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SYSTEMIC PHILOSOPHY, POSITIVE FEEDBACK AND CATASTROPHIC FORECASTS

Andrzej P. Wierzbicki

National Institute of Telecommunication
Szachowa 1, 04-894 Warszawa, Poland
a.wierzbicki@itl.waw.pl

Summary: The paper starts with a reflection of the relation of philosophy and systemic approach; this leads to a reflection on the basic concepts of truth and ethics. The paper analyzes then the relation between catastrophic forecasts that recently become more frequent and the phenomenon of positive feedback in humanity development, as well as the symptoms of acceleration of the speed of changes, indicating the impacts of such feedback. The concept of positive feedback and the dynamics of its effects are described. The fundamental positive feedback in the development of humanity in last centuries is the feedback between science and technology and the producers on capitalist markets resulting in replacement of labour by capital. The paper analyzes the symptoms and the effects of such feedback and resulting threats of the extinction of human civilization.

Keywords: systemic philosophy, truth and metaethical assumptions, positive feedback, replacement of labour by capital, threat of extinction of human civilization

1. Introduction

From its very origins - e.g., from Comte (1832-40), Bertalanffy (1951, 1956) – the systemic approach was actually another, interdisciplinary, variant of philosophy. One might say that classical philosophy has become too disciplinary constrained and self-limited, hence new interdisciplinary approaches were needed. Given this context, one should also address the basic philosophical questions of truth and ethics from the systemic perspective, and we shall do so in the first part of the paper. This leads to a systemic metaethical assumption patterned on Rawls (1971), which implies a concern about the fate of future generations. Such concern motivates the main, second part of the paper, devoted to positive feedbacks and catastrophic forecasts.

The number of the so called catastrophic forecasts has been growing recently, even if the mainstream social sciences use the adjective "catastrophic" as a convenient reason for ignoring such pronouncements, see, for instance, Bogle (2005). Numerous forecasts of this kind are published on the Internet, simply because the traditional editorial houses avoid, as a rule, publishing them, see, e.g., Farell (2011).

Especially interesting are the forecasts of the end of capitalism, diversely understood – meaning, at least, a significant change of the understanding as to what are the essential features of capitalism. The forecasts of the end of capitalism are not new, there are many of them, even after 1990 there have been many authors, who wrote about such an end: Peter Drucker (1993), Immanuel Wallerstein (1999), most penetratingly Rafi Moor (2006), and then quite recently Jeremy Rifkin (2014) and Wolfgang Streeck (2014). Personally, I consider them not to be the catastrophic forecasts, but the forecasts warning about the possibilities of future catastrophes. This is because the end of capitalism can occur in diverse ways; however, if it occurs due to a global revolution, it might have catastrophic character threatening with the extinction of the entire human civilization on the Earth, because of the intensification of terrorism and the widespread nature of information about constructing nuclear weapons. Therefore, such warning forecasts should be treated with exceptional care.

However, in order to understand the possibility of occurrence of such catastrophes well, it is necessary to understand also *the dynamics of positive feedback processes.* This is the motivation of the second part of the paper.

2. Philosophy and the systemic approach

An interdisciplinary systemic approach is essentially related to *metaphysics.*[1] I understand the latter - see Wierzbicki (2015) - as *as a reflection on general, interdisciplinary questions, taking into account the results of specific disciplines but not reducible to them,* and not necessarily resulting from them. This also means that *metaphysics is naturally based on intuition,* that it is not only a logical reflection on the results of empirical studies.

