumption should be eliminated, mainly because creditworthiness and imperfections on capital markets\footnote{Theoretical insight into persisting inequalities in the context of imperfect capital markets is provided in the first theme of Mookherjee and Ray (2003).} in this case might obscure the pure market mechanism.\footnote{Piketty supports the idea of using own resources by the claim that most of growth relies on domestic, not foreign investments on macroeconomic level (2014).} The complete credit market assumption (as the constitutive subset of the capital market) is therefore relaxed due to empirical and theoretical findings (newly for example Getachew, 2016 or Hai and Heckman, 2017) that prove deepening inequalities caused by capital market imperfections.\footnote{It is also evident that by assuming perfectly functioning capital market with no credit constraints, where all agents, regardless the amount of their resources, would be able to finance their potentialities, we might observe, upon additional assumptions, converging tendencies, as indicated e.g. in Aghion et al. (1999).} Moreover, an employment of the capital market would lead to serious methodological issues. Capital markets are already a concrete practical application of general
market principles, operating in a concrete empirical reality. In contrast to the aim of the dissertation, which focuses on abstract structurally–genetical principles (the Real), capital markets work as a subsystem of the general principles of the Real. The model would therefore face serious specification difficulties. The role of interest rates as well as a definition of the risk should be then considered for operationalization of monetary sphere. This would consequently lead to differentiation between monetary and non–monetary resources. Therefore, an inclusion of such a subsystem does not correspond to the level of abstraction which is desired for composing the model in accordance with the critical theory.

For this purpose, we use neoclassical emphasis on savings. Hereby we gain a non–stationary frame in which ‘innovations’ (or new combinations) are the engine of progress meanwhile the ‘innovations’ derive from own agents´ unconsumed resources, not from external resources. At this point we naturally assume a saving–investment identity, simply because everything that has not been consumed is allocated to strengthen agent´s competitiveness – every investment and innovation is understood as strengthening agent´ s competitiveness – an activity to which agents are forced by competitors. In economic literature, the inspiration arises from Valenčík´ s theory of productive consumption (e.g. Valenčík, et al., 2014) which reacts on Marx and Friedman´ s consumption theory. Contemporary economics assumes that consumption is non–productive, i.e. it does not serve the future. On the contrary, it is evident that consumption provably generates for instance social and human capital; i.e. most of consumption (if not all) is explainable as an instrument of future assets. Simply put, under market conditions every action that the agent takes is considered as a way of strengthening her position on the market.

Further, variables used in the proposed model must be clarified. We re–formulate income, consumption, savings and investments. By \( \tau \) we understand total resources in various forms which the agent has before any consumption. Total resources do not refer only to material and monetary resources, but to all resources that can be in any form usable on the market by the agent. This is the broadest definition of economic resources which embraces not only wages, capital gains and other assets, but also free time, social capital etc. Further, not all resources can be used to directly support the agent´ s position on the market. Therefore, \( \delta \) is assigned to all resources essential for agents´ reproduction on a given economic level; the lowest ‘costs’ that ensure the agent´ s survival on a given market and economic level in the next period. Also, vulgarly put, it represents a kind of ´depreciation´ of an agent´ s existence, constituting the center
which unifies an irreducible multiplicity of subjective positions. For the purpose of the thesis we use the term ‘reproductive consumption’ in order to follow terminology of the critical theory and to emphasize the necessity to persist in the production process.\footnote{Harris similarly defines necessary consumption as a “quantity required for consumption in order that a unit of labor may be maintained in production”. (1978:55) Valenčík defines his ‘reproductive consumption’ in a very similar fashion, e.g. in Heissler, Valenčík and Wawrosz (2012:126-132). The term is also used in feminist theory. (e.g. Fletcher, 2006) Adorno and Horkheimer, inspired by Marx, speak about ‘cultural minimum’. (2002 [1944]:142)} $\zeta$ is determined by the difference between $\tau$ and $\delta$. It basically represents how much (and what) agent has at a disposal after securing his reproduction. Adorno and Horkheimer (2002 [1944]) argues that the past is placed as usable knowledge in the service of the present. Therefore, $\zeta$ embraces all resources, again in various forms, which an agent is able to use in the competitive struggle; in Schumpeter’s language we could talk about resources dedicated to ‘new combinations’. To make an interlink within this thesis, $\zeta$ represents materialized activity of the past which come back to life in the present, actualized in the competitive struggle motivated by self–preservation. In sum, by this we understand all activities and resources which are supposed to strengthen agent’s competitiveness after securing his immediate reproduction, referred also as ‘unconsumed resources’. This is also backed by Pavlík’s interpretation, also in accordance with Smith’s Theory of Moral Sentiments, that sacrifice of immediate pleasures in favor of long–term personal interests (i.e. future consumption and long–term self–production) is the significant feature of the capitalist system which is also connected with morality.\footnote{The normative aspect of deferred consumption even promotes the proposed procedure. The fact that agent’s resources (goods and money) are divided into two parts: the first one is dedicated to immediate consumption, the second serves to secure future income, was also held by Raphael (1995:65).} Smith therefore tractates ‘capital accumulation’ not only as the necessary condition of origins of capitalism, but also as a necessary systemic condition for reproduction of its germ cells. (2001b:938-940) And finally, $\xi$ represents all scarce appropriable resources on the market – the object of the struggle for their appropriation among agents. $\xi$ is appropriated above already allocated resources which agent receives in the next period. Based on that we assume that $\tau_{it} = \tau_{it-1} \Leftrightarrow \xi_{it-1} = 0$. Naturally, in order to research abstract market forces we must also assume perfectly competitive market.

It is necessary to understand that $\tau$, $\delta$ and $\zeta$ do not correspond to traditional income, consumption and savings. Despite similarities between our reformulation and the traditional concept, outlined variables require different treatment in order to capture isolated market...
mechanism. This is also the reason why e.g. Chatterjee (1992), who concludes that neoclassical growth model does not necessarily imply convergence, is not taken into account. Despite Chatterjee researches two identical economies and dynamics of wealth distribution, his neoclassical model contains further specifications that significantly distort the core idea of the proposed model and the interlink between the model and the critical theory. The model is therefore rather inspired by Schumpeterian infinite ’innovation stimuli’ which eliminate neoclassical steady–states. For similar reasons, also Deaton’s theory of consumption which aspires to clarify poverty issues cannot be broadly incorporated since the role of subjective/individual factors is constitutive for his theory.

Let us start with a standard model *homo oeconomicus* – the following computations are part of Maialeh (2016 and 2017a):

\[
\max_{y \leq f(\vec{x})} \left[ p \cdot f(\vec{x}) - \vec{w} \cdot \vec{x} \right]
\]

where \( \vec{w} = (w_1, w_2, ..., w_n) \), \( w_i \) is unit–price of \( i \)'s input, \( \vec{x} = (x_1, x_2, ..., x_n) \); \( x_i \) represents quantity of \( i \)'s input; \( y \) is magnitude of the output; \( p \) is price of the output and \( f(\vec{x}) \) is production function. (Hlaváček, 1999) There are only few studies that concern agents based on self–preservation. In concrete, Karni and Schmeidler (1986), as ones of the very few, comes up with their self–preservation model. However, their model is based on a strategic character of preferences in a finite horizon perspective. Hlaváček’s model, on the other hand, is developed in the context of Pareto optimization. Slightly more psychologized approach was asserted by Roese and Olson (2007). Despite the following part presents the general idea of maximizing the probability of survival, above mentioned models do not fit to the analytical part of the thesis due to their strategic orientation and the role of preferences and Pareto equilibration.

What is however still useful is Hlaváček’s idea of the perceived threat of extinction \( r \) derived through Euclidean distance \( \rho \) as the inverse function of the distance to the zone of extinction. Reformulated Euclidean distance then corresponds to Bourdieu’s theory of ‘popular culture’ (2000) where concerns for aesthetic forms and hence formative conditions of freedom are given by ‘a distance from necessity’. We reformulate the model, hence we get
\[ r(\tau_{lt}) = \left[\rho(\delta_{lt}; \tau_{lt})\right]^{-1} \]  \hspace{1cm} (2)

since the zone of extinction occurs when \( \tau_{lt} - \delta_{lt} = 0 \); analogically to \( p \cdot f(\overline{x}) - \overline{w} \cdot \overline{x} = 0 \) (Hlaváček, 1999) in the basic *homo oeconomicus* model. The formula says that agent \( i \) perceives the threat of extinction the more the smaller the difference between her total resources and reproductive consumption is. Agent \( i \) therefore strives for the level of total resources \( \tau_{lt}^* \) at which she minimizes the perceived threat of extinction, i.e.

\[ \tau_{lt}^* = \arg\min \left[\rho(\delta_{lt}; \tau_{lt})\right]^{-1}; \text{ for } \rho(\delta_{lt}; \tau_{lt}) \in \mathbb{R}^+ \]  \hspace{1cm} (3)

Agents therefore maximize her utility (profit) \( u_i; \pi_i = \max\left[\rho(\delta_{lt}; \tau_{lt})\right]^\frac{1}{n} \); in other words, the agent maximizes the difference between disposable total resources and reproductive consumption. \( n \)th root of the Euclidean distance reflects concavity of utility or production function, depending on whether we model survival of the firm or the individual, which also affect whether we talk about maximizing utility or profit.\(^{55}\) In order to refine appropriation of resources, which is in fact a probabilistic process, we need to incorporate a probabilistic frame. Additionally, in order to exclude particular interests, the aim to survive, which is immanent to every single agent, is defined as the single mode of agent’s action. The probability of survival is hence

\[ p(\tau_{lt}) = \frac{1}{1 + r(\tau_{lt})} = \frac{\rho}{1 + \rho}, \text{ for } \rho = \rho(\delta_{lt}; \tau_{lt}) \]  \hspace{1cm} (4)

from which we derive that the long distance \( \rho(\delta_{lt}; \tau_{lt}) \) gives

\[ \lim_{r(\tau_{lt}) \to 0} p(\tau_{lt}) = 1 \]  \hspace{1cm} (5)

