

Human and resource economic system – a model for sustainable development

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Abstract

The paper's objective is to familiarize the audience with basic tenets of the concept of Human and Resource Economic System: the global economic paradigm based on synthesis of a large variety of ideas in heterodox fields of economics. The authors argue that many acute problems of today's society are caused by the failures of modern free-market capitalist system - such as the distorting financial system of money markets and marketing-induced quasi-rationality of consumers at goods' markets, which eventually lead to the deepening of economic inequality, natural resources depletion and environmental degradation. The concept of human and resource economic system is designed to show the possibility to achieve sustainable forms of development and handle these issues through series of global reforms and different approaches to understanding of some basic economic concepts.

As the futility of the neoliberal model of world economy on the basis of the Washington Consensus and the need for global monetary reform are becoming widely obvious, the first part of the paper shows the feasibility of using energy as backing and value guarantee of a new global currency.

The second part of the report is devoted to overcoming economic inequality by facilitating access to productive capital market via providing interest-free loans to the general public and through reaching the increased consumer awareness and transparency of producers with the abolition of cash transactions.

Concluding part of the paper outlines the synthetic heterodox model of global economy in comparison with the current neoliberal model by criteria of sustainability and provides some links to broader fields, such as open governance paradigm and ethics.

Introduction

There are three major adverse global economic tendencies, which are both commonly recognized and sufficiently severe to make their solution a principal task of modern economics:

- Deepening of economic inequality;
- Environmental degradation;
- Depletion of natural resources.

The first one is associated with idea of justice, while the latter two – with idea of sustainable development. Both these notions are in no way addressed by the today's mainstream economics and this fact is what the authors consider one of the reasons why the three problems above become more and more acute.

The possible solution of these problems is complicated by the fails of modern markets, induced by the principles of neo-liberalism and implemented globally through the Washington Consensus prescriptions. These can be distinguished to those of financial markets and of goods markets. In the short run they induce economic instability, lack of balance between supply and demand and distortion of value, while in the long run their effects lead to overproduction and are associated with systemic profound crises, last of which the world is experiencing today. Only after the fundamental causes of these market fails are eliminated, the further evolution towards higher social justice and sustainable global economy becomes possible.

In general the set of markets' problems results in distortion of the principal function of market system – the informational function. This function is in expressing all the multitude of information on the status of supply and demand through single indicator – the price, which is determined from the supply side by production costs, and from the demand side – by the value, perceived by consumer, which determines his/her willingness to pay. These three crucial informational indicators: *price, cost and value* are what today's economic model is unable to set adequately.

Worldview of a modern "western world" representative is shaped by many centuries of struggle with hostile factors of environment, in combination with the individualism, typical for European civilization, and constant uncertainty in tomorrow, associated with frequent wars, revolutions and other social cataclysms, which the European history, beginning from the Roman Empire, was fairly rich of. In the foundation of this worldview lays the profound subliminal fear of future. In modern economy this fear has found his expression in the four principles of economic behaviour: *reserving, insurance, privacy and security*. The authors consider these principles undoubtedly useful in extent adequate to the real risk level, however as soon as they become fundamental guidelines for the economic agents, this is fraught with serious obstacles to markets functioning, in particular – insufficient information, inefficient extra costs, idle financial capital, etc. These impediments are the profound reason initially and vicious factor later for the abovementioned market fails.

The Human and Resource Economic System is a normative socio-economic model that implies more egalitarian and just society, stable resource use and improvement of environment – instead of its degradation. It is based on principles of absolutely stable currency, backed by physical values, balanced transactions between economic agents and environment, open-governance and cooperative ethics. The authors believe that such a model can be achieved evolutionary – as further development of market economy and democratic governance – after the barriers to this development that exist today, are removed.

In this paper the authors examine only economic aspects of the model, leaving aside those within the scope of public policy and ethical philosophy. The thinking behind the model can be imagined as a synthesis of several established heterodox approaches to understanding of economic processes with some ideas developed by the authors themselves.

1. Distorting Financial Markets

Distortions affecting the poorest

The financial system has grown to a very big and awkward stratification above the real economy. For a long time of few past decades mainstream economic theory has been denying the ability of the financial system and the ways it is driven to influence or in some way to harm the real economy or the welfare of any individual despite the overwhelming empirical evidence that assumes this statement to be far from reality.

In our view the most harmful assertion of the neoclassical mainstream economics is that money is neutral. Neutrality of money is the idea that a change in the stock of money affects only nominal variables in the economy such as prices, wages and interest rates, with no effect on real (inflation-adjusted) variables, like employment, real GDP, and real consumption.

But as it is empirically observed, the assumption of monetary neutrality does not appear to be appropriate because in the short run real and nominal variables are highly intertwined and a change in money supply can influence the real GDP to be pushed away from its long-run trend (Mankiw 2008).

Another inconsistency of the mainstream economics is what Steve Keen calls:

“Modelling the entire economy using “applied microeconomics” and ignoring social class” (Keen 2011)

He assumes that neoclassical economists do not take into consideration the Sonnenschein-Mantel-Debreu conditions establishing that, as Kirman put it:

“We may well be forced to theorize in terms of groups who have collectively coherent behaviour. Thus demand and expenditure functions if they are to be set against reality must be defined at some reasonably high level of aggregation. The idea that we should start at the level of the isolated individual is one which we may well have to abandon.” (Kirman 1992)

These two things: money neutrality hypothesis and ignoring social classes, do not let the economists to deal appropriately with the issues of poverty and economic inequality deepening caused by the volatility of the current economic system. Due to the stickiness of wages short run fluctuations influence the wellbeing of the middle class and especially the wellbeing of the poorest people as it reduces their real income. And the less developed is the country, the more rigid are the wages.

One more problem of the mainstream economics approach to the financial markets is widely described in Hyman Minsky's model of the credit system, which he named the "financial instability hypothesis". Minsky claimed that in prosperous times, when corporate cash flow rises beyond what is needed to pay off debt, a speculative euphoria develops, and soon thereafter debts exceed what borrowers can pay off from their incoming revenues, which in turn produces a financial crisis. As a result of such speculative borrowing bubbles, banks and lenders tighten credit availability, even to companies that can afford loans (Minsky 1992).

Companies unable to receive loans start cutting the administrative expenditures and employee's wages as well as providing dismissals. This also leads to social crises especially in less developed countries with high economic inequality and the level of minimum wage lower or close to the living wage.