However, systemic approach is also *fundamentally naturalistic.* It can be treated as a variant of philosophical *realism*, which is a conviction that we get to know reality in the first place and our own consciousness and the cognitive processes only afterwards. But fundamental naturalism goes further, being based on the following two assumptions. The first one is the fundamental anti-solipsistic ontological assumption, which is common with philosophical realism, namely that *a man is not alone,* that there is also an external part of reality containing inanimate objects and animate subjects, microorganisms, plants, animals and people. This external part of reality can be called *nature.* The second basic assumption of fundamental naturalism is more

[1] Following Wittgenstein (1922), metaphysics had negative evaluation in the philosophy of the 20th century, but recently philosophy started to evaluate positively the need of and the methodology of metaphysics, see, e.g., Motycka (2009). [*Actually, metaphysics is related to the stream of thought that goes 'beyond the material substrate', according to the essential etymology of the notion; ed.*]

subtle, even if also stronger and often unconsciously omitted or even consciously negated by the Western philosophy:[2] it is the assumption that *people are not lords of nature but only a part of it,* and other parts of nature can also be treated as cognitive subjects. Fundamental naturalism is not equivalent to materialism or atheism; e.g. the Christian beliefs of St. Francis can be understood as an expression of fundamental naturalism, while Buddhist religion accepts fundamental naturalism as a basic part of its philosophy. However, fundamental naturalism implies that we should treat separately religious questions from scientific knowledge. On the other hand, since all human knowledge indicates an evolutionary character of development, fundamental naturalism has also an evolutionary perspective.

Thus, systemic metaphysics is fundamentally naturalistic. Since, according to the way we perceive it, metaphysics is based on intuition, then people use preverbal reflection to consider metaphysical questions. Thus, it is not true that *the limits of my language mean the limits of my world,* or that *whereof one cannot speak, thereof one must be silent* (L. Wittgenstein, 1922). Contrariwise, all focus of philosophy in the 20th century on language might result from an erroneous assumption that cognition is only verbal, this focus being continued in many works, see, e.g., M. Foucault (1972) or J. Derrida (1974). However, if preverbal aspects of cognition are more powerful - see Wierzbicki (2015) for a naturalistic theory of intuition - then we must return to metaphysics, perhaps from a new perspective, and try to speak about that what cannot be said.

3. The issue of truth and ethics

The question of *what is truth* belongs to the oldest problems of philosophy and human reflection upon nature, we cannot present here a full history of this problem. We only should stress one fact: today we understand that *there are no absolute verities,* because there are no absolutely precise measurements (Heisenberg 1927) and because each apparently absolutely true statement actually depends on some meta-assumptions (Gödel, 1931; Tarski, 1933). For example, some people might think that the statement "a man of 96 years is old" is absolutely true, but two hundred years ago people over 60 years were considered old and in future two hundred years a man 96 years old might be considered fully vital; thus, the truth of this statement depends on the meta-assumption that we are speaking about human society in the 21st century. Similarly, a statement "today the weather is hot" when the temperature is 28° centigrade is not absolutely true, only true under the meta-assumption that we are speaking

[2] Although such an assumption is natural for Buddhism and the Far East cultures.

about Europe and northern countries, because a man in central Africa might consider such temperature as nicely cool[3].

If there are no absolute verities, then how should we interpret the need of truth and human quest for truth? Let us first recall the elements of the theory of truth in mathematics and formal languages. Kurt Gödel (1931) has shown that the question of truth cannot be decided inside a formal system; Alfred Tarski (1933) has shown how to use a metalanguage and meta-assumptions in order to rationally consider the question of truth in a given formal language. This was further developed by Imre Lakatos (1976) and Zbigniew Król (2005), who stressed the impossibility of creation and analysis of mathematics as a strictly formal game without meaning and interpretation; we can have no fully formalized mathematical theory, given as a formal system with a formal metalanguage. A strictly formal language requires formal metalanguage, the latter, in turn, requires a formal meta-metalanguage, etc., which results in an infinite regress. Thus, we have to stop the regress at a certain level and to accept some basic assumptions in an intuitive, abstract meta-environment, even if such meta-assumptions are historically changing. An intuitive meta-environment of the assumptions about truth is called *hermeneutic horizon* (also a concept with its own history[4]).

Actually, the same method was used by John Rawls (1971), who developed a realistic theory of justice and ethics: he used a *meta-ethical assumption* to develop his conclusions about justice. Slightly generalized, his meta-assumption is the following: *new generations of people will come after us that will further develop knowledge and civilization, but in conditions of (perhaps even growing) uncertainty concerning future crises and catastrophes; our ethical beliefs should result from a concern about these future generations.* Many ethical conclusions result from such presupposition. The first group of them, noted by Rawls, is the following: if we do not have certainty about the fate of our children and grandchildren, we should leave to them possibly most just social relations and ethical precepts, serving them well even then, when they would be living in the worst conditions; thus, *justice* is a fundamental value.