\(^{55}\) Despite decreasing marginal utility was historically connected rather with logarithmic function (e.g. Daniel Bernoulli), \( n \)th root eases to calculate values of the Euclidean distance \( \rho (0,1) \).
which depicts the probability of survival approaching 1 when the perceived threat of extinction approaches 0. Likewise, when total resources of the agent approach the zone of extinction the probability of survival is approaching to 0

$$\lim_{(\tau_{it}) \to 0} p(\tau_{it}) = 0 \quad (6)$$

For now, let us continue with the algebraic expression of already noted relationships. Total resources are the sum of reproductive consumption and remaining, unconsumed resources for strengthening competitiveness of agent $i$ in time $t$. Then we imply

$$\tau_{it} = \delta_{it} + \zeta_{it} \quad (7)$$

Reproductive consumption and unconsumed resources are defined by the level of total resources $\tau_{it} = (\tau_{it-1} + \xi_{it-1})$; therefore, their functions are interpreted as

$$\delta_{it} = \left(\text{PROP}(\delta)_{it}\right)(\tau_{it-1} + \xi_{it-1}) \quad (8)$$

$$\zeta_{it} = \left(\text{PROP}(\zeta)_{it}\right)(\tau_{it-1} + \xi_{it-1}) \quad (9)$$

whence $\text{PROP}(\delta)$ denotes propensity to consume measuring dynamized shares of reproductive consumption on changing total resources; $\text{PROP}(\zeta)$ denotes propensity to save measuring dynamized shares of unconsumed resources on changing total resources. These propensities say what fraction of total resources is dedicated to reproductive consumption and what is left unconsumed for enhancing competitiveness in a given time. Despite evidence that changes in $\text{PROP}(\delta)$ and $\text{PROP}(\zeta)$ derives from marginal propensities, i.e. from what fraction of additional unit of resources is consumed and what fraction of additional unit is save for competition in the next period, it is illuminating to define $\text{PROP}(\delta)$ and $\text{PROP}(\zeta)$ as above. It is also clear that dynamized propensities, changing with any additional unit of resources, cannot be defined as average propensities. Propensities change proportionally and inversely, thus

$$\text{PROP}(\delta)_{it} + \text{PROP}(\zeta)_{it} = 1 \quad (10)$$
According to the purpose of the chapter we must nevertheless modify standard explanation of propensities (8) and (9). When we consider a very low level of total resources, let us say $\delta_{it} \rightarrow \tau_{it}$, the agent tends to consume all of them. In this case, propensity to consume is approaching to 1. It follows that $PROP(\zeta)$ is approaching to 0 proportionally as $PROP(\delta)$ is approaching to 1.

As shown in (8), (9), reproductive consumption $\delta$ and unconsumed resources dedicated to enhancement of competitiveness $\zeta$ are intertemporarly defined by total resources $\tau$. However, agent requires a constantly smaller fraction of the additional unit of total resources for her reproduction; the relative amount (relative to total resources) of what the agent necessarily needs to expend is decreasing. It is therefore apparent that reproductive consumption remains to be an increasing function of total resources, however the dynamics of increments is slower than in case of total resources.\textsuperscript{56} Here we are getting back to Keynes and his General Theory (1936 [2007]). For him, consumption is an increasing function of income, which is also partially and empirically backed by Carroll et al. (2014)\textsuperscript{57}. Of course, it reflects the fact that we exclude capital markets, i.e. that agents work only with their resources. Therefore, we re–formulate his thesis as follows

\[
PROP(\delta)_{it} = \frac{\partial \delta_{it}}{\partial \tau_{it}}; PROP(\zeta)_{it} = \frac{\partial \zeta_{it}}{\partial \tau_{it}}
\]

\[
\Rightarrow \Delta \delta_{it}; \Delta \zeta_{it} < \Delta \tau_{it}; 0 \leq \frac{\Delta \delta_{it}}{\Delta \tau_{it}}, \frac{\Delta \zeta_{it}}{\Delta \tau_{it}} \leq 1
\]

\textsuperscript{56} This is a very common idea. Despite we distinguish traditional consumption from reproductive consumption, we read, e.g. in Pavlík’s interpretation of Smith (2001b:949), that rising capitalists’ incomes stemming from investments might increase the ratio between savings and consumption.

\textsuperscript{57} The authors find a wide dispersion in the MPC across the wealth distribution. Mostly, less wealthy households have much higher MPCs than wealthier households. According to them the ratio between wealth and income is the key determinant of the MPC. Theoretical aspects of these determinations were researched in the context of the neoclassical model by Chatterjee (1992). This opposes older statistical estimations of Kuznets (1946:53) and Goldsmith (1955:47–88) regarding long–run constancy of the propensity to consume and redefinitions by Duesenberry (1949) or Friedman (1957). The proposed ‘Keynesian’ reformulation however accentuates necessity to consume which is logically inconsistent with any constancy of MPC and therefore of $PROP(\delta)$ since agents necessarily need to expend relatively less when increasing total resources.
Inequality as a dynamic phenomenon nevertheless requires dynamization of relationships between relevant variables. In other words, we seek a principle that captures individual abilities to gain appropriable resources when total resources of the agent are changing. A narrow case of dynamization was provided e.g. by Gaechter et al. (2014) who studied public good games with dynamic interdependencies. Likewise, Stiglitz (1969), whose article presents implications for the distribution of wealth and income based on alternative assumptions about savings, reproduction, inheritance policies etc., which are investigated in the context of a neoclassical growth model has many to say. The author isolates different economic forces in order to evaluate which of those forces tend to make the distribution of wealth in the long run equalitarian and which tend to make wealth unevenly distributed. For this purpose, Stiglitz also models savings as a function of wealth and income but in too narrow sense that do not expose general market logic. In our case, the dynamization must be conducted more generally which directs us to dynamic forms of propensities. The dynamic forms require a formulation of the following conditions for one of the propensities; for assumed continuous function $PROP(\xi) : [0, \infty) \to [0, 1)$ we have

\[
(H) \begin{cases}
(PROP(\xi))(0) = 0 \\
PROP(\xi) \text{ is increasing } [0, \infty) \\
\lim_{\tau_{it} \to \infty} (PROP(\xi))(\tau_{it}) = 1 \\
\exists \epsilon_{\text{const}} \in (0, \infty) : \text{PROP(\xi) is convex } (0, \epsilon_{\text{const}}); \text{PROP(\xi) is concave } (\epsilon_{\text{const}}, \infty)
\end{cases}
\]

where $\epsilon_{\text{const}}$ is an inflex point, which is equal to a certain level of total resources where propensities are equal, respectively have values $= 0.5$. An economic interpretation of $\epsilon_{\text{const}}$ is that for $\{\tau_{it} \mid 0 < \tau_{it} < \epsilon_{\text{const}}\}$ agent $i$ prefers/‘is forced’ to consume a bigger fraction of the additional unit of total resources than to use it in competition, i.e. $PROP(\delta) > PROP(\xi)$. Inversely for $\{\tau_{it} \mid \epsilon_{\text{const}} < \tau_{it} < \infty\}$ agent $i$ prefers/‘is allowed’ to use in the competitive struggle a bigger fraction of the additional unit of total resources, i.e. $PROP(\xi) > PROP(\delta)$. For instance, when assuming a small amount of total resources, let us say $\delta_{it} \to \tau_{it}$, the agent inclines to consume all total resources. From this we deduce that a constantly bigger fraction of additional units of total resources is becoming a component of unconsumed resources. Decreasing propensity to consume, respectively increasing propensity to save when increasing total resources are derived from the relative amount of resources which agent necessarily needs/is forced to
sacrifice – the relative amount is decreasing with increasing total resources. The absolute amount of resources which agent necessarily needs to expend naturally increases and reproductive consumption remains to be an increasing function of total resources.

As a general solution, it can be considered the set of functions \( \mathcal{M} \) which follows \( H \) conditions

\[
\mathcal{M} = \{ PROP(\zeta) \in C([0, \infty), [0,1]) \mid (H) holds \}
\]

However, in order to provide a concrete function solution, we need a concrete functional form that corresponds to \( \mathcal{M} \), i.e. for which propensities are continuous on \([0, \infty)\) with values \([0,1)\). There are countless functions that depict outlined relationships but due to the fact that propensities will be used in further computations we formulate the simplest function form, however unusual the function form at the end is. According to \( \mathcal{M} \), it suggests itself to make use of inverse trigonometric (cyclometric) or hyperbolic functions since we need an “S” development of the function. The condition which requires to keep values of propensities in \([0,1)\) then favorizes using hyperbolic tangent since cyclometric functions would need further restrictions to keep the values of propensities within \([0,1)\). Therefore, we define propensities as the functions of hyperbolic tangent of total resources

\[
PROP(\delta)_{it} = \frac{1 - \tanh(\tau_{it} - \varepsilon_{const})}{2}
\]

and equivalently propensity to save

\[
PROP(\zeta)_{it} = \frac{\tanh(\tau_{it} - \varepsilon_{const}) + 1}{2}
\]
Fig. 22 Development of propensities \( PROP(\zeta) \) and \( PROP(\delta) \) when increasing total resources \( \tau; \varepsilon_{\text{const}} = 3 \)

Outlined above is how to dynamically model a general development of propensities when increasing total resources. Fig. 22 thus depicts that propensities have asymptotic properties; concretely \( PROP(\delta) \) is limitedly approaching to 0 when increasing total resources, formally described by

\[
\lim_{\tau_{it} \to \infty} \frac{1 - \tanh(\tau_{it} - \varepsilon_{\text{const}})}{2} = 0 \tag{14}
\]

and equivalently \( PROP(\zeta) \) is limitedly approaching to 1 at the same time

\[
\lim_{\tau_{it} \to \infty} \frac{\tanh(\tau_{it} - \varepsilon_{\text{const}}) + 1}{2} = 1 \tag{15}
\]

which can be meta–causally simplified as \( \tau \to \infty \Rightarrow PROP(\delta) \to 0 \land PROP(\zeta) \to 1 \). It is important to emphasize that hyperbolic tangent is not the only solution for these relationships, but only one of many. The crucial thing is that the function form has to correspond to \( \mathbb{R} \) and our concrete solution is provided in order expose how accelerating effect of propensities influence appropriation of scarce resources on the market and hence final tendencies in inequality.
Agents with a lower amount of total resources then expend relatively a bigger fraction of these resources on reproductive consumption meanwhile agents with a higher amount of total resources can afford to keep a bigger fraction of resources unconsumed. One might argue that by this we eliminate one of theoretical determinants of saving rate – interest rate. The elimination however does not cause a distortion of the theory because interest rate is substituted in a sense of appropriated resources flowing from the successful allocation of unconsumed resources. In other words, deferred consumption is not rewarded by interest rate resulting from savings but by appropriated resources resulting from unconsumed resources – investments. In sum, agents with a higher amount of total resources can transform unconsumed resources into investments and build up their competitiveness further.

Based on that, it is possible to liken the probability of survival to maximization of utility/profit. Inasmuch as \( \tau \) is Reimann integrable, we get

\[
\max u_i; \pi_i \Leftrightarrow \arg \max p(\tau_{it}) \Leftrightarrow \max \left[ \rho(\delta_{it}; \tau_{it}) \right]^{1/n} \Leftrightarrow \max \int_0^\infty f(\tau) \, d\tau
\]  

Here we claim that agent maximizes her utility/profit by maximizing the difference between what the agent has and what the agent has to expend in order to survive. In our case, it means that the agent maximizes the probability of survival through maximizing total resources.