Exchange rate fluctuations

Inflation and exchange rates volatility can in fact harm most individuals' wellbeing and cause social panic and disruptions.

Significant volatility is usual for international currency market. All market participants can be divided into two groups:

1. "Real participants", whose participation in the market is due not so much to a desire of earning from such a participation, but rather meeting the real needs of their business or their customers to ensure the normal functioning of the latter;
2. Speculators, whose participation in the market stems from a desire to profit on fluctuations in the price of currencies.

It is precisely the participation of the speculators that causes excessive volatility, which cannot be explained by fundamental economic factors. When the price of the currency begins to grow under the influence of fundamental factors it attracts the attention of speculative investors. Speculators shift excess demand for currency and hence inflationary pressure on the price of the currency is caused. After a certain time such pressure pushes currency into the "overbought" state. But when the currency price reaches certain psychological, historical or fundamental limit and the "overbought" state becomes apparent to most market participants, the speculative investors close their long positions, recording profits, thereby creating a sharp price collapse of the currency, which in turn causes a panic on the market, followed by a common desire of market participants to get rid of the currency sharply depreciated, contributing to a further decline of prices and thus plunging the currency into the "oversold" state. In the case of "overbought", as well as in the case of "oversold", we see how the actions of speculators distort the real value of currencies and create excess volatility.

In the financial instability hypothesis Hyman Minsky pointed out:

"It can be shown that if hedge financing dominates, then the economy may well be an equilibrium seeking and containing system. In contrast, the greater the weight of speculative and Ponzi finance, the greater the likelihood that the economy is a deviation amplifying system." (Minsky 1992).

Although this Minsky's statement concerned the credit market, the authors argue that it is valid for any financial instruments' market.

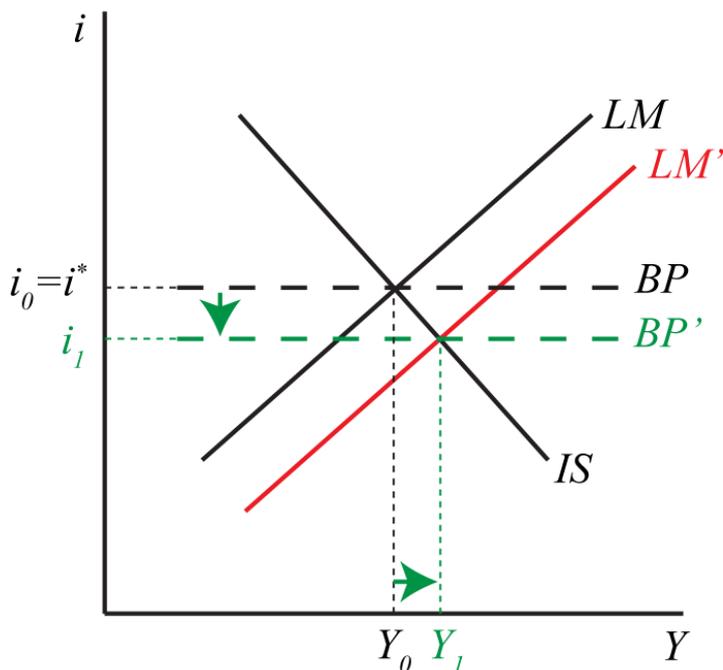
A floating exchange rate is determined by the private market through supply and demand. A floating rate is often termed "self-correcting", as any differences in supply and demand will automatically be corrected in the market.

In accordance to the Marshall–Lerner condition currency devaluation has a positive impact on trade balance. (Davidson 2009)

As it is stated in Mundell–Fleming model (see fig. 1), under assumptions of floating exchange rates and perfect capital mobility, an increase in money supply shifts the LM curve to the right. This directly reduces the local interest rate relative to the global interest rate. This depreciates the exchange rate of local currency through capital outflow. (Hot money flows out to take advantage of higher interest rate abroad and hence currency depreciates.) The depreciation makes local goods cheaper compared to foreign goods and increases export as well as decreases import. Hence, net export is increased. At the same time, the balance of payments (BP-curve)

is supposed to shift down, as to reflect depreciation of home currency and an increase in current account or in other words, the increase in net export. These increase the overall income in the local economy. (Mankiw 2002)

Fig. 1: Mundell-Fleming model, floating exchange rates and perfect capital mobility: monetary expansion leads to output bust.



But if we think for a moment, who owns this increased income? This is not the case to talk about government's income distribution as the decisions for money supply increasing are very rarely accompanied with the adequate social policies. Thus the owners of productive capital (the rich) get richer and the employees (the poor) get poorer. If the national economy is export oriented (which is peculiar for the less developed countries) the expansionary monetary policy can lead to a significant rise of the consumer price index and cause the switch of the inflation spiral. We are not taking into account the long-run because due to wage stickiness inflation strikes first of all the most economically vulnerable social groups of people. Those people can't wait for the economy to converge back to the stable state. This situation raises the human uncertainty about the future, creates a significant scale of path-dependencies that in turn provide further economic misbalances thus forming a vicious spiral that leads to a large number of adverse social phenomena such as social unrest and crime.

Inflation

Blanchard says that there has been an ongoing debate in OECD countries between those who think some moderate inflation is fine and those who want to achieve price stability. The counterparts distinguish costs and benefits of inflation. The proponents of moderate inflation rate see among the benefits the possibility of the state to profit from seignorage and optionally from the negative interest rates as well as to reduce real expenditures in government sector of the economy via money illusion. Their opponents argue that all these benefits appear to be not quite fair for the citizens and besides that, inflation has got a lot of negative features such as so called shoe-leather cost that is time and efforts spent by general public to keep less money on hand than would be required if there were no inflation. Tax distortions influence the accuracy of budget planning and in the case of variable inflation all the fixed income investments appear to become much riskier. In another

hand a zero inflation rate is desirable in itself as knowing that the price level will be the same in 10 or 20 years as it is today simplifies a number of complicated decisions and eliminates the scope for money illusion. (Blanchard 2010)

Reasons to peg the currency

The reasons to peg a currency are linked to stability. Especially in today's developing nations, a country may decide to peg its currency to create a stable atmosphere for foreign investment. With a peg, the investor will always know what his or her investment's value is, and therefore will not have to worry about short-term fluctuations. A pegged currency can also help to lower inflation rates and generate demand, which results from greater confidence in stability of the currency.