However, this is not the only conclusion; another was noticed by Gro Harlem Brundtland (1987), who, in her concept of *sustainable development,* postulated that we should leave to next generations similar conditions and chances (mostly concerning natural resources and natural environment) that we have enjoyed ourselves. A

[3] *This, indeed, is the evidence that truth (even that, what is called „absolute truth") has to be placed in a context (e.g. "He is the murderer" must be accompanied by a whole story, including the names and the times, as well as appropriate circumstances…), for reasons related to language, conditions of measurement, and so on [ed.].*

[4] For example, Hans-Georg Gadamer (1960) understood hermeneutic horizon as entire knowledge of a man, taken holistically. Zbigniew Król (2005) has given quite different and more precise meaning to this concept.

third conclusion was noted in the book *Techne$_n$* (Wierzbicki, 2015): since we do not have certainty about the fate of our children and grandchildren, we should leave them possibly the most certain and objective knowledge, helping them to overcome future crises and catastrophes - hence the value of *objectivity,* even if never fully attainable, is nevertheless a fundamental value, similarly as the values of *justice* or *sustainable development.* Thus, extreme post-modernism, negating the concept of objectivity, is simply unethical.

The fourth conclusion is similar (related to the unattainable character of full objectivity), even if further reaching: since there will come after us the next generations, further developing knowledge, *it is arrogant and conceited to ever maintain that we achieved an absolute truth - and teachers should be happy if the achievements of their students are higher, than those of the teachers.* A fifth conclusion is: we should utilize and transfer to next generations our knowledge - even if it is not absolute - in such a way as to prepare them best for uncertainty, for future predictable crises and challenges; and this motivates the subsequent parts of the paper. The sixth conclusion - perhaps even a separate, second meta-ethical presupposition - is: *people have duties not only with respect to the next generations, but we should care about tolerable conditions of life of all other people, perhaps even of all other cohabitants of the Earth* (it is unethical to remain indifferent to extreme stratification and the fate of milliards of people living in deep poverty).

4. The concept of feedback

The understanding of dynamics of feedback processes can be gained in praxis, e.g. by analyzing the dynamics of robotic arms or of switching the state of elements of computer memory, or at least simulating such processes in a computer laboratory, which is necessary, e.g., while educating automatic control specialists for nuclear power plants. Unfortunately, universities (especially social sciences) dissociate themselves from technical sciences, hence the understanding of the dynamics of processes with positive feedback between social scientists is imperfect. Obviously, since Norbert Wiener (1948), the social sciences have heard about feedback, but this does not imply a deeper understanding of this concept.

Therefore, we shall recall here some aspects of feedback. *Feedback means reflexive action of the time-stream of effects on the time-stream of causes, obviously in a dynamic sense, usually with some delay*. If the effects support the causes, we call this *positive feedback;* most often such a phenomenon is observed in the audio systems, when a microphone is located too close to a loudspeaker and the positive feedback results in a resounding noise. Positive feedback cannot be generally interpreted as a positive phenomenon, since it causes an avalanche-like process with a sudden ending. A positive phenomenon, to the contrary, is generally constituted by the *negative feedback,* when the effects counteract the causes, which typically leads to stabilization (such as the stabilization of temperature in a human body).

Both types of feedback, if treated statically, are called *vicious circles* in classical logic: positive feedback is called *self-supporting* argument, while negative feedback is called *self-negating* argument. But this is a flaw of classical logic that it does not perceive the importance of the so called vicious circles in a dynamic sense. Indeed, both types of feedback are widely used in technology: positive in the elements of computer memory, negative in automatic control and robotics. Technical sciences developed a comprehensive mathematical theory of feedback systems and processes, while this is often neglected by social sciences. For example, Georg Soros (2006), following Karl Popper, rightly stresses the fallibility of all theories and the belief in open society, but substantiates these beliefs by noting the universality of *reflexivity relation* (reflexive actions of causes and effects) – without noting that he actually speaks about *feedback relation,* a phenomenon much earlier and deeper analysed by technical sciences, see, e.g., Wierzbicki (2015).