For capturing the process of creation and appropriation of wealth/resources – the process generating inequality – we further assume Schumpeterian theory advanced by Aghion and Howitt (2009). Subsequently presented growth theory allows us to reflect market principles of profit maximization and competition. In other words, it eases to see an interlink between economic growth and tendencies (diverging or converging) of resource allocation. Economic growth \( g_t \) (the result of production process) is then calculated as follows

\[
g_t = \frac{A_t - A_{t-1}}{A_{t-1}}
\]
where $A_t$ is a technological parameter denoting productivity of inputs in the economy at time $t$. Technological parameter is bigger at $t$ than at $t-1$ because $A_{t-1}$ has changed due to innovations and therefore it evinces higher productivity level represented by $A_t$. Then

$$A_t = \gamma A_{t-1}; \gamma > 1$$

(18)

and thus

$$g_t = \gamma - 1$$

(19)

For a successful innovation, i.e. for a subsequent appropriation of resources on the market, the agent must conduct an activity with an economic end; in other words, expend resources in innovation process – in the process of increasing competitiveness. The agent innovates in order to enhance her competitiveness, through which she subsequently appropriates scarce resources on the market. Aghion and Howitt (2009) assume the more resources the agent expends the more likely the innovation will be successful and, in our case, the more likely the agent appropriates scarce resources in a given time period. Therefore, probability $\mu_t$ that the innovation is successful at $t$ is positively related to the amount of resources $R_t$ allocated to the innovation process. Further, the probability $\mu_t$ is inversely related to $\gamma A_{t-1}$ which represents a new level of innovation productivity. In other words, the higher the level of productivity we assume the more difficult it is to implement the innovation. The probability is then captured as

$$\mu_t = \phi \left( \frac{R_t}{\gamma A_{t-1}} \right)$$

(20)

From above noted we can conclude that probability of successful innovation is increasing with the amount of resources the agent is willing/capable to expend on its realization. At the same time probability of implementing of successful innovation is decreasing the higher the level of productivity the agent strives for. It is also evident that the differentiating factors of inequality are the amount or resources $R_t$ allocated to the innovation and $\gamma A_{t-1}$ representing the new level of innovation productivity. In order to isolate market differences among agents, let us assume equal conditions for all agents, i.e. identical $\gamma A_{t-1}$. Then we can say that the bigger the amount of unconsumed resources the agent has at $t$, the higher the probability to innovate and to strengthen her competitiveness the agent has at $t+1$. Therefore, it is crucial to understand that the amount of
resources $R_t$ represents unconsumed resources and investments of the $i$’s agent. Therefore, we claim that

$$\zeta_{it} = R_{it}$$

(21)

Adorno and Horkheimer posit that bourgeois success no longer has any connection to the calculable effect of people’s work or any recognizable chance, by which someone is lucky and the other much less. (2002 [1944]:117) To clarify the mechanism we can develop a probabilistic model. In order to ease the understanding only two agents $A$, $B$ competing for resources are considered on a given market. As has been noted, ideological function of formally equal opportunities expose the structural possibility, but conceal a hypothetical character of the economic success. The following scheme reflect precisely the hypothetical character of resource appropriation over time. Hence, if we assume homogeneous preferences of agents and identical $\gamma A_t^{-1}$, i.e. identical market conditions for both agents, then probabilities $p^A_t; p^B_t$ to gain appropriable resources $\xi$ on the market are given by the relation of agent’s unconsumed resources which she has at a disposal for the competitive struggle and total unconsumed resources of all agents. Further, we define simultaneous moves of agents and zero–sum distribution of appropriable resources, which refers to the situation when the stronger (more competitive) agent takes all appropriable resources $\xi$ available in a given time. By assuming this, we get the following Scheme 1:
Scheme 1 Probabilistic drive towards divergence

\[
p_t^A(\xi_t) = \frac{(\text{PROP}(S)^{\xi_t})^4}{(\text{PROP}(S)^{\xi_t})^4 + (\text{PROP}(S)^{\xi_t})^2}
\]

\[
p_t^B(\xi_t) = \frac{(\text{PROP}(S)^{\xi_t})^2}{(\text{PROP}(S)^{\xi_t})^4 + (\text{PROP}(S)^{\xi_t})^2}
\]

\[
p_{t+1}^A(\xi_{t+1}) = \frac{(\text{PROP}(S)^{\xi_{t+1}})^4}{(\text{PROP}(S)^{\xi_{t+1}})^4 + (\text{PROP}(S)^{\xi_{t+1}})^2}
\]

\[
p_{t+1}^B(\xi_{t+1}) = \frac{(\text{PROP}(S)^{\xi_{t+1}})^2}{(\text{PROP}(S)^{\xi_{t+1}})^4 + (\text{PROP}(S)^{\xi_{t+1}})^2}
\]

Source: Maialeh (2017a)
It is read from the Scheme 1 that agents A and B start to compete for appropiable resources $\xi_t$ in time $t$. A’s probability of appropriation $\xi_t$ is given by the amount of resources $A$ is able to allocate to the competitive struggle ($PROP(\xi_t^A)\tau_t^A$) and the total amount of resources allocated to the competitive struggle; in this particular case resources allocated by $A$ and $B$, i.e. $(PROP(\xi_t^A)\tau_t^A + (PROP(\xi_t^B)\tau_t^B$ in time $t$. In $t+1$, $\xi_t$ was already distributed and became a part of someone’s total resources in $t+1$. If $A$ appropriated $\xi_t$, then $A$’s probability of appropriation $\xi_{t+1}$ would be higher compare to $B$’s due to $A$’s higher numerator $(PROP(\xi_{t+1}^A)(\tau_{t+1}^A + \xi_t)$ compare to $B$’s $(PROP(\xi_{t+1}^B)\tau_{t+1}^B$. The ´probability tree´ thus shows that the probability to appropriate additional resources is one-sidedly cumulating over time.

The Scheme 1 can be further simplified by leaving zero-sum distribution of $\xi$ aside. In order to keep a probabilistic character of resource appropriation ($\xi_t^P$) we continue in a sense of vNM utility functions. Therefore, the distribution of resources to $i$’s agent is given by its absolute value ($\xi_t$) and the share of $i$’s unconsumed resources on total unconsumed resources of all agents which are employed in the competition struggle, i.e.

$$\xi_{it}^P = \xi_t \frac{\sum_{t_0}^{t-1} \xi_i}{\sum_{t_0}^{t-1} \sum_{j=1}^{n} \xi_j}$$  \hspace{2cm} (22)

where $\sum_{t_0}^{t-1} \xi_i$ represents the sum of all unconsumed resources of $i$’s agent from $t_0$ for $t_0 \rightarrow t$. The formula $\sum_{t_0}^{t-1} \sum_{j=1}^{n} \xi_j$ then represents the sum of all unconsumed resources of all agents from $t_0$ for $t_0 \rightarrow t$.

To provide an evidence on converging or diverging forces of the market mechanism, we create an equality from (7), (8) and (12) which incorporates inequality–accelerating effect of dynamized propensities; hence we imply

$$\frac{1 - \tanh(\tau_{it} - \varepsilon_{const})}{2} = \frac{\tau_{it} - \xi_{it}}{\tau_{it}}$$  \hspace{2cm} (23)

In order to capture the total resource divergence among agents the solution for $\tau$ is provided through Lambert’s product–log $W$ function.
\[
\frac{1}{2} \left[ 1 - \frac{e^{2(\tau_{it} - \varepsilon_{const})} - 1}{e^{2(\tau_{it} - \varepsilon_{const})} + 1} \right] = \frac{\tau_{it} - \zeta_{it}}{\tau_{it}} \quad (24a)
\]

\[
\zeta_{it} (e^{2\varepsilon_{const}} + e^{2\tau_{it}}) = e^{2\tau_{it}} \tau_{it} \quad (24b)
\]

\[
\tau_{it} = \zeta_{it} + \frac{1}{2} W(2e^{2(\varepsilon_{const} - \zeta_{it})}\zeta_{it}) \quad (24c)
\]

The equation (24c)\(^{58}\) then represents the amount of total resources that agent \(i\) has at a disposal in \(t\).

The calculation above provides one of possible function solutions which grasps the outlined economic divergence. If we run a simulation of two identical agents with the same initial levels of total resources, competing on a perfectly competitive market under the same conditions and assuming homogeneous preferences; we would observe, on a certain significance level, steadily diverging amounts of total resources which agents have at a disposal in time \(t+n\).\(^{59}\) Simply put, if we assigned them the equation of total resources

\[
\tau_{t} = \zeta_{t} + \frac{1}{2} W(2e^{2(\varepsilon_{const} - \zeta_{t})}\zeta_{t})
\]

and let them interact according to \(max[\rho(\delta_{t};\tau_{t})]^{\frac{1}{\eta}} \Leftrightarrow \int_{0}^{\infty} f(\tau) \, d\tau\), inequality in economic distribution would increase on a perfectly

\[^{58}\text{The aim is to get a solution for } \tau_{it} \text{ which we derive from } \frac{1 - \tanh(\tau_{it} - \varepsilon_{const})}{2} = \frac{\tau_{it} - \zeta_{it}}{\tau_{it}}. \text{ For that}
\]

\[^{59}\text{Such calculation can be progressively elaborated by using time inhomogeneous Markov chains. This, partly unexplored method, could bring more specified procedure; however, we do not make use of it as it could obscure the central logic of the chapter.}\]
competitive market. These findings, due to Schumpeterian heritage\textsuperscript{60}, thus oppose the very idea of seeking equilibrium which provides a unique theoretical approach to the issue.\textsuperscript{61}

4.3 Pareto Efficiency: A ’Nonsensical Optimality’ in the Fundamental Perspective of Inequality

Above mentioned model formulates a concept of inequality based on axiomatized actions of economic agents within fundamental market forces; where the lawful character of agents’ contradictory interaction constitutes totality of the production process. As was also mentioned, the present model opposes the idea of equilibria solutions. Contemporary economics is in contrast obsessed by equilibration – the process which copies gravitation force in physics with similar adoration. But equilibrium does not say anything about how resources will be distributed in the equilibrium state. Pareto himself, despite his suspicion of being misinterpreted that redistribution is defective, was originally about to demonstrate that there is no scientific proof that redistribution is worth for society. The subsequent part, based on Maialeh (2016), conversely aims to prove that frequent using of Pareto optimality – the established mantra of welfare economics – does not reliably serve as a criterion for market–based inequalities.