The price level in both the UK and the US Under the gold standard remained relatively stable over a long period of time, with some long-term periods of deflation. Since in 1913 the US Federal Reserve was formed, through the consistently inflationary policies of the bank the US dollar has fallen to barely a twentieth of its former value (Vickers 1999; Sahr 2008).

However the supporters of unpegged currencies argue that deflation can bring more harm than a moderate rate of inflation. Deflation discourages investment and spending, because there is no reason to risk on future profits when the expectation of profits may be negative and the expectation of future prices is lower. Consequently deflation generally leads to, or is associated with a collapse in aggregate demand. Without the "hidden risk of inflation", it may become more prudent just to hold on to money, and not to spend or invest it.

The question of the optimal monetary regime is still wide open. On the one hand, the big selling points of floating exchange rates – monetary independence and accommodation of terms of trade shocks – have not lived up to their promise. On the other hand, proposals for credible institutional monetary commitments to nominal anchors have each run aground on their own peculiar shoals. Rigid pegs to the dollar are dangerous when the dollar appreciates. *“Money targeting doesn’t work when there is a velocity shock. Inflation targeting is not viable when there is a large import price shock. And the gold standard fails when there are large fluctuations in the world gold market.”* (Frankel 2003)

The question arises: can another more rigid peg for a currency be found to achieve zero inflation as inflation and deflation at their core distort the very basic functions of money and create a lot of uncertainties in the process of economic planning?

Pegging to energy

Frederick Soddy wrote in 1937: *“Now, born of the troubled times in which we live, there has been growing up from a number of independent and at first sight quite unconnected roots a group of doctrines which may be broadly described as the application of the principles of the sciences of the material world, physics and chemistry, to economics and sociology. They have a common feature in that they are all due to the original thought of scientific men mainly engineers and physical scientists more interested in and accustomed to think in terms of physical realities than in those of social or legal conventions, and concerned hardly at all with the problems and controversies of individual or class economics, but with the significance of broad general and completely inescapable principles, in particular the principles of energetics, in regard to welfare of whole communities as affected by the production and distribution of wealth.”*

Zhou Xiaochuan, governor of the People's Bank of China argued in his speech to the IMF: *"The outbreak of the current crisis and its spillover in the world have confronted us with a long-existing but still unanswered question, i.e., what kind of international reserve currency do we need to secure global financial stability and facilitate world economic growth, which was one of the purposes for establishing the IMF? There were various institutional arrangements in an attempt to find a solution, including the Silver Standard, the Gold Standard, the Gold Exchange Standard and the Bretton Woods system. The above question, however, as the ongoing financial crisis demonstrates, is far from being solved, and has become even more severe due to the inherent weaknesses of the current international monetary system."* (Xiaochuan 2009)

Yet, what should the new money be like, what purposes should it respond and what functions to perform?

Let's try to take a different look at money. We will not use the word "currency" in the everyday sense, where it is equivalent to the concept of "money", and will try to expand the meaning of the word, going deeper into its etymology. English word "currency" takes its root from the Latin "currere", which means "to flee", "to rush", "to leak". In this broader sense, the currency is nothing more than a tool for operating on different flows. In classical economics, it is the movement of goods and services, transfer of values from one set of goods and services to another. If we consider, in retrospect, any process of goods or values creation, and go deeper into its understanding to the level of physical processes, it becomes evident that any process of this kind is an overflow and conversion of energy.

The feasibility of applying energy principles in economic analysis was observed by many scientists in 19th century, notably – Ukrainian scientist A.S. Podolinsky, who tried to reconcile the labor theory of value with a thermodynamic analysis of the economic process. (Podolinsky 1880) Later on in 1960-s a whole school of thermoeconomics has emerged represented by such scientists as Myron Tribus (Tribus 1961) and Nicholas Georgescu-Roegen (Georgescu-Roegen 1971) that applied the laws of thermodynamics to economic theory. In the beginning of third millennium thermoeconomics is still relevant and is being represented by a big number of scientists. Physicists and biologists were first to use the energy flows for social and economic development explanation. Joseph Henry, American physicist and first secretary of the Smithsonian Institution, noted that *"the basic principle of political economy concludes that the physical labour of man can only be improved ... with the substance transformation from a raw state into an artificial state ... by costs, called power or energy."* (Cutler 2006) All our vital activity, in fact, reduced to the transformation of one kind of energy to another, because according to the current position of science, any substance is nothing else than the state of energy, that waits to release. Thermal, mechanical, electrical, nuclear, metabolic, electromagnetic, vacuum energy, etc. – all these are tools and products of our activities. So even looking at the modern economy trivially and entirely from a practical point of view, today's most promising and lossless investment is energy.

The conclusion suggests: the most correct, objective and fair peg of a new global currency is precisely the energy and the unit of its quantitative expression - Joule. Since joule is the absolute measurement unit, the pegging of money unit to a certain amount of energy will ensure the stability of the new currency, as well as transparency in the formation of its value.

Energetic cost, efficiency ratio and the standard of the monetary unit

What will shape the cost of goods, if money is clearly pegged to a unit of energy? The estimated components for the cost of each good shown below in the Human and resource economic system cost formula:

$$\mathbf{Cost = Resource + Water + Production + Utilization + Compensation,}$$

where:

Resource - the energy cost of restoration of the spent renewable resource to the state of raw material;

Water - the cost of water resources spent on the creation of the good, expressed in units of energy by the interconnection through the so-called water-energy nexus; *

Production - energy spent on creation of the good;

Utilization - energy consumed for production waste disposal and consumption of the good;

Compensation - energy spent on compensation for adverse effects on the environment caused by production, consumption and waste disposal;

* Water must be distinguished from other renewable resources due to three reasons:

1. The net amounts of water used for production of goods or provision of services are comparable and often surpass those of energy resources. Thus it plays the role no less significant in value creation;
2. Water is a prerequisite of life and its use for industrial issues both directly and indirectly affects the well-being of every person in the world;
3. Water and energy are interconnected from the technological point of view - through the so-called water-energy nexus; (Glassman 2011)

Principles and techniques of “cradle-to-grave” life cycle assessment (LCA) – a holistic approach to measuring environmental impact, associated with production, consumption and utilization of certain good, which are already used by many governments worldwide, can be employed for cost calculation according to the proposed formula (US Environmental Protection Agency, 2010).

