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Economic Actors and the Ultimate Goal of the Economy

Mainstream economics employs a rather simplified picture of economic systems. Economic actors are grouped into three categories, namely individuals/households, firms, and the state. Among these actors only monetized transactions are considered. The ultimate goal of the economy is defined as maximization of individual income or financial wealth.

In the reality of the 21st century the working of the economy is far more complex. Economic actors represent diverse types and the monetized transactions are only one form of the interactions among them. The paper suggests that we should minimally consider the following types of economic actors: individuals, organizations, communities, networks, and robots (or algorithms).

Among economic actors at least four basic types of interactions can be identified: market exchange, bureaucratic coordination, ethical transaction, and aggressive action. Different types of interactions may be combined but “crowding in” and “crowding out” effects may happen among them. For example, market exchange may crowd out ethical transaction or bureaucratic coordination may crowd out market exchange.

The ultimate goal of the economic system is not to produce material gains but to provide livelihood for those who are involved. Just and sustainable prosperity can be considered as the ultimate goal of the economy against which the performance of any economic system should be measured.

1 Physics Envy

The economics profession is often characterized by the so-called “physics envy”. Economists usually admire physics for its exactness, and high explanatory and predictive power. I think that there are good reasons for physics envy. One reason is that physics (especially quantum physics) employs a rich and verified ontology.

The Standard Model of quantum physics (Mann 2010) classifies all known elementary particles and describes three of the four known fundamental forces in the universe, the electromagnetic, weak, and strong interactions (but does not include gravitational force). Although the model leaves some phenomena unexplained and falls short of being a complete theory of fundamental interactions, it has huge explanatory and predictive power.

According to the standard model of quantum physics elementary particles look like this.
(Figure 1)

STANDARD MODEL OF ELEMENTARY PARTICLES

QUARKS	UP mass $2,3 \text{ MeV}/c^2$ charge $\frac{2}{3}$ spin $\frac{1}{2}$ 	CHARM mass $1,275 \text{ GeV}/c^2$ charge $\frac{2}{3}$ spin $\frac{1}{2}$ 	TOP mass $173,07 \text{ GeV}/c^2$ charge $\frac{2}{3}$ spin $\frac{1}{2}$ 	GAUGE BOSONS	GLUON 0 0 1 	HIGGS BOSON mass $126 \text{ GeV}/c^2$ 0 0 
	DOWN mass $4,8 \text{ MeV}/c^2$ charge $-\frac{1}{3}$ spin $\frac{1}{2}$ 	STRANGE mass $95 \text{ MeV}/c^2$ charge $-\frac{1}{3}$ spin $\frac{1}{2}$ 	BOTTOM mass $4,18 \text{ GeV}/c^2$ charge $-\frac{1}{3}$ spin $\frac{1}{2}$ 		PHOTON 0 0 1 	
	LEPTONS	ELECTRON mass $0,511 \text{ MeV}/c^2$ charge -1 spin $\frac{1}{2}$ 	MUON mass $105,7 \text{ MeV}/c^2$ charge -1 spin $\frac{1}{2}$ 		TAU mass $1,777 \text{ GeV}/c^2$ charge -1 spin $\frac{1}{2}$ 	Z BOSON mass $91,2 \text{ GeV}/c^2$ 0 1 
		ELECTRON NEUTRINO mass $<2,2 \text{ eV}/c^2$ 0 spin $\frac{1}{2}$ 	MUON NEUTRINO mass $<0,17 \text{ MeV}/c^2$ 0 spin $\frac{1}{2}$ 		TAU NEUTRINO mass $<15,5 \text{ MeV}/c^2$ 0 spin $\frac{1}{2}$ 	W BOSON mass $80,4 \text{ GeV}/c^2$ ±1 1 



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There are six quarks (up, down, charm, strange, top, bottom), and six leptons (electron, electron neutrino, muon, muon neutrino, tau, tau neutrino). Gauge bosons are force carriers that mediate the strong, weak, and electromagnetic interactions. The Higgs boson plays a unique role as it generates the masses of the leptons (electron, muon, and tau) and quarks. (Mann 2010)

In contrast with quantum physics, mainstream economics employs a rather simplified ontology. Economic actors are grouped into three categories, namely individuals/households, firms, and the state. Among these actors only monetized transactions are considered. The ultimate goal of the economy is defined as maximization of aggregate income or wealth.

As Hamlet says „There are more things in heaven and earth, Horatio, Than are dreamt of in your philosophy”. (Hamlet 1.5.167-8). The economic reality in the 21st century is far more complex than it is depicted in mainstream economics today. Consequently a much richer and

more sophisticated ontology is need in economics to increase its interpretative and predicting power.