The extent of the thesis does not allow to provide a complete review of Pareto optimal findings in contemporary economics. There are plenty of papers dealing with equilibria in the context of market inequalities whose scientific scope sometimes even exceeds a standard frame of economic theory. The issue was developed, based on Walrasian ‘technicist’ approach, by many famous economists and mathematicians; few names for that: John von Neumann, John Nash, Nicolas Kaldor in cooperation with John Hicks, John Harsanyi,

\textsuperscript{60} For more on the heritage see e.g. anniversary paper on Schumpeter’s Theory of Economic Development by Becker et al. (2012) Except econometric analysis based on Schumpeter’s models, more on Schumpeterian thought and credit for Schumpeter’s interpretation of capitalist economy see e.g. Fromm (1961). On Schumpeter’s relatively low influence on contemporary economics due to the difficulty to mathematize dynamic non–linear systems and his conviction that economics should be science of general categories, see Nelson (2012).

\textsuperscript{61} Despite the fact, game theorists will be still able to define equilibria solutions upon closer specification of the model as a simultaneous, symmetric, non–cooperative strictly competitive (zero–sum) game. This might be complicated for more than two agents and it could lead game theorists into a sequence of auctions with budget constraints. However, we provide a strong recommendation to pay attention to probabilities of the occurrence of such equilibria solutions.
Kenneth Arrow, Gérard Debreu, Irving Fisher or Milton Friedman. Especially the last one followed a libertarian concept of justice in Robert Nozick’s times, which contributed to strengthening the position of Pareto efficiency. Among others we should also give a credit to Atkinson (1970) and Kolm (1976), whose articles in *JET* significantly contributed to the discussion on the relationship between equality and effectivity. Okun (1975) presented perhaps the most famous contribution based on substitutive understanding of equality and efficiency which inspired numerous followers.

From recent researches it might be mentioned Barr (2012). The author deals with a broad spectrum of ideological approaches to Pareto efficiency; namely Rawlsian, utilitarian, right–wing–libertarian and Marxist; Barr thereby tries to put Pareto efficiency into new contexts. Most of the studies on equality and efficiency (or on general optimality) relates to economic policy. A combination of Piketty’s research with Pareto distribution is the subject for Jones (2015). The author however adapts Piketty’s narrower view that is too specific for the purpose of the thesis. The theoretical frame of economic policy has broadly incorporated Pareto efficiency and economic studies frequently employ the optimization process, especially on the issue of providing public goods or tax system that can be seen e.g. in Cornes and Sandler (2000) or Itaya et al. (1997). The latter article deals with individual utilities while providing public goods in a situation of unequal distribution of income. Authors conclude that the most effective way, in terms of quantity of provided public goods, consists of high inequality, but this account presumes that all public goods are financed by the richest. Dasgupta (2009) reacts on that with his experimental research which assumes Cournot model of two players with identical preferences. Another experimental study was recently elaborated by Gaechter et al. (2014), who dynamically models relationships between economic growth and inequality in the context of public good games. Dynamic modelling that concerns Pareto efficiency was in recent years also advanced by Bommier and Zuber (2012). Olszewski and Rosenthal (2004) then contributes with Pareto optimization through tax system, while their model is based on quasi–linear utility functions, frequently used throughout a broad scope of political economy.\(^\text{62}\)

Optimization of market outputs was highly mathematized from the very beginning, and therefore naturally gravitates to the scope of natural scientists. One of the most famous articles in recent times was elaborated by Venkatasubramanian et al. (2015). The aim of the article is to prove that self–regulated dynamics of free market generates the most effective

---

\(^{62}\) One of the most cited studies in this regard e.g. Persson and Tabellini (2000).
output in both terms efficiency and justice. Authors make use of insights in statistical mechanics and thermodynamics and treat them in game theory perspective. Another study that combines natural sciences with political economy is Dragulescu and Yakovenko (2000). Authors demonstrate how thermodynamic theory and Boltzmann-Gibbs distribution (also used in statistical physics) emerges in computer simulations of economic models, particularly of the distribution of money and wealth. These simulations are set for a great number of agents for the purpose to get closer to simulations of molecular dynamics in physics. Authors also admit, that despite they work with equilibria, their research due to a limited explanatory power rather serve to detect inefficient states. The crucial disadvantage of these studies is however work with abstract terms. For instance, Venkatasubramanian et al. (2015) treat the term of ‘justice’ reductively as a mere relationship of contribution and reward, what feeds a justified scorn among other social scientists.\(^\text{63}\)

Such deficiencies lead to the direct opposite in terms of the field of background theory. One of these authors is Hillman (2000), who models Nietzschean society from the perspective of poverty and inequality. Despite the article focuses on Nash equilibria, it contributes to understanding of asymmetric statuses of agents and their motives to act in favor of optimal societal output. Cohen (1995) in his humanities-oriented research endeavors to reconcile egalitarian approach and weak Pareto optimality. The research was confronted by Shaw (1999) who refuses Cohen’s outputs. The author discusses strictly egalitarian standpoint and immense inequality in primary resources, which is supposedly incompatible with Pareto efficiency. The icon who deals with the issue in both philosophy and economics is undoubtedly Amartya Sen, who confronted Friedman’s heritage of utility-oriented Pareto optimality in the early 90’s. In Sen’s work (1993) we might also detect an attempt to revive the question of interpersonal comparability of utility, which gave birth to the very idea of Pareto optimality.\(^\text{64}\)

\(^{63}\) As an example, we can mention Horkheimer who praises the importance of constructive thinking in contrast to empirical verification – despite man „who in particular scientific areas or in other professional activity are able to do extremely competent work, can show themselves quite limited and incompetent, despite good will, when it comes to questions concerning society as a whole” (1972 [1937]:221)

\(^{64}\) An interesting article that confronts measurability and hence comparability of performances on the market itself was elaborated by Neckel and Dröge (2007). The article is particularly exceptional in the context of notorious incomparability of interpersonal utilities, asserted particularly by Austrian proponents, e.g. by Rothbard (2011).
To get back to the present model, the following calculation presents above mentioned incompatibility of the general model of inequality and Pareto efficiency. The model is again simplified only for two agents $i, j$. Concretely we deal with strong Pareto optimum ($SPO$) which is used in economic models the most and which says that none can be better off at the expense of the other. $SPO$ therefore occurs when for any set of feasible situations $[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$ does not exist any feasible alternative $[\hat{\rho}(\delta_{i\ell}; \tau_{i\ell}), \hat{\rho}(\delta_{j\ell}; \tau_{j\ell})]$ such that

$$u_i; \pi_i[\hat{\rho}(\delta_{i\ell}; \tau_{i\ell}), \hat{\rho}(\delta_{j\ell}; \tau_{j\ell})] \geq u_i; \pi_i[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$$

and

$$u_j; \pi_j[\hat{\rho}(\delta_{i\ell}; \tau_{i\ell}), \hat{\rho}(\delta_{j\ell}; \tau_{j\ell})] \geq u_j; \pi_j[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$$

with at least one of the inequalities strict. In other words, we claim there does not exist a distribution of resources that makes both agents $i, j$ as well off and making one strictly better off at the expense of the other. An equivalent condition is that for any set of feasible situations $[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$ must apply

$$u_i; \pi_i[\hat{\rho}(\delta_{i\ell}; \tau_{i\ell}), \hat{\rho}(\delta_{j\ell}; \tau_{j\ell})] > u_i; \pi_i[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$$

$$\Rightarrow u_j; \pi_j[\hat{\rho}(\delta_{i\ell}; \tau_{i\ell}), \hat{\rho}(\delta_{j\ell}; \tau_{j\ell})] < u_j; \pi_j[\rho^{SPO}(\delta_{i\ell}; \tau_{i\ell}), \rho^{SPO}(\delta_{j\ell}; \tau_{j\ell})]$$

which says that any set of feasible situations that makes agent $i$ strictly better off must make agent $j$ strictly worse off. Various combination of $[\rho(\delta_{i\ell}; \tau_{i\ell}), \rho(\delta_{j\ell}; \tau_{j\ell})]$ thus defines the following set of possible combinations of utilities or profits $[(u_i; \pi_i), (u_j; \pi_j)]$

$$\mathcal{U} = \{(u_i; \pi_i), (u_j; \pi_j) : u_i; \pi_i = u_i; \pi_i[\rho(\delta_{i\ell}; \tau_{i\ell}), \rho(\delta_{j\ell}; \tau_{j\ell})],$$

$$u_j; \pi_j = u_j; \pi_j[\rho(\delta_{i\ell}; \tau_{i\ell}), \rho(\delta_{j\ell}; \tau_{j\ell})] \forall \rho(\delta_{i\ell}; \tau_{i\ell}), \rho(\delta_{j\ell}; \tau_{j\ell})\}$$

which is usually depicted as a graph with $u_i; \pi_i$ on the $x$–axis and $u_j; \pi_j$ on the $y$–axis. Given the assumption that at least one of the inequalities (see above) is strict, $SPO$ occurs on the frontier of the set, except extreme cases of horizontal and vertical points. Pareto optima lie on the edge of the utility (production) – possibility frontier, which is formally expressed as
\[ V_F = \left\{ \left( (u_i; \pi_i), (u_j; \pi_j) \right) \in V : A \left( (u_i; \pi_i), (u_j; \pi_j) \right) \in V : (u_i; \pi_i) \geq (u_i; \pi_i) \land (u_j; \pi_j) \geq (u_j; \pi_j) \right\}. \]

From the set above we deduce the following: market-based divergence in total resources \( \tau_{it} = \zeta_{it} + \frac{1}{2} W(2e^{2(\varepsilon_{const} - \zeta_{it})}) \zeta_{it} \), enhanced by the accelerating effect of dynamized propensities \( PROP(\delta)_{it} = \frac{1 - \tanh(\tau_{it} - \varepsilon_{const})}{2} \) and \( PROP(\zeta)_{it} = \frac{\tanh(\tau_{it} - \varepsilon_{const}) + 1}{2} \), deepens differences in individual distances from the zone of extinction between agents \( r(\tau_{it}) = [\rho(\delta_{it}; \tau_{it})]^{-1} \), who are motivated by the rational principle of self-preservation \( \max[\rho(\delta_{it}; \tau_{it})]_{\mathbb{R}} = \max \int_0^\infty f(\tau) \, d\tau \). Then we prove that any equalization of \( \tau_{it} \) and \( \tau_{jt} \), for instance when \( \int_t^\infty \tau_i \, d\tau > \int_t^\infty \tau_j \, d\tau \), would counteract to \( \max \int_t^\infty \tau \, d\tau \) and hence to the set of Pareto efficiency \( V_F \), since

\[ \hat{\rho}(\delta_{jt}; \tau_{jt}) > \rho^{SP}(\delta_{jt}; \tau_{jt}) \iff \hat{\rho}(\delta_{it}; \tau_{it}) < \rho^{SP}(\delta_{it}; \tau_{it}) \]

Based on that we claim, that under given circumstances any alternative allocation of resources to agent \( j \) may happen only at the expense of agent \( i \), which stands in the very contradiction with Pareto efficiency. That is to say that any level of inequality between \( i \) and \( j \), which means the difference between \( \tau_{it} \) and \( \tau_{jt} \) and hence between \( \rho(\delta_{it}; \tau_{it}) \) and \( \rho(\delta_{jt}; \tau_{jt}) \) would be considered as Pareto efficient. The conclusion can be related to the first welfare theorem which states that under certain conditions, which by the way corresponds to the definition of the proposed model, markets generate outcomes that are Pareto efficient. The result of the model – a diverging tendency of the market mechanism – therefore disqualifies normative ethos of Pareto efficiency and makes it nonsensical.