Thus, when we use the "spent energy" term for each cost calculation, we must consider not only the energy, which is necessary to "attach" to the raw material for the product, but all the expended energy on the energy cost basis of primary energy resources and energy conversion efficiency. The accounting concepts here are close to those of “embodied energy” in Leontief’s input-output model (Leontief, 1966) and “virtual water” by John Alan (Chenoweth, 2008).

Another important aspect exists. Since pegging a new currency to the unit of energy was intended to make the currency stable and unchanging its value over time, we are facing the limited energy resources question. Obviously, when burning hydrocarbons and radioactive metals, sooner, or later we will face their shortages. In this situation, the value of each energy Joule for production will grow in proportion to decrease of available energy resources amount thus causing deflation. In this issue addressing an alternative energetic is playing a key role. There is no doubt that the absolute economic stability can be attained by the new “energetic” currency only through a complete transition to alternative energy sources. But what should we do until then? One of the key indicators for the new energetic economy should be a standard of currency in accordance with the energy production structure of the state (see Fig. 2). It is obvious that the final balance and stability of the economy and currency could only be achieved with the state transition to energy consumption exclusively from alternative sources, in which case the standard will be equal to 1 or 100%.

2. The Flaws of Goods Markets

Since the fundamental problem of Economics is how to satisfy the virtually unlimited needs of society with limited available resources, we intend to analyze how in the modern market-capitalist economy marketing influences *creation* of people's needs for goods and services. This for we address problems of imperfect information as well as distortion of the rational value scale under the influence of induced consumerism. The latter is in turn associated with destructive impact on environment and growing pace of natural resources depletion. To mitigate the above negative tendencies in modern economy we propose to implement the policy of producers' openness in regard to the complete value chain of their products and the complete shift towards cashless money circulation based on the modern informational-communicational means. This will allow, absent from any significant expenses for each buy-sell operation, besides transfers of electronic money, to transfer also all possible information associated with goods and services purchased, thereby protecting the consumer from fraudulent policy of producers and distributors.

The adverse features of marketing

It is rather obvious today that information asymmetry and higher relative market power is exploited by producers at markets with monopolistic competition – in order to increase consumption of their products by altering their perceived value. Modern elaborate marketing techniques employ psychology to influence consumer preferences. This raises serious doubts on the assumption of consumer rationality - one of mainstream economics' foundation stones. Instead many economists, notably Richard H. Thaler use the term "quasi-rationality" to describe modern consumer behaviour (Russell and Thaler, 1985).

The costs associated with these marketing efforts the authors consider a *pure cost to society*, as no real value is created, yet these additional costs are reflected in price. At the same time the positive socio-cultural and growth facilitation effects of marketing proclaimed by its advocates, beyond their role in transmitting objective information about goods' characteristics, are rather doubtful.

Supporters of marketing, like Theodore Levitt, argue that people never buy pure functionality as some marketing fluff and augmented values are needed to them to colour their life, which otherwise would be "*drab, dull, anguished and at its existential worst*" (Levitt, 1970).

Best answer to this are these words by Lane Jennings:

"The real danger to the public... comes not from outright lies about events or individuals, because in most cases facts can ultimately be proven and mistakes corrected. But the emotional power of images, sound bites, and slogans can exert deep and lasting influence on our opinions and behavior as consumers, voters, and citizens. But ... advertising uses emotional appeals to shift the viewer's focus away from facts. Viewers who do not take the trouble to distinguish between provable claims and pleasant but meaningless word play end up buying "the sizzle, not the steak" and often paying high. The best defense against misleading ads and sensational news coverage is not tighter controls on the media, but more education and more critical judgment among media consumers. Just as we train children to be wary of strangers offering candy, to count change at a store, and to kick the tires before buying a used car, we must make the effort to step back and judge the value of news stories, press releases, and advertisements, and master the skills required to separate spin from substance."(Jennings, 2004).

Philip Kotler admits the following main social criticisms of marketing:

Impact on individual consumers:

- High prices: high advertising and promotion costs result in excessive mark-ups;
- Deceptive practices;
- High-pressure selling;
- Shoddy, harmful and unsafe products;
- Planned obsolescence;
- Poor service to disadvantaged consumers.

Impact on society as a whole:

- False wants and too much materialism;
- Too few social goods;
- Cultural pollution;
- Excessive political power.

(Kotler, Armstrong, Wong, Saunders, 2008)

Many might disagree with the abovementioned, referring to the examples of green marketing, different codes of marketers' ethics or legislative restrictions for unfair and adverse marketing, but all these examples appear to be very rare and discrete relating to the "big picture" and seem to be a case of exception rather than a rule.

In summa, at economy level, these impacts result in fundamental distortions of value, which, in turn, lead to the severe exacerbations imbalance between current path of global economy and sustainable one.

The phrase of American economist Victor Lebow written in 1955 under the heading "The Real Meaning of Consumer Demand" which states «*Our enormously productive economy demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfactions, our ego satisfactions, in consumption. The measure of social status, of social acceptance, of prestige, is now to be found in our consumptive patterns*» has nowadays become a nightmare for all the people associating themselves with the preserving the environment for future generations. (Lebow 1955)

Cash transactions abolition and openness principles

Nowadays, with the development of information-communicational technology and electronic banking, an individual's need for cash money is getting all lesser. Its existence, according to many, brings to the modern world more harm than convenience and profit. Cash provides the possibility to exist for such adverse phenomena as corruption, drug trafficking, human trafficking, illegal arms trade, not to mention the illegal circulation of legal activities. The abolition of cash flow will allow more clear conducting of the financial and production planning as well as operational management of public finances. In addition, colossal state spending for printing, collection, storage, accounting and disposal of cash money will abolish, as well as financial losses from counterfeiting and dealing with it. Having a POS-terminal and a payment card integrated in his personal communicational device each person will be able to easily make and receive payments as well as automatically obtain all the available information about the acquired goods and verify its authenticity if necessary. It also gives consumers possibility to provide and inquire feedbacks within the global product and service database. The development of information technology suggests the possibility to give the consumer full information about products consumed without significant costs, as well as the ability of manufacturers to declare the cost to the consumer.