The symptoms related to socio-economic positive feedback processes bother (often subconsciously) the authors of catastrophic forecasts, since the main symptom of such processes is a *gradual acceleration of the speed of development*, resulting ultimately in an *avalanche-like development.*

5. The threat of extinction of human civilization

Recently, a graph of acceleration of human development was presented in two books - Morris (2010) *Why the West Rules - For Now* and Brynjolfson i McAfee (2014) *The Second Machine Age.* This graph concerns two indicators: the number of people in the world and a synthetic indicator of *Human Social Development* dependent on time during last ten thousand years. In both cases, the graph has a needle-like character starting about 200 years ago and accelerating until today; even if the number of people on the Earth actually decelerates in last decades and soon will cease to grow, there are no signs of slowing in human social development. The authors of these books enthuse about these graphs; this fills myself with dismay, since these authors do not know what they see, and *they see a typical process of an explosion of a nuclear reactor*.

Each positive feedback process observed in nature or technology leads to an avalanche-like development – first it accelerates, then ends by hitting some constraint (for an avalanche it is the opposite slope, for a nuclear explosion it is the exhaustion of the atoms of radioactive element). It is clear that the reason for this acceleration in the case here considered is the positive feedback between the market and the technology, in the mechanism of capital replacing labour. It is not clear what will be the constraint in the development of humanity; it surely will be not the sheer number of people on the Earth, even if demographic tension will contribute to growing dangers, see next point. But it might be the end of work of the type we know now, it might be also the end of *capitalism understood as unrestricted private ownership of capital*

used for production and business. Clearly, such capitalism is acting differently in diverse countries of the world; it is more severe in developing countries, more restricted in not only China, but also in Scandinavian countries and Japan; and further restrictions of the capitalism in the direction shown by the Scandinavians and the Japanese might prevent a catastrophic end. However, if this end takes a revolutionary form, *this might lead to an extinction of the intelligent life on Earth,* which will be discussed in detail in further points.

Additionally, cosmic research until now indicates that such phenomena, as an intelligent civilization, are rare in cosmos. In the book by Davies (2010), *The Eerie Silence: Renewing Our Search for Alien Intelligence,* the question is posed: why after fifty years of sending radio signals about an intelligent civilization on the Earth we did not get any answer? Obviously, there are many possible answers to this question, but the most troubling is: *civilizations such as ours are doomed to self-extinction due to an avalanche-like development, and thus they are rare in cosmos.*

Therefore, the philosopher Joseph Agassi (see Olsen and Selinger, 2007) correctly answered the question "what are the most important philosophical problems for future research" by indicating that *the most important problem today is what shall we do to prevent an annihilation of human (and other) life on our planet.*

6. Demographic tensions

A typical reaction to the problem of demographic developments on Earth is "why, the demographers reduced several times in recent decades their forecasts of the maximal number of people on the Earth, hence there is no problem." However, this is just a perilous ignorance - we should ask first what were the reasons of such corrections of these forecasts and what do they imply.

The reasons were the results of research on the impact of education on fertility. I have personally convinced almost forty years ago a mathematical demographer, Warren Sanderson, to undertake such research, and his results (1983) started a revolution in demographic forecasting: *it turned out that educated women have statistically much less children than uneducated ones*.[5] This fact was not immediately, but slowly accepted by other demographers and was the reason of the gradual corrections of demographic forecasts.

However, this fact implies also that *there will be growing long-term demographic tensions between diverse regions of the Earth*. Regions with lower rates of

[5] *This statement is definitely true for the global ("average") image. Yet, in the (economically) developed societies, the statistics for definite particular countries appear to be to the contrary: not only the more educated women having more children, but also caring for them much more extensively [ed.].*

education of women (because either of economic, or cultural grounds - such as in Islamic culture) will have much stronger demographic growth. If we add to that the effects of informational revolution - the spread of Internet together with its domination by advertisement, which allows people in any region to see how people in the richest regions live - then this situation produces long-term migratory tension.