### 4.4 Market–Based Inequalities: Cobb–Douglas Utility Revisited

The general idea of inequality presented in the thesis is also applicable to widely known Cobb-Douglas utility (Maialeh, 2017b). Above already introduced variables, we clarify that \( \delta \) is still assigned to all resources essential for agent’s reproduction on a given economic level,
but in this particular case it also represents a reference point for the ’price’ of consumption. Above that, \( C \) is the actual consumption including reproduction consumption. Therefore, with a higher amount of total resources agent assesses which fraction of the resources to consume and which fraction to keep for strengthening her market position. \( \xi^{\text{TOTAL}} \) is total amount of resources available on the market for which all agents compete and \( \xi^{\text{SHARE}} \) is interpreted as a share of \( \xi^{\text{TOTAL}} \) which agent is able to appropriate on the market.

The ordinary Cobb–Douglas utility \( u(x_1, x_2) = x_1^\alpha x_2^\beta \), which works with static forms\(^{65}\), is therefore reformulated (and dynamized in the end) as follows: agent \( i \) maximizes her Cobb–Douglas utility in time \( t \) given by actual consumption and investments to strengthen her position on the market. Investments thus serves as a ‘guarantor’ of future consumption. The share of actual consumption and investments on final utility is given by propensities to consume and to invest/save

\[
\max_{C_i, \xi_i} u(C_i, \xi_i) = C_{it}^{\text{PROP}(C)_{it}} \xi_{it}^{\text{PROP}(\xi)_{it}} \\
\text{s.t. } p_{C_{it}} C_{it} + p_{\xi_{it}} \xi_{it} = \tau_{it}
\]

where \( p_{C_{it}} = f(\rho(\delta_{it}; \tau_{it})); p_{\xi_{it}} = (1/f(p_{C_{it}})) \) with \( \rho \) as the Euclidean distance between reproductive consumption and disposable total resources; while \( \delta \subseteq C \). These ‘prices’ are defined in order to reflect self–preservation of the agent. The idea is that bigger difference in the Euclidean distance determines lower weight of actual consumption, which is therefore burdened by a higher ’price’ – by the function value of the distance. Also, bigger difference in the Euclidean distance signifies that the agent has quite enough total resources. However, in order to keep such amount of resources the agent needs more resources for competition. A smaller Euclidean distance on the other hand means that the agent has a lower amount of total resources. This generates lower ‘price’ of consumption and therefore makes consumption – which is in that particular case mainly composed of reproductive consumption \( \delta \) – more likely to happen. The reason is that the agent inclines to consume a bigger fraction of total resources when total resources are smaller. Propensities therefore substitute the role of elasticities \( \alpha, \beta \). The reason is that shares of consumption and investments on disposable total resources need to be dynamized. Mathematically it does not make any difference since propensities change proportionally and inversely, i.e. \( \text{PROP}(C) + \text{PROP}(\xi) = 1 \).

\(^{65}\) Excluding discussions on dynamic modelling with Cobb–Douglas production function in macroeconomics.
Here we employ dynamic forms of propensities once again. It is still valid that when a very low level of total resources is considered, let us say $C_{it} \rightarrow \tau_{it}$, when $\delta_{it} \rightarrow C_{it}$, the agent tends to consume all of them. In this case, propensity to consume $PROP(C)$ is approaching to 1. It follows that $PROP(\zeta)$ is approaching to 0 proportionally as $PROP(C)$ is approaching to 1, just as was the case of $PROP(\zeta)$ in the fundamental model. Therefore, for assumed $PROP(\zeta)$ we have similar conditions $(H)$ with the same interpretation as for $PROP(\zeta)$ with only one exception: $PROP(\zeta)$ cannot decrease to 0. Therefore

\[
PROP(C)_{it} = \frac{\partial C_{it}}{\partial \tau_{it}}; \quad PROP(\zeta)_{it} = \frac{\partial \zeta_{it}}{\partial \tau_{it}}
\]

\[
\Rightarrow \Delta C_{it}; \Delta \zeta_{it} < \Delta \tau_{it}; 0 \leq \frac{\Delta C_{it}}{\Delta \tau_{it}}, \frac{\Delta \zeta_{it}}{\Delta \tau_{it}} \leq 1
\]

\[
(H) \left\{ \begin{array}{c}
PROP(\zeta) \text{ is increasing } (0,1) \\
\lim_{\tau_{it} \rightarrow \infty} PROP(\zeta)(\tau_{it}) = 1 \\
\exists \varepsilon_{const} \in (0, \infty): PROP(\zeta) \text{ is convex } (0, \varepsilon_{const}); \quad PROP(\zeta) \text{ is concave } (\varepsilon_{const}, \infty)
\end{array} \right.
\]

As a general solution for dynamized forms of propensities is again the set of functions $M$ which follows $H$ conditions

\[
M = \{PROP(\zeta) \in C([0, \infty), [0,1]))|(H)\text{holds}\}^{66}
\]

Further, we continue with standard constraint maximization through Lagrangean function (27) which is interpreted as

\[
\Omega = C_{it}^{PROP(C)_{it}} \zeta_{it}^{PROP(\zeta)_{it}} + \lambda (p_{C_{it}} C_{it} + p_{\zeta_{it}} \zeta_{it} - \tau_{it})
\]

\[
\frac{\partial \Omega}{\partial C} = PROP(C).C^{PROP(C)-1} \zeta^{PROP(\zeta)} - \lambda p_{c} = 0
\]

\[
(28a)
\]

\[
^{66} \text{Of course, a concrete solution for propensities can be calculated again through hyperbolic tangent. This extended option is however omitted in favor of transparency of the following mathematical procedure.}
\]
\[
\frac{\partial \Omega}{\partial \zeta} = \text{PROP}(\zeta) \cdot \text{PROP}(c) \cdot \zeta^{\text{PROP}(\zeta) - 1} - \lambda p_c = 0 \quad (28b)
\]

\[
\frac{\partial \Omega}{\partial \lambda} = p_c C + p_\zeta \zeta - \tau = 0 \quad (28c)
\]

with FOC (28a), (28b) and (28c). Assuming \(0 < C; 0 < \zeta\), the unique solution for \(C^*\) and \(\zeta^*\) is

\[
\frac{\text{PROP}(C) \cdot \text{PROP}^{-1}(\zeta)}{p_c} = \lambda \quad (29)
\]

\[
\frac{\text{PROP}(\zeta) \cdot \text{PROP}^{-1}(\zeta)}{p_\zeta} = \lambda \quad (30)
\]

which naturally gives

\[
(\text{PROP}(C)) \cdot \text{PROP}^{-1}(\zeta)/p_c = (\text{PROP}(\zeta)) \cdot \text{PROP}^{-1}(\zeta)/p_\zeta. \quad \text{Both terms divided by } \text{PROP}^{-1}(\zeta)/p_\zeta \text{ are simplified to } (\text{PROP}(C))\zeta/p_c = (\text{PROP}(\zeta)) \cdot C/p_\zeta, \text{ alternatively } p_\zeta \zeta = (\text{PROP}(\zeta))p_c C/(\text{PROP}(C)). \text{ Then we substitute } p_\zeta \zeta \text{ back into the third FOC to obtain } p_c C + (\text{PROP}(\zeta))p_c C/(\text{PROP}(C)) - \tau = 0. \text{ This implies } p_c C = [(\text{PROP}(C))/(\text{PROP}(C)) + \text{PROP}(\zeta)/\tau]; \text{ for } C^* \text{ we get}
\]

\[
C^* = \frac{\text{PROP}(C)}{\text{PROP}(C) + \text{PROP}(\zeta)/p_c} = \frac{\tau}{p_c} \quad (31)
\]

and according to \(p_\zeta \zeta = (\text{PROP}(\zeta))p_c C/(\text{PROP}(C))\) it follows that

\[
\zeta^* = \frac{\text{PROP}(\zeta)}{\text{PROP}(C) + \text{PROP}(\zeta)/p_\zeta} = \frac{\tau}{p_\zeta} \quad (32)
\]

while the unique solution in \(\mathbb{R}_{>0}\) is satisfied as long as \(0 < \text{PROP}(\zeta), 0 < \text{PROP}(C), 0 < p_\zeta, 0 < p_c, 0 < \tau\). To check the constrained maximum, the bordered Hessian is

\[\text{Here we see why \text{PROP}(\zeta) must be defined on } (0,1)\]
where the determinant is

\[
\det(H) = p_c \{ -p_c (PROP(\zeta))(PROP(\zeta)) - 1 \} (C^*^{PROP(C)}(\zeta)^{PROP(\zeta)} - 2) \\
+ p_\zeta (PROP(C))(PROP(\zeta))(C^*^{PROP(C)} - 1)(\zeta)^{PROP(\zeta)-1} \\
- p_\zeta \{ -p_c (PROP(C))(PROP(\zeta))(C^*^{PROP(C)})(\zeta)^{PROP(\zeta)-1} \\
+ p_\zeta (PROP(C))[(PROP(C)) - 1](C^*^{PROP(C)} - 2)(\zeta)^{PROP(\zeta)} \} \\
= C^{PROP(C)-2} \zeta^{MPI-2} \{-(PROP(\zeta))(PROP(C)) - 1\} p_c^2 (C^*)^2 \\
+ 2 (PROP(C))(PROP(\zeta)) p_c p_\zeta C \zeta \\
- (PROP(C))[(PROP(C)) - 1\} p_c^2 (C^*)^2 \}
\]

It is clear, given the assumptions \(PROP(C) + PROP(\zeta) = 1; 0 < PROP(C) < 1; 0 < PROP(\zeta) < 1\), that the determinant is positive. Hence, the stationary point \((C^*, \zeta^*)\) is a maximum.