2 Variety of Economic Actors

In today's economic life we can meet a variety of actors. A tentative list of them is as follows:

businesses (corporations, unincorporated businesses, social enterprises)

financial institutions (central banks, commercial banks, investment funds, pension funds, insurance companies)

public service organizations (education, health care, utilities)

households (super rich, upper class, middle class, poor, marginalized)

local communities (cities, towns, villages)

virtual communities (facebook, linkedin, twitter)

political bodies (parliaments, central and local governments, international organizations)

legal institutions (courts of justice, law firms)

cultural institutions (churches, universities, R&D organizations, art institutions)

media (print, online, and audio-visual)

civil society organizations (environmental, human rights, cultural)

professional associations (chambers of commerce, etc.)

trade unions

clusters

robots (financial, physical)

These actors can be grouped into broad categories like individuals, organizations, communities, networks, and robots. They differ ontologically, which means that their motivations, cognitive capacities and moral capabilities are different.

Mainstream economics uncritically presupposes that each and every economic actor follows the same pattern of behavior, namely *maximize its self-interest*. This claim is empirically false. Behavioral economists collected overwhelming empirical evidence which convincingly demonstrates that economic actors systematically violate the requirements of the Homo Oeconomicus model. They display bounded rationality, bounded willpower and bounded self-interest. Bounded rationality reflects the limited cognitive abilities that constrain human problem solving. Bounded willpower captures the fact that people sometimes make choices that are not in their long-run interest. Bounded self-interest incorporates the comforting fact that humans are often willing to sacrifice their own interests to help others. (Mullainathan and Thaler 2000, Thaler 2015)

Economic behavior is multifaceted and context-dependent. (Zsolnai 2013) Richer behavioral models are needed which can capture the self-regarding, other-regarding and norm-regarding aspects of choice behavior of economic actors. (Zsolnai 2008)

3 Coordination Mechanisms: Crowding In or Crowding Out?

Based on his life-time preoccupation with non-equilibrium economic system Janos Kornai (1984, 1990, 1992) identified four basic coordination mechanisms which play decisive role in the working of economic systems. Coordination is defined by Kornai as the regulation of two or more interacting economic actors. The four coordination mechanisms are the market coordination, the bureaucratic coordination, the ethical coordination, and the aggressive coordination.

Market coordination. There is a horizontal relationship between the buyer and the seller. They enter into the relationship voluntarily. Each of them is motivated to make a profit or surplus. The transaction is monetarized.

Bureaucratic coordination. There is a hierarchical relationship (sub- and superordination) between the actors. The participation in the relationship is non-voluntary. Subordinate actors are motivated to accept the orders and prohibitions of the superordinate actors through administrative coercion supported by legal sanctions. The relationship is lasting and institutionalized.

Ethical coordination. Horizontal relationship exists between the actors. They enter into the relationship on voluntary basis. Coordination may be based on reciprocity or one-sided altruism. The aim of the interaction is not material gain but help the others.

Aggressive coordination. There is a hierarchical relationship between the superordinated and the subordinated actors. Participation is non-voluntary. A willful force is used by the superordinated toward the subordinated to achieve the desired transaction.

Kornai (1984) notes that in reality the different coordination mechanisms operate side by side. Their scope is partly disjunct but they assert themselves partly intertwined. Combinations of the coordination mechanisms occur. However, the combination of different mechanisms is usually not stable. Bureaucratic or aggressive coordination may crowd out market or ethical coordinations. Also, market coordination may crowd out ethical coordination.

In the psychology literature, Deci (1976) and Deci and Ryan (2000) have illuminated the relationship between intrinsic and extrinsic motivation, i.e. motivation that is inherent in the task itself and motivation that relies on external rewards or sanctions. In the economic literature, the crowding-out effect, i.e. instances where external rewards in fact reduce the internal motivation of the actor, have been explored both conceptually and through a number of experimental studies (Frey 1997).

In his book “The Moral Economy” Samuel Bowles (2016) extensively documents and analyses the dynamic interaction between market forces and ethical motivations.

An instructive case is the famous experiment of the *Haifa's day care center* (Gnezzly and Rustichini 2000). In Haifa at day care centers experimenters introduced a fine for parents to reduce their late arrival for picking up their children. The result was disastrous. Parents responded to the fine by doubling the late arrival. After twelve weeks the experimenters revoked the fine but the parents' higher level tardiness persisted.

Analyzing the Haifa case Samuel Bowles (2016, 4-5) concludes that the counterproductive result suggests “a negative synergy between economic incentives and moral behavior. Placing a price on lateness, (...) seems to have undermined the parents' sense of ethical obligation to avoid inconveniencing the teachers, leading them to think of lateness as just another commodity they could purchase.”