This tension is one of long-term sources of terrorism that, if not abated, might combine with other social tensions discussed in next points and lead to a dangerous revolutionary situation. Thus, the richest countries should, in their own interest, adopt polices that would mitigate these growing demographic tensions. This is not the simple question whether to admit immigration or not (as indicated by an recent editorial in *The Economist ,* 2015 - "The new political divide"); if it is a long-term demographic phenomenon, thus much more must be done. Obviously, there are countries in the world - such as Australia - that have reasonable and effective immigration policies that might be adopted by other countries; but this is not enough. For the richest countries, it is necessary to invest in helping to educate women in poorer countries, even when women education is limited because of cultural reasons. This can be achieved either by special international programs, or by special women-oriented educational programs available on Internet.

7. Megatrends that allow long-term forecasting

The above considerations provide only an example on how important it is to correctly evaluate the megatrends of development – not necessarily new, but long-lasting phenomena in economic or social development. For example, during the last thirty years there occurred in the world tremendous changes related to three waves of informational revolution: the spread of personal computers, of mobile telephony and of Internet. Again, it is easy to neglect them by observing, e.g., that the number of mobile telephones started recently to diminish; but such observation misses the point, since the diminishing number of classical mobile phones results from an integration of these three waves (including also a former wave of television) into a system of mobile access to information - using tablets, smartphones, etc.

Moreover, three next waves of informational revolution are coming: social dissemination of robots beyond factory halls; dissemination of knowledge engineering (popularly, but imprecisely, called artificial intelligence); and dissemination of biomedical engineering. These three waves, similarly as the former ones, have megatrend character: inevitably, even if initially slowly, they grow and change the conditions of our lives – and they will change these conditions to the same or even greater degree that it was done by the earlier three waves during the last thirty years.

Each long-term forecasting must rely on an identification of such megatrends and have an interdisciplinary, systemic character - including, e.g., demographic and educational aspects combined with economic ones, often in a positive feedback loop.

For example, we can predict a universal world-wide improvement (quantitative, not necessarily qualitative) of average education levels. Combined with recent economic trends, this will result (see Wierzbicki, 2016) in a growth of *precariat* - people well educated but precariously employed.

Short term disciplinary forecasts in economics or sociology often analyze the impact of new technologies on diverse aspects of life, such as unemployment, and often come to reassuring conclusions that there is no reason to worry and the formation of precariat is only a change of the form of labour. Such forecasts are definitely ideologically biased – they do not note that the formation of precariat is related also to breaking of labour laws and of human rights. However, their main fault is short-term orientation - the assumption that the socio-technical environment will be the same as today, while precisely this environment will change. A historical example is the dissolution of industrial proletariat in United Stated and Great Brittain due to globalisation and robotisation, which started around 1980; before that, a "normal" rate of unemployment was around 4%, today 10% is counted as a low rate.

8. Recent socio-economic trends

The recent socio-economic trends can be characterized as follows. First is an acceleration of growth, resulting from the fallible economic habit to account for growth in % of GNP - without noting that a constant relative rate of growth means actually an exponential acceleration of the absolute rate of growth.

The second is an acceleration of the basic mechanism of capitalism - the replacement of labour by capital, or rather by new machines or technology, bought with capital. Precisely this mechanism is responsible for the exponential growth of socio-economic indicators during last two hundred years, and is a result of the main *positive feedback between market and knowledge (or science and technology): the more a capitalist can gain by introducing a new technology, the more he is inclined to invest in such technologies.* This occurs today at such scale and speed that it results in an essential change of the character of labour (characterized, e.g., by the percentage rate of the income of an enterprise devoted to the payment for long-lasting labour, that recently in Polish private enterprises declined sharply, from about 50% in 1990 to about 11% only in 2010) and is the reason of formation of precariat, as discussed in the next point.