Additionally, comparative statics is used to explain logically consistent variations of \(p_c\), \(p_\zeta\) and \(\tau\). The following term

\[
\frac{\partial C^*}{\partial p_c} = - \frac{PROP(C)}{PROP(C) + PROP(\zeta)} \frac{\tau}{p_c^2} < 0 \tag{33}
\]

proves that as the difference between reproductive consumption and total resources increases, the quantity of actual consumption tends to decrease. However, actual consumption remains to be an increasing function of total resources – an increase in the difference between reproductive consumption and total resources is possible only when increasing total resources. The fact that increasing total resources relates to increasing actual consumption is proven as follows

\[
\frac{\partial C^*}{\partial \tau} = \frac{PROP(C)}{PROP(C) + PROP(\zeta)} \frac{1}{p_c} > 0 \tag{34}
\]
Further, the model has to be formulated in a special way where \( C^* \) and \( \zeta^* \) are neither substitutes nor complements. In other words, actual consumption is not affected by changes in unconsumed resources and \textit{vice versa}, but both are determined by changes in total resources. This is simply verified through \( \partial C^*/\partial p_\zeta = 0 \).

The envelope theorem is also used to look at the effects on the utility of the agent at the optimum. Hence, we calculate the situation \( du(C^* (p_c, p_\zeta, \tau), \zeta^* (p_c, p_\zeta, \tau))/dp_c \) which is then equal to

\[
\frac{\partial(C^{PROP(C)}\zeta^{PROP(\zeta)})}{\partial p_c} - \frac{\lambda \partial(p_c C + p_\zeta \zeta - \tau)}{\partial p_c} = 0
\]

The utility function does not depend directly on \( p_c \) which implies that the first term is zero. Therefore, we get \( du(C^* (p_c, p_\zeta, \tau), \zeta^* (p_c, p_\zeta, \tau))/dp_c = -\lambda^* C^* \). From the Lagrange equation we see that \( 0 < \lambda^* \). In a regular Cobb–Douglas utility case this would imply that increasing Euclidean distance between reproductive consumption and disposable total resources indirectly decreases utility, which would be logically inconsistent. Therefore, in the present case, as stated above on the relation of \( p_c \) and \( p_\zeta \), an increase in the Euclidean distance inversely and proportionally decreases \( p_\zeta \), which allows to allocate agent’s resources in the form of investment (unconsumed resources). This consequently strengthen her competitiveness when increasing the distance between reproductive consumption and total resources. In other words, the effect of increasing \( p_c \) is in terms of maximized utility counterbalanced by the effect of decreasing \( p_\zeta \). Moreover, an increase in \( p_c \) is the result of increasing \( \tau \) which has a positive effect on agent’s utility. This is derived similarly as above – we get \( du(C^* (p_c, p_\zeta, \tau), \zeta^* (p_c, p_\zeta, \tau))/d\tau \) equal to

\[
\frac{\partial(C^{PROP(C)}\zeta^{PROP(\zeta)})}{\partial \tau} - \frac{\lambda \partial(p_c C + p_\zeta \zeta - \tau)}{\partial \tau} = +\lambda^*
\]

which confirms that the effect of an increase in total resources is positive on agent’s utility. \( \lambda^* \) hence captures the effect of changes in total resources on utility at the optimum.

In this Cobb–Douglasian reformulation it can be seen that the agent is, according to presented computations, exclusively motivated to increase her total resources. Therefore, it is crucial to capture the process of resource appropriation. The process is simultaneously behind
the issue of economic inequality which is, simply put, an issue of distribution. For this purpose, it is again assumed Schumpeterian theory advanced by Aghion and Howitt (2009). Just to remind, probability \( \mu_t \) that the innovation is successful at \( t \) is positively related to the amount of resources \( R_t \) allocated to the innovation process. Further, the probability \( \mu_t \) is inversely related to \( \gamma A_{t-1} \) which represents a new level of innovation productivity. In other words, the higher the level of productivity we go for the more difficult it is to implement the innovation. The probability is then captured as

\[
\mu_t = \phi \left( \frac{R_t}{\gamma A_{t-1}} \right) \tag{8}
\]

From (8) we read that the differentiating factors of inequality are the amount or resources \( R_t \) allocated to the innovation and \( \gamma A_{t-1} \) representing the new level of innovation productivity \( (A_{t-1} \) is the technological parameter, \( \gamma - 1 \) is the growth rate for \( \gamma > 1 \). Assuming constant \( \gamma A_{t-1} \), i.e. equal conditions for all agents, then can be said that the bigger the amount of invested resources the agent has at \( t \), the higher the probability to innovate and to strengthen her competitiveness the agent has at \( t+1 \). At this time, it is crucial to remind, as was the previous case, that the amount of resources \( R_t \) represents unconsumed resources (savings) and thus investments of the \( i \)'s agent. Therefore, it is claimed that \( R_{it} = \zeta_{it} \).

The probability–based appropriation of additional resources – the aim of the agent \( i \) determined by her utility function – is therefore defined similarly\(^{68}\) to (10)

\[
\xi^{SHARE}_{it} = \xi^{TOTAL}_{t} \frac{\sum_{t_0}^{t-1} \zeta_i}{\sum_{t_0}^{t-1} \sum_{j=1}^{n} \zeta_j} \tag{37}
\]

where \( \sum_{t_0}^{t-1} \zeta_i \) denotes sum of all invested resources of agent \( i \) from \( t_0 \) to \( t \) for \( t_0 \rightarrow t \), whilst \( \sum_{t_0}^{t-1} \sum_{j=1}^{n} \zeta_j \) represents all invested resources of all agents from \( t_0 \) to \( t \) for \( t_0 \rightarrow t \). \( \xi^{TOTAL}_{t} \) denotes the total amount of resources available on the market equal to \( \gamma - 1 \). Accordingly, \( \xi^{SHARE}_{it} \) is the share of total resources which belongs to \( i \) given by the relation of her and total invested resources.

The divergence among agents is then captured by the intertemporal extension of the basic model; assuming \( \tau_{it} = \tau_{it-1} \Leftrightarrow \xi^{SHARE}_{it} = 0 \) we deduce

---

\(^{68}\) The difference in intertemporality of \( \xi \) in (10) is merely due to interpretation reasons.
\[
\max_{C, \zeta} u(C, \zeta) = C_{it}^{PROP(C)it} \zeta_{it}^{PROP(\zeta)it}
\]

s.t. \[p_{C_{it}} C_{it} + p_{\zeta_{it}} \zeta_{it} = \tau_{it-1} + \xi_{it}^{SHARE}\]

where total resources in \(t\) are the sum of total resources in \(t-1\) and appropriable resources gained on the market in \(t\). The latter derives according to (38) from the amount of investments allocated by the agent in \(t-1\).

In sum, Cobb–Douglas preferences of agents give the solution (31) and (32). Market imperatives force to strengthen agent’s competitiveness through competitive pressure. A part of total resources is consumed according to \(PROP(C)\) with regards to \(p_C\). The remaining part of total resources is invested according to \(PROP(\zeta)\) in order to strengthen agent’s competitiveness. As it is shown (38), agent appropriates her share of the total amount of resources available on the market according to the amount of investments allocated to the competitive struggle, in other words agents appropriate resources according to their market power. Therefore, each solution for maximizing agent’s utility drives the agent to increase her total resources. If we run a simulation of two agents with slightly different initial levels of total resources (or even equal for the first round), competing on a perfectly competitive market under the same conditions and assuming homogeneous preferences; we would again observe – according to the set of assumptions and outlined relationships – steadily diverging amounts of total resources which agents have at a disposal in time \(t+n\).

4.5 Discussion of the Results

Contemporary economics has become psychologized, as we might observe in developing fields of study like behavioral or experimental economics. Such recourse to the subject tends to deny objective truth: no measure remains for the measure of everyone; economics capitulates in favor of contingency and particularisms. Focus on the necessity, capturing the agent in her dialectical totality, however, allows us to abstract from stochastic, randomly determined particularities, e.g. geographical, psychological, cultural, political, technological etc., as well as attributes of the concrete economic environment; for instance, certainty and uncertainty level, which all may distort the interpretation in a discourse of
general economic theory. Market mechanism is thus isolated from all of these changing influences. This abstraction is inevitable in order to deal with underlying principles of the market mechanism.

The intentional abstraction from (not reduction of) immediate reality does not mean that self-preservation is the only driving force of individuals. It is clear that there are numerous individual motivations mirroring themselves in differentiated preferences and diverse actions in the end. Self-preservation is however the most basic principle that is shared by all agents as a rational principle of action; the rest of the principles is subjected to individual preferences. The intentional abstraction from immediate reality neither says that the agent with lower competitive ability cannot be successful or that the agent with high competitive ability will necessarily beat others. We understand that individual abilities of discovering, diligence or good portion of luck are constitutive elements of market success. In this case, it would be normal that an initially low-competitive but diligent agent with a portion of luck may be more successful than an initially high-competitive but lazy agent with no luck. On the other side, we must understand that these individual capabilities are normally distributed, which means that the low-competitive (in terms of her initial disposable and unconsumed resources) agent can be talented and thus compensate her lack of resources as well as the high-competitive agent can be talented and multiply her initial resource advantage. In sum, all individual abilities/disabilities, advantages/disadvantages remain to be stochastic, randomly determined particularities from which we have to abstract in order to detect general patterns and immanent market principles of resource allocation.

To summarize and discuss results of the model, we might say that possible resource appropriation, the constitutional factor of inequality, is the result of today’s resource allocation. During the competitive struggle, man is “chained to the rock of his past.” As Adorno continues, what “man ought to be as such is never more than what he has been.” (2004 [1966]:51) Inasmuch as the equations depict interdependency of present and future resources and thus they capture the ‘history’ of the agent, they simultaneously include, according to the set of assumptions and outlined relationships, inherent inclination to deepen inequalities over time. In the line of classical economists, advanced functional relationships of hyperbolic tangent or product-log function provided in the model do not represent the ‘eternal truth’. They rather serve as a form of expression of how substantial laws of motion affects relevant empirical variables and outline their basic interrelationships. In accordance with

---

69 For equilibrium solutions of various effects on persisting inequality see e.g. Durlauf (1992).
Pavlík\textsuperscript{70}, mathematical expression of the proposed economic phenomena is enforceable only within an abstract model as a mere explanation of the core principle.

It is clear from the model that the amount of unconsumed resources $\varsigma$ plays the decisive role: in order to increase total resources in the future (and hence secure future consumption) the agent has to leave more resources unconsumed in the present. To do so, however, the agent needed more total resources in the past. The agent is therefore forced to maximize her total resources in every period.\textsuperscript{71} For any case, if we assigned the equation (20c) to identical agents behaving according to (26), we would observe constantly and probability–based deepening resource gap between agents and concentration of wealth (in its broadest sense) at the top. Poorer agent, given the ruthless calculation of probability, is doomed to never be ‘more than what he has been’, which goes alongside historical conditionality of the critical theory. Another characteristic of (20c) is the fact that it includes accelerator which is based on non–stationary propensities. Aesthetic concerns of the critical theory report on a ‘distance from necessity’ which inspired us to formulation of ‘reproductive consumption’ – agent maximizes the difference between what she necessarily has to expend and what she has totally at her disposal. The dynamized form of propensities therefore reflects the ‘distance from necessity’ and accelerates the process of deepening inequality, however it is not the prime stimulus of inequality.