In a modern market economy we often face a situation when we are buying goods with having no idea what exactly we are paying for, and why are we paying so much. How much did it cost for the manufacturer to create this product, and how much was it worth to convince the consumer that purchasing this product is a need? And the main question - whether all of the society costs were included to the price of the product? As the experience of major corporations shows – it's no matter how high-quality the goods are, it is important that the consumers consider them high-quality. Absurd from the standpoint of economy and inherently fraudulent in fact, components of the price concealment principle for many centuries has become axiomatic "pacto tacito" (tacit agreement) between all companies and to any and every market without exceptions. The principle of commercial confidentiality in the traditional economy, ostensibly designed to protect free competition, is more often used by large manufacturers either to hide their not quite fair industrial policy, or to conceal from the consumer the real cost of goods and the level of sellers profits. Usually the average consumer sees only an abstract value in the price list, which is expressed in a certain amount of monetary units with the mechanism of valuating which the majority of the population has a fairly vague idea of.

A consumer's insufficient awareness of products that he/she consumes is associated with the complex contemporary system of money value creation and its detachment from an ordinary consumer's life, on the one hand and lack of objective information of price/cost ratio of goods consumed, on the other hand.

The Human and resource economic system will provide a consumer with opportunity to evaluate price of goods consumed more adequately, when at the early stages of the concept implementation, a price tag could indicate an energy equivalent of the goods as well as the ordinary price.

Thanks to increase in state expenditures for informatization and education, together with compulsory implementation of maximum transparency principles for manufacturers and declaration of a full production cost chain, a consumer becomes not only sufficiently informed on characteristics of goods consumed, but also more capable of making an adequate analysis of such information, which, of course, will contribute to general increase in effective consumption.

Full transition to cashless transactions, using the principle of maximum openness of the manufacturer and a maximum reduction of adverse marketing influence are the key factors in reaching the sustainable consumption.

3. The Deepening of Economic Inequality

Political democracy cannot flourish under contemporary economic conditions. Democracy requires an economic system which supports the political ideals of liberty and equality for all. Men cannot exercise freedom in the political sphere when they are deprived of it in the economic sphere. While proponents of capitalism have argued against communism as the foe of political liberty and quality, they have not offered a positive program for establishing an economically classless society. (L. Kelso, P. Kelso 1986-1991)

The discussion about the economic inequality has a long history and a significant variety of different points of view. Usually it refers to the processes of income and wealth distribution. Actually the main dispute is held between the supporters of capitalism and socialism. Capitalism is regarded by many socialists to be irrational in that production and the direction of the economy are unplanned, creating many inconsistencies and internal contradictions in wealth and income distribution and thus should be controlled through public policy. The free-market capitalists argue that all these inconsistencies appear with the governments' interventions to the market thus causing inefficiencies. However while free market postulates equal opportunities for everyone due

to the effect of wealth condensation the opportunities in fact are far from being equal. The human and resource economic system does not support neither free-market capitalists' nor socialists' approach, suggesting to address the problem of economical inequality deepening by the means of productive capital diffusion on the principles described by Louis Kelso in binary economics and those used in Islamic banking.

Wealth condensation

The United Nations Research Institute for Social Development (UNRISD)'s 2010 report claims that inequality has risen partly due to neoliberal economic policies that have made it difficult to achieve economic growth without inequality deepening. The report acknowledges that there has been a decrease of inequality in the Middle East, North Africa, and sub-Saharan Africa, but the level is still high in these regions overall (above a Gini coefficient of .40). Also a study done by the International Labour Organization (ILO) states that over two-thirds of the 85 countries surveyed experienced a rise in income inequality between 1990 and 2000. (UNRISD 2010)

The economic growth appears to be the process of overall growth of wealth in the society. It is merely obvious that newly-created wealth tends to become concentrated in the possession of already-wealthy individuals or entities. Those who already hold wealth have the means to invest in new sources and structure thus creating more wealth or to otherwise leverage the accumulation of wealth, thus they become the owners of the new wealth.

Karl Marx promoted several explanations of the cause of wealth condensation. Among others we consider these to be the most prominent:

"Cost of living is typically the same for everyone. In a free market economy, factors contributing to the cost of living will adjust so that poorest members of the society are forced to spend all their income on bare necessities (food, housing, medicine), whereas richer members will have enough excess income that they can save and invest."

And another one:

"It is concentration of capitals already formed, destruction of their individual independence, expropriation of capitalist by capitalist, transformation of many small into few large capitals ... Capital grows in one place to a huge mass in a single hand, because it has in another place been lost by many ... The battle of competition is fought by cheapening of commodities. The cheapness of commodities demands, caeteris paribus, on the productiveness of labour, and this again on the scale of production. Therefore, the larger capitals beat the smaller. It will further be remembered that, with the development of the capitalist mode of production, there is an increase in the minimum amount of individual capital necessary to carry on a business under its normal conditions. The smaller capitals, therefore, crowd into spheres of production which Modern Industry has only sporadically or incompletely got hold of. Here competition rages ... It always ends in the ruin of many small capitalists, whose capitals partly pass into the hands of their conquerors, partly vanish."

The authors assume these statements written in Marx's magnum opus "Das Kapital" to be still relevant in modern economy. (Marx 1887)

What can be done to reduce the economic inequality and to soften the effect of wealth condensation?

The source of wealth and productive capital diffusion

To solve the problem of wealth condensation and economic inequality deepening we should understand at the first place what the source of wealth is.

Let's consider production factors as if there were neither money, nor economy, nor economical theory and as if we lived in the primitive society. To produce any good, we need raw materials (certain natural resource or combination of several of them) and labour, which is our own effort to transform available raw materials into a product. Our labour can be both physical and intellectual. While physical efforts are needed for direct processing of raw materials, intellectual efforts are necessary to determine or improve the way of such processing.

A well grounded economist will exclaim immediately that the modern economic theory distinguishes capital and entrepreneurship, while fresh trends of the informational era add information (whether they are technology or banal exchange bulletin). But how fair is this statement? Any capital, whether it is a spade, a millstone, a machine or a car, is the product of human labour applied to a certain combination of natural resources. Any information is also the result of intellectual labour, as well as entrepreneurship, which is determined as ability to combine different production factors, which is also intellectual activity!

As we see from the stated above there are only two sources of wealth: *the labour and the natural resources*.