The third is the growth of inequality, an accelerating stratification of all human societies, see, e.g., Stiglitz (2012), resulting mostly from the second trend. The observed today increase of inequality intensified since 1990 and does not result in a large increase of Gini coefficients, but in a speedy increase of earnings of the 1% of best earning people (several times faster than the growth of GNP) - combined with the pauperization of the earlier middle class, losing their long-lasting occupations. A reasonable indicator of inequality today is the ratio of the incomes of 1% of richest people

to the incomes of 20% of the poorest; this indicator exceeding significantly the value of one in most countries of the globe.

9. Results of the positive feedback

On the one hand, the positive feedback in the mechanism of capital replacing labour had historically obvious positive results, enriching not only the capitalists, but the entire societies. However, the current socio-economic trends imply that this mechanism accelerated already too much and it is necessary *to limit the speed of development,* which in technology is achieved by applying an additional *negative feedback* (such as controlling the rods, limiting the speed of reaction in nuclear reactors). Before choosing an additional negative feedback it is necessary to better understand the mechanisms of the positive one.

The positive feedback between market and science and technology (which also develop in a respective positive feedback, but much more slowly working, see Wierzbicki, 2015) is expressed by capital replacing labour. Since this mechanism is working for over two hundred years, many would say that this mechanism did not produce unemployment, only a change of labour character. Correct, but only in the past, to some degree; such processes have an avalanche-like character, they might start slowly but then inevitably accelerate.

At the time of Luddites[6] these processes were slow; people could adapt to them by changing a profession and learning a new one once in a lifetime. Today, these processes are so fast that we would have to change professions even five times in a lifetime. Replacement of labour by capital (or technology) occurs today at unprecedented speed and scale, and produces new social tensions, see Wierzbicki (2016) for a more detailed analysis; historical opinions are not fully applicable today.

Still, one historical instance is relevant: capital in developed countries used two mechanisms – new technology and globalisation – to destroy industrial proletariat in its own countries. However, robots and other products of informational revolutions will become progressively cheaper, hence the positive feedback mechanism will result in a destruction of industrial proletariat and an end of work in factories also in less developed countries. This will result in the growing conflicts in these countries and in strengthening of the already observed migratory pressures. Towards Europe, it will be a pressure mostly from Africa and Asia Minor, regions with the fastest demographic growth.

The spread of robots in industrial manufacturing is not equivalent to a full social dissemination of robots. Such social dissemination will start when robots start to

[6] Opposing introduction of new technologies at the beginning of the 19th century.

walk with us on the streets or in our homes (in the manner of today cellular phones or other devices of mobile information systems) or to replace us in work in services, e.g. in supermarkets (which is already occurring, for instance in Japan). Thus, it is not permanent, only a temporary truth that work in services will replace work in manufacturing; work in services is already shrinking not only because of robots and computers, but also because of Internet services.

Recently, Polish television advertised electronic administration (based on EU donations) without noting that such an administration, beside its advantages, will result in gains for entrepreneurs providing it and in losses – of work – of some administration employees. This is only an example of the mechanisms of stratification: fast increase of earnings of the richest and loss of work and earnings of the lower part of middle class. Such stratification is a typical result of current acceleration of capital replacing labour accompanied by a pauperization of a part of middle class. This phenomenon is analysed in detail by Paul Farell (2011) who sees in it one of the reasons of the end of capitalism.

The concentration of wealth in the hands of one or two percent of population results in other symptoms of the illness of capitalist system: most of this wealth does not increase real demand, only virtual demand for stock exchange and monetary speculations, in so called virtual economy. This is one of the main reasons for inflating stock market bubbles, resulting in increasingly frequent and deep market crises, see *The Economist* (2015) with the editorial "The Chronicle of Debt".

10. How to limit the negative effects of the positive feedback

The increasing social tensions, resulting from the loss of permanent employment, might lead to an anti-capitalist revolution; however, such a development would be extremely dangerous today. Combined with the world-wide increase of terrorism and with the widespread knowledge how to construct nuclear weapons, such revolution might easily lead to the extinction of human civilization. Therefore, it is necessary to look not for the end, but for a democratic reform of capitalism.