Agent–based models of contemporary economics are mostly strategic. Limits of these models rely on changing strategies according to specific conditions of the modeled market environment. Strategic moves of agents then do not sufficiently grasp the very fact of the necessity to enhance their own competitiveness, but rather evaluates given alternatives of the enhancement. In other words, strategy–oriented studies, subjected to free–choice doctrine of contemporary economics, focuses on alternatives that agents have at a disposal within the competitive struggle. The proposed axiomatic approach on the other hand helps to grasp the very imperative to enhance agent’s competitiveness (the Real), which exists above the space that is circumscribed for agent’s free decision–making. A partial value added of the model is hence, despite its triviality, the emphasis on these general laws, which also supports external validity of the model.

Another part of the model refers to Pareto efficiency. This equilibrium is frequently used in various branches of economics, from game theory to political economy. The model

\textsuperscript{70} The author provides an example on Gossen’s laws. (2001b:944)

\textsuperscript{71} Unless the amount of total resources is, for instance, too big to be subjected to competitive pressures.
however proves that any level of inequality among agents would be, under the given circumstances, Pareto efficient. This failure is two–fold: firstly, stronger agents may use more unconsumed resources to enhance their competitiveness and consequently appropriate more resources in the next period. If these stronger agents will not be restricted in appropriability on the market, their appropriation follows the probabilistic Scheme 1 or distribution weighted by market power $\xi_{it}^{SHARE}$, $\xi_{it}^{P}$, and so perfectly competitive market ascribes them constantly higher amount of appropriable resources when considering distribution weighted by market power. When zero–sum distribution is taken into account, stronger agents will enjoy constantly higher probability of appropriation of appropriable resources. By this we overcome Adorno’s and Horkheimer’s claim that bourgeois success no longer has any connection to the calculable effect of people’s work or any recognizable chance, by which someone is lucky and the other much less. (2002 [1944]:117) However, the underlying principle of resource distribution, in our case, retakes the approximative calculable form$^{72}$, which consequently overcomes Adorno’s and Horkheimer’s skepticism. Further, the only solution for these diverging tendencies is equalization, which is however not corresponding to Pareto efficiency since it can happen only at the expense of stronger agents. Pareto efficiency thus can be proclaimed as logically inconsistent with fundamental market forces that generate economic inequality. This conclusion follows–up hitherto non–formalized insights of Sen (1993) and Shaw (1999) and by formal evidences it unmasks the controversy of Pareto efficiency (its normativity) in the context of economic inequality, since it plays the equivalent role which Adorno assigns to inauthentic aesthetic, which serves to legitimate inequalities.

Another circumstance that stems from the model is the role of countervalue (Maialeh, 2014) which derives from adaptation of the agent to market conditions. Adorno posits that exchange value is in contrast to use value merely imaginary: the first reigns the latter and imagination reigns the reality. (1967a:30) The matter of fact is that the triumph of subjective reason is capable of thinking a truth solely as exchangeable and, most often monetarily, profitable. These are however a priori conditions of marketable production which prevent the spontaneous need to show up in the thing in itself: “Everything has value only so far as it can

$^{72}$ The form offers numerous possibilities of further development. For instance, in popular and business–oriented literature we might find work of Michael J. Mauboussin whose book *The Success Equation* (2012) provides an interesting perspective of how to distinguish skill from luck on final results. Upon a closer specification of the model and incorporation of Mauboussin’s ideas we can separate different influences on outlined divergence.
be exchanged, not in so far as it is something in itself.” (Adorno and Horkheimer, 2002 [1944]:128) From Marx (2015 [1867]) we know, that value is represented in exchange – missing exchangeability means missing value and everything valueless is discarded. Elsewhere Marx (1973 [1941]) notes, that world trade is exclusively driven by the need of the seemingly transcendental power of money, whereas the money form makes them visible.

Is the 'hand' then really 'invisible'? The principle of countervalue represents condicio sine qua non, without which market cannot work. The agent maximizes her utility through reproductive consumption in which her first, internal nature is manifested. If resources satisfying the mere reproduction are subjected to market conditions, i.e. to agent’s second nature, the agent is objectivized according to needs of the second nature. In other words, the agent must be able to provide desired countervalue to what agent necessarily needs from the market. Adorno reminds German commercial jargon which expresses by saying 'the man is good’ that he can pay. (2005 [1951]:186)

Countervalue most often takes the form of money or workforce. Sadly, those who suffer with economic inequality rarely provide desired countervalue, which in other words means that no matter what kind of nature/needs they must satisfy, the inability to sell their own workforce and low purchasing power make the satisfaction irrelevant. The principle of countervalue also contributes to the limited evidence for the role of foreign capital flows. On the global scale, it theoretically explains why foreign capital flows help convergence in output but not in income. Foreign capital, for instance in the form of FDIs, is naturally considered as an investment $\zeta$ with expected return $\xi$. The output produced in developing countries is therefore extracted in the form of returns to their owners. Developing countries then report increasing production but stagnating wellbeing. The investment character of foreign capital further impedes to invest to food security, sanitation, education and health care due to their low short/mid-term profitability.

The result of competitively interacting agents is a profit–oriented economy – if any agents do not accept the imperative, she loses her competitiveness and the agent is excluded from a given market. Such logic penetrates another possibly–profitable areas of human life. As Adorno puts, the more it spreads the more it severs everything tender. For him, tenderness is the possibility of relations without purpose. (2005 [1951]:41) “Mechanical processes of reproduction have developed independently of what they reproduce, and become autonomous. (…) The concomitant of technical progress is the narrow–minded determination at all costs to buy nothing that is not in demand, not to fall behind the careering production process, never mind what the purpose of the product might be.” (Adorno, 2005 [1951]:118) Countervalue
therefore brings agent’s needs to light; it makes them visible for the market. The main problem is that agent’s reproduction is derived from natural relations but market mechanism as the predominant mode of production puts it into exchange relations. The inherent characteristic and simultaneously the feasibility condition of exchange relations – profit maximization – thus obscures characteristics of natural relations. Satisfying of needs of the first, internal nature is neutralized by conditions of the second, external nature. The hand of the free market is hence not invisible, but blind. (Maialeh, 2014)

Kosik (1976) argues, that grasping the phenomenon mediate access (K. K.) to the essence. Without grasping the phenomenon, the essence would be beyond reach. The fact that the proposed model corresponds to the most of related empirical studies then becomes the more important. It supports (or it is supported by) results of Corak (2013) that low social mobility relates to high inequality. It relates to the results of Piketty and Zucman (2015) or Alvaredo, Garbinti and Piketty (2015) that more liberal inheritance policy and intergenerational transfers are behind inequality. The model theoretically supports empirical findings of Saez and Zucman (2016) who detect decreasing saving rate of the bottom 90 % in the United States; and generally declining wealth shares of the bottom 90 % wealth holders combined with increasing wealth shares of the top (Saez and Zucman, 2014; Piketty, Saez and Zucman 2016). Model is in accordance with Carroll et al. (2014) who researched that marginal propensities significantly differ according to the economic situation of the agent. This was also theoretically asserted by Kaldor (1955-56), who researched alternative theories of redistribution through Ricardian (classical) theory, Marxian theory, neo–classical (marginalist) theory and Keynesian theory. He also points out at differences in marginal propensities to save between profit–makers and wage–earners. And last but not least, the model contributes to the clarification of the fact that the general tendency from ’80s to make markets freer is indisputably linked to rising inequality since that time. If economists raise the question whether more efficient markets increase or reduce inequality, our results indicate that pure market economy logic based on perfectly competitive markets will tend to multi–level divergence and hence increasing inequality. In contrast to famous studies dealing with market imperfections (e.g. Greenwald and Stiglitz, 1986), which frequently relates inequalities or disequilibria to such imperfections, the proposed thesis proves that the more perfect the market is, the clearer and the more robust the tendency to divergence is.

The proposed model is supposed to overcome induction and deduction as a mere ersatz to dialectics (Adorno, 1967a:26) and shows that dialectical foundations of the model can be elaborated further by such methods. It is probably enough for economics, according to
Kosík (1976:21-22), to offer a first approximation and outline a potential way of conceptual understanding in structurally adequate logical categories, i.e. in economic models, which reflects every phenomenon as a moment of a whole. It is believed, that the proposed model precisely captures ‘teleology of self–preservation’ – instinctive orientation of ‘internal nature’ – and put it into wholeness of objective conditions, which consequently defines its anthropocentric–materialist basis.

For critical theory, contemporary economics neither reflects unfreedom deriving from market–based inequalities. In the first stage, one has only the choice of conforming or being consigned. But true freedom appears when necessity is transformed into possibility – when freedom of choice is transformed into freedom to change the very conditions of choice. This happens through substitution of determination for variability of human will; when the self–preserving activity will be overshadowed and human action will be free from all economic ends. Contemporary economics notwithstanding incorporates personality as a lie and humanity is subjugated to the principle of reality. In demonstrating this, it confirms human’s non–being, his autonomy is denounced the more the adaptation to the mechanism of rationalization spreads out. The mechanism offers freedom but within a given direction of action vector. Economic agents cannot afford to resign on enhancing their competitiveness, they are only allowed to choose in which field and by which means they will enhance their competitiveness. This was elaborated in details by Maialeh (2015) on the example of Styron’s Sophie Zawistowska: the main character is confronted with series of choices of which the most famous relates to that of her children – which one of them will be sentenced to death. Sophie is free to choose whether her son or her daughter, none is forcing her to decide for one or the other. Contemporary economics praise the same kind of freedom – freedom that do not respect repressive power of the irrational whole; without a possibility to enter the very conditions of the choice. Human action then cannot be classified as free insofar as the action is determined by the pressure of outside necessity, performed as a necessary prerequisite of his existence. Respecting the materialist tradition, freedom is determined as the space in which an object moves.

If we accept that true freedom is not a forced choice between black and white, but to abjure such prescribed choices, the conservative–economic concept of freedom faces serious attack on its central value. Freedom is not the recognition of necessity, as Engels (1947 [1878]) thought, the recognition only serves in a sense to abolish unfreedom.