Another important experiment about the negative synergy between market incentives and ethical motivation was executed by Armin Falk and Nora Szech (2013). They demonstrate that using the market as a frame of reference in decision making provides a good excuse for people to morally disengage from considerations of doing harm and damage for third parties. In the experiment executed by Falk and Szech subjects decided between either saving the life of a mouse or receiving money. In market setting, the willingness to kill the mouse was substantially higher than in the case of individual moral decisions.

There are cases where ethical motivation and market incentives go hand in hand and create positive synergy. Such a insightful case is the *Irish plastic bag tax case*.

In 2002 the government introduced a small tax on plastic bags. This market incentive was preceded by a huge publicity campaign to show the dramatic effect of plastic bags in the natural environment. The effect was phenomenal: in two weeks the use of the plastic bags in Ireland dropped by 94 %. (Rosenthal 2008) “The tax may have crowded in social preferences: for many Irish man and women, carrying a plastic grocery bag home appeared to have joined wearing a fur coat in the closet of antisocial practices. (...) the monetary incentive was combined with a message of explicit social obligation, and it apparently reminded people of the larger social cost of using and disposing of the bag.” (Bowles 2016, 202-203.)

The negative and positive synergies between the different coordination mechanisms suggest that the fabric of the market economy is a highly complex, adaptive system where incentives, constraints and preferences play a dynamic role: sometimes undermine, sometimes reinforce each other.

4 Substantive View of the Economy

Mainstream economics suggests that the main goal of economic activities is to produce material gains. This implies that the ultimate goal of the economy is to maximize aggregate income or wealth.

Aristotle made an important distinction between *oikonomia* and *katalaxia*. *Oikonomia* is about activities to satisfy material needs of the family while *katalaxia* is to produce goods, especially food, for trade outside the community. *Oikonomia* has a limiting principle since the material needs of the family are finite. Contrary to this, *katalaxia* has no limiting principle because it is driven by the commercial activity of moneymaking. While *oikonomia* concerns sufficiency and *katalaxia* concerns maximization of monetary gains.

Following *Aristotle* *Karl Polanyi* formulated a substantive theory of the economy. He distinguished between the formal and the substantive meanings of the term "economic". (Polanyi 1977)

The *formal* meaning of "economic" springs from the logical character of the means-ends relationship; as in economizing or economical; from this meaning springs the scarcity definition of economic. Contrary to this, the *substantive* meaning of "economic" points to the elemental fact that human beings, like all other living things, cannot exist for any length of time without a physical environment that sustain them; this is the origin of the substantive definition of economic.

The substantive meaning stems from man's patent dependence for his or her livelihood upon nature and his or her fellows. Man survives by virtue of an institutionalized interaction between himself and his natural surroundings. That process is the economy, which supplies

man with the means of satisfying his or her material needs. So in substantive sense "economic" denotes nothing else than bearing reference to the process of satisfying materials needs of the community.

Polanyi (1977) suggests that throughout history the main goal of economic activities is always to provide livelihood for those who are involved. This implies that the ultimate goal of the economy is to create *sustainable* and *just prosperity* against which the performance of the economic system should be measured.

Prosperity is not identical with aggregate income or wealth measured by GDP or GNP. Today, countries around the world judge economic performance by GDP, which measures the market output of goods and services. However, GDP ignores all activities outside the marketplace, and so it provides a lopsided and incomplete evaluation of economic performance. (Brown 2016, 104)

More holistic measure of the performance of the economy have already been developed. Among them are Genuine Progress Indicator, Bhutan's Gross National Happiness Index, the OECD Better Life Index, and the Happy Planet Index.

Genuine Progress Indicator is a single-value measure which expands on GDP by adding in the value of nonmarket benefits (e.g., child rearing, leisure) and subtracting the value of nonmarket costs (e.g., environmental degradation, depletion of natural capital), and also adjusting for inequality across the population.

Bhutan's *Gross National Happiness* (GNH) Index is a non-monetary measure. It is a complex summation of nine equally important domains, namely psychological well-being, use of time, community vitality, cultural diversity, ecological resilience, standard of living, health, education, and good governance.

OECD Better Life Index (BLI) uses a dashboard of indicators: income, jobs, community, education, housing, environment, governance, health, life satisfaction, safety, and work-life balance. based on surveys that ask people their perceptions about their lives, health, and government.

Happy Planet Index (HPI) measures a country's happiness score times life expectancy (both adjusted for inequality) divided by its ecological footprint (the amount of land required per person to replicate the country's consumption over time).

A simple but powerful measure of prosperity can be generated as follows:

$$P = (S, H)$$

where „S” refers to sustainability while „H” refers to human well-being.

This two-component measure does not presupposes any substitutability between sustainability and human well-being. Rather it reflects the possible trade-offs between these variables. Indeed there are serious trade-offs between sustainability and human well-being in today's economies.