One of the ways of limiting the speed of growth and the symptoms of illness resulting from it is by limiting stratification – through a substantial increase of taxes for the richest, with allotting these taxes for social purposes (e.g., for building of communal dwellings, but also for rents and pensions, up to an implementation of the concept of *citizen rent or pension* – monetary support for all citizens of a country). This means a return to an increased role of the state, but also requires a better international cooperation in order to prosecute tax evasions.

Important is not only a modification of personal taxation, PIT, but even more so, a reform of corporate taxation, CIT. In Poland, 19% of CIT counted from profits results in only about 1% of taxation counted from the revenue (income with strictly

limited subtractions); this might be good as an encouragement for the small enterprises, but results in tax evasion by most large corporations. To compare CIT and PIT taxation imagine that we could, before counting PIT, subtract from personal revenue the cost of living of entire family and that way determine a personal profit which would be then taxed at 19% rate. Therefore, we should ask the question: *why entrepreneurs should be such privileged when compared to other citizens?* An answer often is – *because they provide worksites.*

However, the positive feedback in capital replacing labour means that entrepreneurs today avoid providing worksites; this results in a *megatrend of minimization of the costs of work.* As mentioned already before, in Poland, the percentage rate of the revenue of an enterprise devoted to the payment for long-lasting labour amounted in (state-owned) enterprises before the market reform to about 50%. In twenty years after the reform, this rate dropped, on average, in Polish private enterprises to 10.9% only, while it remained at about 50% in average public enterprises. Therefore, entrepreneurs do not realize well their duty to provide worksites and they should not be privileged. Their taxation should be increased essentially and then the public sector – such as in the Scandinavian countries – will have enough means to provide for proper retirement pensions, doles or even citizen rents.

The corporate taxation CIT should be thus counted from the revenue (income with strictly limited subtractions), with a rate similar to personal taxation PIT. Subtractions should not include costs of marketing, nor costs of new technology – to an argument that this will limit the speed of development, I answer that it is precisely the purpose. On the other hand, subtractions might mean reliefs for small enterprises or for enterprises employing relatively more workers. This might depend on the percentage rate of the income of an enterprise devoted to the payment for long-lasting labour (the higher the rate, the larger subtraction, see Wierzbicki, 2016), or even include full subtraction of this payment from the taxed revenue. However, such radical taxation reform would require international agreement in order to prevent tax evasions. Such an agreement will not occur soon – the majority of capitalists must realize first that they have a choice: either they admit a substantial reform of capitalism, or they will face what Nick Hanauer (2014) called *The Pitchforks Are Coming for Us, Plutocrats.*

Some futures studies, e.g., the one by Jeremy Rifkin *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons and the Eclipse of Capitalism* (2014) postulate that the reform of capitalism will occur spontaneously, due to informational revolution. Rifkin maintains that the inevitable lowering of marginal production costs due to technical progress will lead (during the second half of the 21st century) to a spontaneous end of capitalism replaced by the Internet-induced *collaborative commons.* He does not note, however, that capitalism does not need to use prices related to marginal production costs (as it is maintained by neoliberal market

theories). Actually, capitalism effectively defends itself from the reduction of marginal costs by avoiding price competition and using tacit price collusion on oligopolistic markets – which is known since the research of Sylos Labini (1962).

11. Conclusions

Thus, I do not believe in a spontaneous correction of capitalism. A democratic reform of capitalism is, however, necessary, based on ethical premises according to the recommendations of Adan Smith. To such premises might belong an increased taxation of unethical behaviour of entrepreneurs – and minimizing employment might be counted as such unethical behaviour.

If we do not perform such a reform, we shall face hitting a constraint – which hopefully will be not equivalent to a global revolution that today might mean the extinction of human civilization on Earth. To those, who will call such a forecast catastrophic in order to quietly ignore it, I shall answer that they might be accused of ignorance about the dynamics of processes with positive feedback. Indeed, *we are travelling rolled by an avalanche; only those, who succeeded to come out to the top, make up stories how wonderful is the ride*.

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