At this time, it should be also noted that we assume pure market conditions which are, more or less, not present in our space–time. Market conditions are influenced by numerous
particularities, from individual preferences to e.g. built-in stabilizers on macro-level, which, *inter alia*, by definition work against market tendencies. This is therefore one of the reasons why we do not observe such a drive towards inequality. In addition, the agent cannot compete for all appropriated resources on the market, which significantly neutralizes diverging tendencies in a broader context. However, the chapter demonstrates that imposing market principles without corridors could result in increasing the gap between those who lack of wealth/opportunities and those who by far do not. The gap in priority areas, for instance in medical care, food production, water management or education is undoubtedly harming societies all around the world. Then the question is whether to support such market principles, especially if we bear in mind these highly important spheres of democratic society.

The research can be developed further e.g. in a sense of Phillips (1966) who identified the principle ‘success breeds success’ in the aircraft industry; as well as the following research elaborated by Grabowski (1968) and his adaptation on chemical, petrochemical and pharmaceutical industries. Additionally, we might find common denominators with Myrdal–Kaldor’s cumulative causation. All following researches will however share the core idea that under market conditions where agents operate only with their own resources, assuming identical conditions for agents with homogeneous preferences, a permanent drive towards divergence will be still embedded in the market logic.

The model could also serve as a primary reference to inequality predictions and simulations of numerous effects within the issue of inequality. Additionally, despite the generality of provided solutions the model sufficiently grasps embedded market logic and stays open to modifications for various supporting empirical inequality researches, from e.g. inter-generational wealth/poverty spillovers to world-systems theories, where it supports dependency theories rather than neoclassical convergence.
CONCLUSION

The aim of the thesis was to decide whether market mechanism as the legislating authority of the production process generates converging or diverging tendencies among participating agents. For that purpose, I compose an economic model that reacts on contemporary economic research on inequality and simultaneously reflects basic foundations of the critical theory. Just as critical theory does not dictate details of human freedom and self–esteem, but only their preconditions; that it rather reveals universal grammar of human action than details of it, the proposed model is thus an inspecting tool which exposes the immanent logic of human action in the market–capitalist society. The dissertation thesis therefore accentuates commonness and basal unity, in contrast to other critical theorists, e.g. Hardt’s and Negri’s (2001, 2005) and their multiplicity/multitude which possess no unity or a common denominator of those belonging to it.

In order to exhaust the essence of the phenomenon and not only several facets, the thesis focuses on inescapable economic laws that govern human action and society in the last instance: the lawful character of agents’ contradictory interactions constitute the dialectical totality of the production. Self–preservation within competitive market conditions instrumentalizes every human action and pushes agents to struggle for resources approvable on the market. Agents struggle for them by providing countervalue, which represents historical accumulation of resources left for competition; or more generally – their own aggregate ability to adjust themselves to the market logic. Those arrangements hitherto made in order to escape scarcity, according to critical theory, however, reproduce both wealth and scarcity on a larger scale. Reason undergoes instrumentalization – human organs become prolongations of the tools. Equal opportunities suffice to preserve the illusion of a just society, while the society itself held together by economic inequality – the result of production process; a manifestation of antagonistic interests of acting agents.

The first part defines inequality as an accompanying element of the current production. It points out at the fact that economic misery and poverty are just one side of the coin, whereas the second is represented by enormous wealth, both acting as the result of production process. The chapter further outlines the discourse, in which inequality is understood. In short, inequality is seen in its systemic entirety, as a result of the systemic determination based on self–producing impulses of the system itself – competing individuals, rationally avoiding the
situation of economic misery, thus constitute a society that must be still richer in order to
preserve its own existence.

The second part presents the character of economic research of inequality, which is
mainly focused on quantification of the problem. It follows the previous chapter in a sense
that inequality is quantitatively related to other socioeconomic phenomena; to economic
growth in particular. Ambivalences of empirical results illustrate that possible progress in the
issue can be made in theory. Despite the ambivalences, however, we can see that most studies
incline to interpret global inequality as rising, especially due to steeply rising inequality in
Anglo–Saxon countries since the ’80s. This common finding relates to the core idea of the
thesis, because the period of widely–recognized rising inequality corresponds to the period of
political realseement of the market mechanism.

Theoretical response to empirical findings is provided in the third part. The aim is to
grasp a higher necessity behind empirical phenomena and confront economic supremacy of
reified sensible facts – to question its appropriateness and reasonableness. Positivist critique
theoretically contributes to the explanation of the empirically–oriented chapter’s results and
its ambivalences when it refers to limits of the empirical method. Additionally, the chapter
clarifies social determination and instinct structures of agent’s action. In combination with
critique of positivism it revives questions of economic methodology that significantly affect
construction of the proposed agent–based model in the last part.

In the last part I construct an economic model inspired by both empirical evidences of
the second part and methodologically–theoretical insights of the third part. The model
formally expose the law of the production process behind the appearance of it and reveals the
internal movement of the process in order to demystify the randomness of inequality in
economic distribution. Genetically–dynamic conception of the model structures agent’s
reality as a dialectical whole, from which any particular fact can be rationally comprehended.
The thesis selectively harmonizes positivist methods with the dialectical method, which is
necessary for the empirical moment of immanent critique. The model particularly develops
further Pollock’s (1941) former concepts of ‘cumulative destructive process’ and ‘quasi–
autonomous agents’. Homogeneous preferences are assigned to economic agents in order to
isolate market mechanism as the only factor which is tested in terms of converging and
diverging stimuli. Based on insights of the critical theory the model introduces reproductive
consumption that in combination with disposable total resources constitutes a new standpoint
for agent–based modelling. This however requires dynamization of propensities which is
based on marginal changes. Not only critical theory’s insights, but also recent economic
researches (e.g. Carroll et al. (2014) or Saez and Zucman (2016)) show the true importance of estimating propensities (both average and marginal). The proposed propensities were dynamized as a function of hyperbolic tangent of total resources, which reflect the declining share of reproductive consumption on rising total resources. The equation of total resources was then derived through Lambert’s product–log function. The hypothetical/probabilistic character of resource zero–sum appropriation on the market, which is obscured by the formal equality, is then depicted in the Scheme 1, while the distribution of appropriable resources weighted by agent’s market power is calculated in (10) and (39).

A value added of the thesis is the proof that market mechanism as the predominant mode of production stimulates inequality in economic distribution and hence plays the role of diverging factor of the production process. The proof is backed by formally–analytical apparatus based on insights of the critical theory and empirical findings of inequality research. Also, the proof is valid upon necessary assumptions corresponding to the level of modeled abstraction. Namely, conclusions relate to assumptions on strengthening agents’ competitiveness up to the level of their unconsumed resources on perfectly competitive markets. The model hence complements already developed empirical research of inequality and supports a theoretical platform for explanation of observed data.

Additionally, the model takes the form of empirical testability, predictability and possibility of further reformulations on the concrete examples of economic policy. Technical improvements include e.g. desired dynamization of propensities which are in correspondence with the latest economic researches in the field. The model further provides reformulation of well–known Cobb–Douglas utility/production function in order to expose the proposed theory of divergence on a familiar example. And lastly, the model proves that Pareto efficiency in such a dynamic environment, which assumes pure market mechanism, does not report relevant equilibria solutions. A practical side of the model allows to determine e.g. which group of households is more likely to spend an additional unit of resources and therefore make any fiscal or monetary stimulus targeted toward relevant social strata without stimulating inequality in economic distribution. The thesis concludes that market mechanism under today’s sociopolitical conditions and adopted assumptions creates and intensifies differences in total resources which agents have at a disposal and leads to concentration of resources at the top. To get back to the former question – whether market mechanism is the converging or diverging factor of the production process – the results of the research denotes, upon defined conditions, powerful diverging forces immanent to the market mechanism. That is to say that inequality in economic distribution may not be primarily caused by market
imperfections, as many studies suggest, but the model proves that the better the markets operate, the stronger the drive towards divergence among participating agents is present. Beside widely–recognized positive effects of the market mechanism, the thesis rather emphasizes theoretical limits of the market mechanism, which should warn us against overreliance on markets in practical aspects of economic policy.
APENDIX

Fig. 1 International and global inequality, 1952-2011

Source: Milanovic (2013)

Fig. 2 Capital shares in factor-price national income 1975-2010

Source: Piketty and Zucman (2014)
Fig. 3 Private wealth and national income ratios 1970-2010

![Graph showing private wealth and national income ratios from 1970 to 2010 for various countries.](image)

Source: Piketty and Zucman (2014)

Fig. 4 Average return on private wealth

![Graph showing average return on private wealth from 1975 to 2010 for various countries.](image)

Source: Piketty and Zucman (2014)
Fig. 5 Labor income of the top 1% adult income earners in the United States

Source: Piketty, Saez and Zucman (2016)

Fig. 6 Capital income of the top 1% adult income earners in the United States

Source: Piketty, Saez and Zucman (2016)
**Fig. 7** Top 0.01% wealth share in the United States, 1913-2012

Source: Saez and Zucman (2016)

**Fig. 8** Composition of the bottom 90% wealth share in the United States

Source: Saez and Zucman (2016)
Fig. 9 Share of income and wealth of bottom 90% wealth holders in the United States

Source: Saez and Zucman (2014)

Fig. 10 Share of income and wealth of top 1% wealth holders in the United States

Source: Saez and Zucman (2014)
Fig. 11 Saving rates by wealth classes (decennial averages) in the United States

Source: Saez and Zucman (2016)

Fig. 12 Saving rate of the bottom 90% in the United States

Source: Saez and Zucman (2016)
Fig. 13 Level and composition of global inequality in the 19th century and around year 2000 (measured by the Theil index)

Source: Milanovic (2013)

Fig. 14 Unweighted inter-national inequality, 1950-1998

Source: Milanovic (2013b)
Fig. 15 Inequality associated with mobility across generations

Source: Corak (2013)

Fig. 16 The cumulated stock of inherited wealth as a fraction of aggregate private wealth, France 1850-2010

Source: Piketty and Zucman (2015)
Fig. 17 The share of inherited wealth in Europe and the United States, 1900-2010

Source: Alvaredo, Garbinti and Piketty (2015)

Fig. 18 Income inequality in Anglo-Saxon countries, 1910-2010

Source: Piketty (2014)
Fig. 19 Income inequality in continental Europe and Japan, 1910-2010

![Income Inequality Graph]

Source: Piketty (2014)

Fig. 20 Top income tax rates, 1900-2013

![Top Income Tax Rates Graph]

Source: Piketty (2014)
Fig. 21 Top inheritance tax rates

Source: Piketty (2014)
REFERENCES


Alstadsaeter, A., Johannesen, N. and Zucman, G. 2016. Tax Evasion and Inequality. *(In Progress)*


Elster, J. 1982. Marxism, Functionalism, and Game Theory: The Case for Methodological


Korinek, A., Mistiaen, A., Ravallion, M. 2006. Survey Nonresponse and the Distribution of


Spinoza, B. [1677]. *Ethics*, 4, prop. 22, cor.


469-486.