Despite being a result of combining labour (every particular person's property) and natural resources (public property), the products for a long time do not remain in full the property of neither every working person nor the society. Yes, of course, every employee receives partial remuneration of his/her efforts in the form of wage, and the state receives some fee for exploiting the public goods, but the modern economic system is designed in such a way that the value of human labour's product is much higher than this remuneration and the state very rarely spends the fee for exploiting the public goods to compensate the adverse effects on the environment caused by production. And the product does not belong to its creators, providing owners of the production with profits that are much higher than the profits of employees. Reduce of employees' role for a producer's economic welfare results from increasing scale of mechanization and automation of production. Thus, in the final cost of goods, the share of a person's labour cost periodically decreases and the share of energy costs and depreciation of capital assets increase. This process leads to systematic decrease in demand for human labour, and, therefore, to decrease in the human role for the economy of the state in a whole and for each separate production particularly. This situation is a significant social problem, as for the absolute majority of people the wage is the main, if not the sole, source of income. Every time people tend to agree to more and more poor labour conditions and lower remuneration, as they have to meet their primary life needs regardless of whether they are employed or not. This process leads to permanent increase of economic inequality and increase in cost of final products obtained by owners of productive capital.

None of the traditional economic paradigms detects that the system of private property was originally designed for the diffusion of capital rather than for concentration of ownership in a few hands. As it is known, the basic requirement of a free market concludes that it should not contain insurmountable barriers to entering it. In order to have competitive market efficiency, it should be open to everyone who wants to play by market rules, which involve voluntary participation, free exchange and respect for private property. However, most potential markets in any market economy of the present time are not really open to everyone. The current system of corporate finances in countries with developed market economies has led to the fact that effective participation in productive capital acquisition and corporation growth is closed for the majority of their population. And,

despite the fact that the traditional market theories are postulating formal right to acquire equity for everyone, real rights are available only for existing owners of productive capital assets. (Kelso L. & P. 1986 & 1991)

Unequal capital access capabilities of existing producers and employees (that could potentially become producers too) are associated with the existing system of price for the loaned capital, as well as with the existing system of credit risk management and the current strict collateral system. Thereby, it is much easier for an existing company with operating assets, major financial traffic and covered market share to attract bank credit (in particular in terms of providing collateral and widely in terms of risks of the business projects) than for the average consumer, which when applying for a loan could only offer a hypothetical business idea and a pledge of his private property, which, even if available, can seldom ensure receiving the necessary sum to start business.

Almost all of the modern money supply is in the form of interest-bearing debt created and owned by the banking system (in the UK over 95% of the money supply is created in this way: there are similar percentages in other countries). (Shakespeare & Challen 2002) The present money supply is generally not directed at productive (and the associated consuming) capacity but instead goes into derivatives, rising asset prices, consumer credit and putting everyone - individuals, towns, corporations, towns, cities, countries - into ever-increasing debt. (Shakespeare 2007) At present two lots of financing are required to keep the system going - one lot for production and a separate lot for consumption. The two lots are continually inflationary yet, all the time, more and more loan money must be created (by the banking system) if the whole economic and financial system is not to collapse. Inflation is inevitable with the present system. Forms of productive capital remain narrowly owned and there is no policy to spread the ownership of productive (and the associated consuming) capacity throughout the population. (Kurland 2004)

It is being suggested that inflation is partly caused by the common use of the time value of money theory, which at first glance is quite fair under the current global financial system. The basic postulate of the time value of money is the following statement: "*The dollar today is worth more than a dollar in a year, since having a dollar today and invested it, in a year we get a profit.*" But this is not always quite a fair assumption as any investment has a significant nature of risk and uncertainty, meaning, if invested a dollar today, there is absolutely no assurance that we get the profit - our investment may well prove to be unprofitable, or simply pay off, without bringing any profit.

There are several approaches used in business transactions ignoring the time value of money. For example Islamic banks lend their money to companies by issuing floating rate interest loans. The floating rate of interest is pegged to the company's individual rate of return. Thus the bank's profit on the loan is equal to a certain percentage of the company's profits. Once the principal amount of the loan is repaid, the profit-sharing arrangement is concluded. Venture capital funding of an entrepreneur who provides labour is financed by the bank so that both profit and risk are shared. Such participatory arrangements between capital and labour reflect the view that the borrower must not bear all the risk/cost of a failure, resulting in a balanced distribution of income and not allowing the lender to monopolize the economy. (Saeed 1996)

By abolishing interest for loans purposing the non-consumer needs that can provide long-term productive efficiency increase and spreading of productive capacity, by eliminating strict collateral rules (where the assets purchased on borrowed funds are used as a guarantee, and a non-repayment consequence is a record in borrower's credit history), we can balance the capital access capabilities for existing enterprises and ordinary people willing to start their own business and become a capital owner, which, in essence, is an economic environment competitiveness improvement (see Fig. 3).

One more useful approach for the spreading of productive capacity is providing the employee stock ownership plans, promoted by binary economics, mandatory for all enterprises. (Kelso L. & P. 1986 & 1991)

4. Environmental degradation and natural resource depletion (Overexploitation)

The human and resource economic system proposes the approach to economic accounting based on and with respect to the principles widely described in ecological economics as *“natural capital should be definitely added to the typical capital asset analysis”*. (Costanza 1998) To establish that principle in all activities of the economy it is necessary to evaluate all the national wealth in terms of energy and to fix the conditions of the vital ecosystems in order to complete the so called *“energy inventory”*.

The principle of sustainable economic accounting

Today the raw materials and fossil energy resources usually belong to those who bought from the government the right to exploit them. What is the price of this right? It is difficult to answer definitely – it varies depending on every separate case. But certainly the price almost never reflects the value of resources being exhausted by the renters, and by no means it does reflect the value of accompanied environmental degradation. The modern economic paradigm in the most countries of the world very seldom considers the fact of the finiteness of mineral and fossil energy resources and the fragility of ecosystems. Because ecosystem services are not fully ‘captured’ in commercial markets or adequately quantified in terms comparable with economic services and manufactured capital, they are often given too little weight in policy decisions. Researches in Ecological economics have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US \$ 16–54 trillion per year, with an average of US \$ 33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US \$ 74 trillion per year. (Costanza 1998)

When we talk about the overexploitation of such natural resources as clean air, fresh water and different ecosystems, we mean what economists use to call negative externalities. The contemporary economic approach usually sounds like *“Internalize externalities and the problem is going to be solved”*. This means – create a market, define the property rights, assume that people act rationally and minimize the transaction costs – a so-called Coasean approach. But how can one imagine for example the market of fresh air, not mentioning the weakness of the assumption about people acting rationally and a vague possibility in this particular case to minimize the transaction costs and define the property rights!

In author’s view, this approach is hardly a sustainable one. The human and resource economic system offers a clear principle of sustainable economic accounting:

***Every economic transaction is a trade between the human and the nature.
What we take from nature – should be given back.***

This principle is outlined in the Human and resource economic system cost formula mentioned above in the 1st chapter. It should be provided by using the Wasiliy Leontief’s input-output analyzes further developed to describe ecosystem energy flows by Bruce Hannon (Hannon 2010)

Energy inventory

To establish the above mentioned sustainable accounting principle it is necessary evaluate the national wealth. Full inventory of national wealth (mineral and fossil energy resources, ecosystem service capacity and embodied energy of all the assets) in terms of energy value is the most important stage, which must precede the transition to energy currency. Undoubtedly, carrying out this inventory is extraordinarily labour-intensive and resource-intensive process requiring use of clearly reasonable scientific approaches.

To solve these tasks it appears to be sufficiently reasonable to establish the so-called “Institute of Resources” with its optimal structure as a global network of scientific institutions, departments, specialized institutions and individual professionals, united by common rules and working according to the principle of Open Source or Commons-based peer production.

The result of work of this institute will be formation of clear structured list of national wealth and their energy evaluation that will be the basis for formation of the so-called “Energy Fund” or “Energy Reserve”, depicted in Fig. 4, which feeds (guarantees value) the new energy currency. Prior to achievement of absolute standard of the new currency, it is possible to reduce “the energy fund” through irreparable losses due to use of fossil energy resources and efficiency factor, but after achievement of 100 per cent currency “standard” “the energy fund” will increase at the expense of technologies improvement in resource-intensive production and increase in efficiency factor of production capital, as well as at the expense of steady raising of quantity and quality of alternative energy sources.

5. Other important issues

The human and resource economic system model addresses not only purely economic issues but also political, institutional, ethical and even philosophical, which are no less important than markets.

In the course of many centuries, philosophers tried to find the factor that happen to be the most significant, that gives rise to the social dynamic and drives it. It was found that none of the factors of social and historical development is the only and decisive. Most probably, the social dynamic is conditioned by many factors, which sometimes demonstrate their significance and sometimes withdraw into the shadows.

Nowadays the spiritual and cultural sphere of the society is changing considerably. Information technology is becoming a powerful generator and sharp amplifier of cultural shifts and innovations. Electronic tools allow a human to get necessary information quickly and easily. This is changing the nature of mass culture, educational system, broadens the mind of each person.

The political paradigm

Woodrow Wilson organizes the functions of the state into the following two groups: 1. The Constituent functions, which imply protection of basic rights, such as life, liberty and property; 2. the Ministrant functions, which are advancing the general interests of society and include mainly provision of public goods, such as education, health services, road construction, etc. (Wilson 1918)

Democracy is one of the foundations that can provide realization of the declared goals via public elections of individuals, who are given power to manage the public authorities. In practice, democracy can often create only

outward appearance that public authorities entirely serve the society. Skilfully managing the public opinion, manipulating society using famous methods of a “crowd psychology”, a person or a small group of people, having means of impact on the masses, can provide any convenient result of elections. Such form of democracy is especially characteristic for a state with insufficiently educated and/or politically inactive population.

Due to more and more increasing role of information technologies in a human’s modern life, it became principally possible to abolish the very idea of “power” that is expressed in technological possibility for every person to directly participate in making different national decisions. In our opinion, this is a natural process of evolution of representative “quasi-democracy” into democracy, which has more exact meaning. The possibility for humanity to transfer to direct electronic democracy via internet using personal communication means is just a matter of time. Based on adduced arguments in the course of open discussion, it will be possible to clearly determine competence of people in every separate sphere of life and to form national decisions based on competent expression of popular will.

Ethical principles: openness, confidence, cooperation

Authors believe that implementation of human and resource economic system will gradually change ethical principles of individual’s behaviour from reservedness to openness, from fear to confidence and from individual profit-maximizing competition to cooperation. The first shift is induced by common unlimited access to information and unrestricted participation in state governance; the second – by sufficient level of social security as well as stability and predictability of economic circumstances; the third – by just income redistribution, explicit ideology of balanced exchange between individual and environment and the open governance system that encourages cooperation and understanding of the notions of common good and collective responsibility.

This ethical evolution refers to the modern understanding of Secular Humanism and can be regarded as further development of humanistic ethics. (Edwards 1989)

Conclusions

In the aspect of economy the human and resource economic system suggests three main reforms that could fix the inconsistencies caused by lacking attention from contemporary economics:

- 1. The reform of the monetary system.** The reform will cease interest rates for loans meeting the capital acquisition needs, and energy is going to become a new peg and value guarantee for the new currency.
- 2. The reform of the currency flow.** The reform will provide a complete transition to cashless transactions of money and appropriate wide scale information through individual communication devices;
- 3. The goods markets reform.** The reform will provide mandatory disclosure of the entire chain of manufacturers cost of the goods to consumer as well as it will establish the new pricing mechanism which includes the negative environmental and social externalities of the market to the final price of goods for consumers.

Every mentioned reform addresses in more or less extends to the ideas of justice and equality as well as to achieving sustainability in economic development processes and preserving the nature and environment for future generations. The authors are conscious that meeting such significant goals mentioned above is not exclusively about economics that is why a multidisciplinary approach appears to be the solution. The work upon

the human and resource economic system is in progress therefore there are yet many questions to be answered.

Nevertheless the main philosophic principle behind the human and resource economic system is that of a harmony between natural processes and those going on in human society. The authors consider this a key to social and economic evolution, free of slumps and depressions and virtually infinite – as the evolution of life itself.

Energy sources



Renewable

Wind, solar, geothermal, tidal, biomass etc. Do not reduce the standard.



Nuclear fuel

Partly reduces the standard: costs of waste utilization.

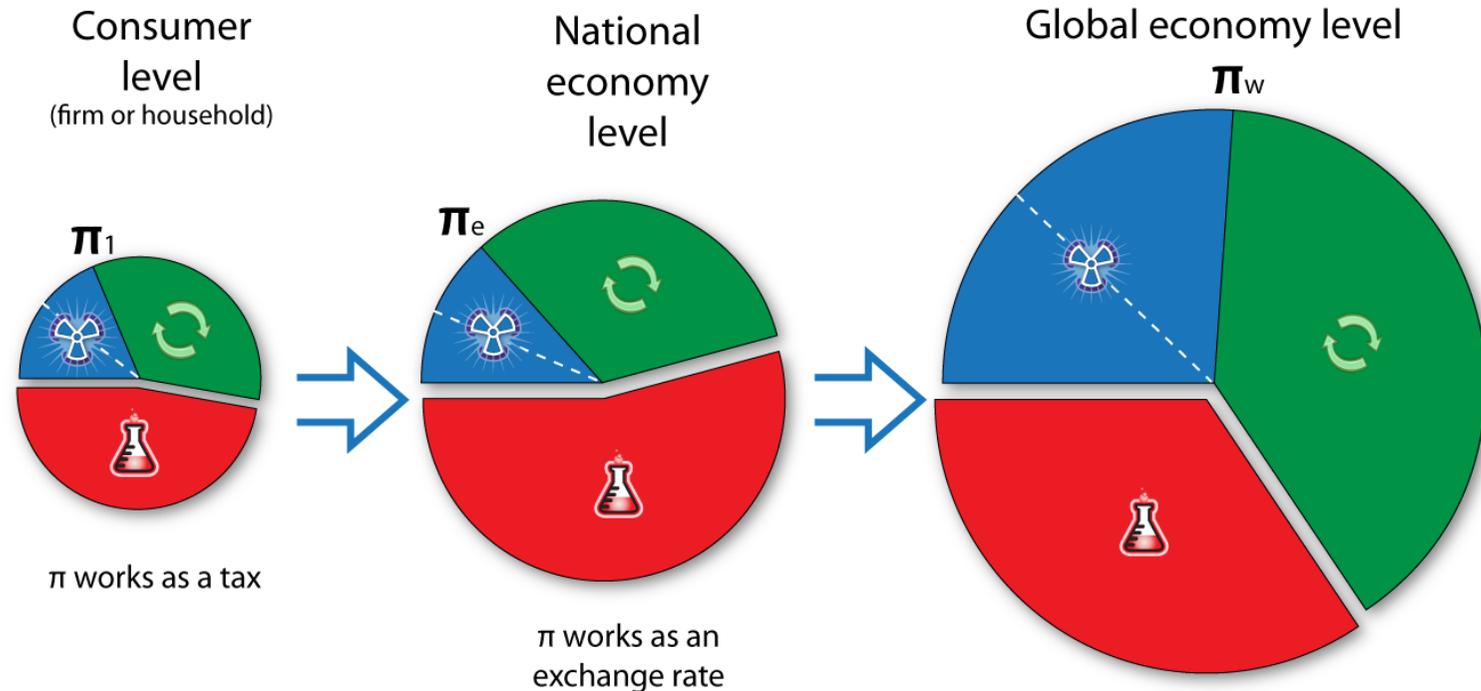


Fossil fuels

Oil, coal, gas, etc. Significantly reduce the standard: limits to reserves, compensation of damage to environment/

Fig. 2 Standard of EcoUnit

Coefficient between 0 and 1, on which the economic agent's income is multiplied. Depends on specific gravity of different energy sources, consumed by the agent



$$\pi = r + n(1-k)$$

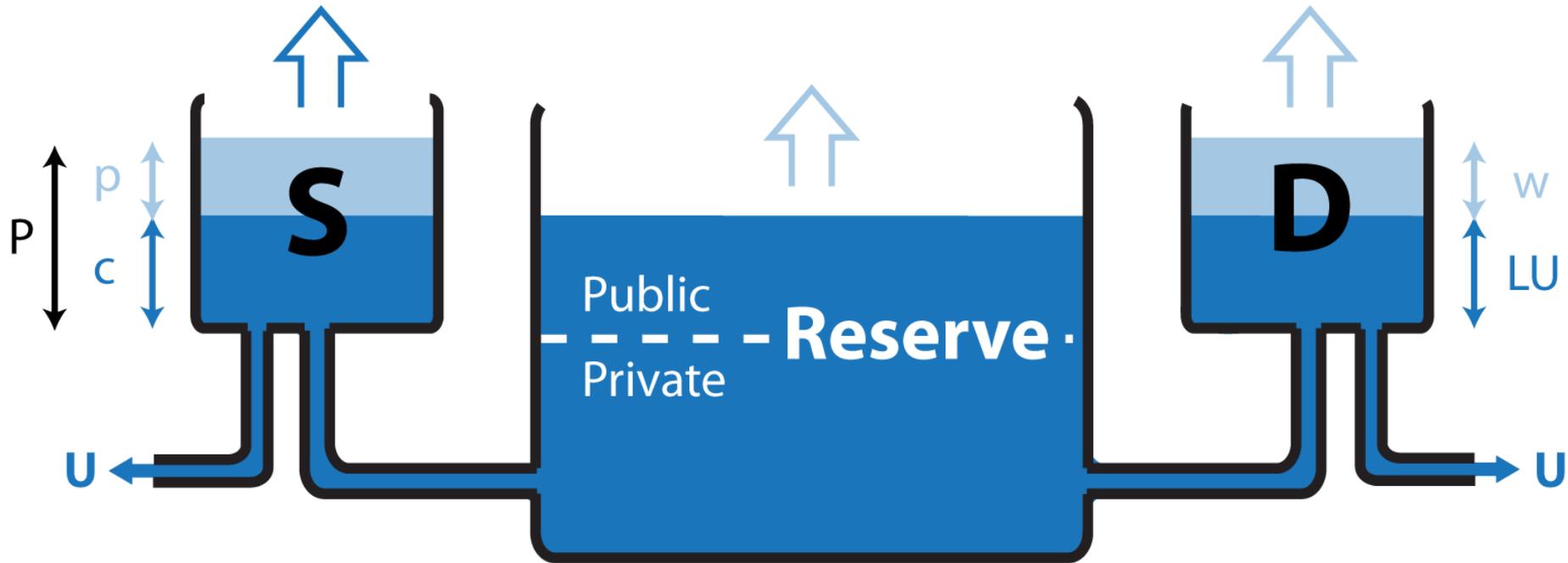
π - standard of EcoUnit
 r - specific gravity of renewable energy sources
 n - specific gravity of nuclear fuel

$$Y = Y_0 \pi$$

k - percentage of energy used for nuclear waste utilization
 Y - net income
 Y_0 - gross income

Economic pressure towards increasing of π facilitates shift to renewable energy sources

Fig. 4 Balance of financial resources between supply and demand



Reserve - energy capital reserve. Initially formed from the energy inventory of national wealth.
 Reserve + S + D = total size of economy.
 Grows together with economy.

S - Supply

D - Demand

P - market price

c - self-cost

p - markup

LU - Life Unit

w - wage

U - irreplaceable energy losses

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