There are relatively simple indices which can be used for determining the components of prosperity. Sustainability can be measured by the ecological footprint while well-being can be measured by the human development index.

Ecological footprint measures the ecological assets that a given population requires to produce the natural resources it consumes (including plant-based food and fiber products, livestock and fish products, timber and other forest products, space for urban infrastructure) and to absorb its waste, especially carbon emissions. Ecological footprint is expressed in global hectares—globally comparable, standardized hectares with world average productivity. (Global Footprint Network 2017)

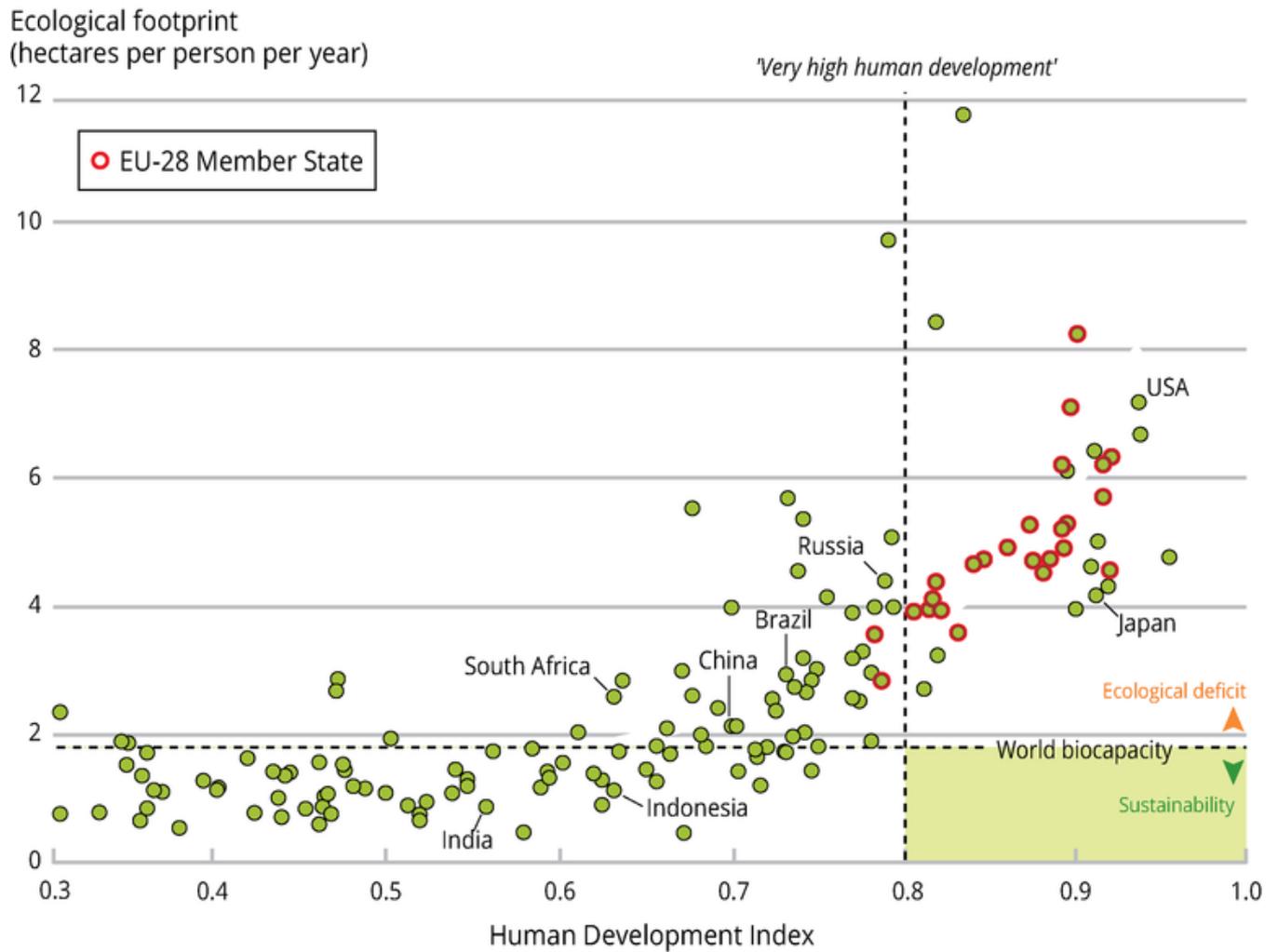
The well-known *Human Development Index* (HDI) is a composite index of life expectancy, education, and per capita income. A country scores higher HDI when the lifespan is higher, the education level is higher, and the GDP per capita is higher. (UNDP 2010) A more sophisticated version of HDI is the so-called Inequality-adjusted Human Development Index (IHDI) which also account for inequality. IHDI measures of the average level of human development of people in a society once inequality is taken into account. (UNDP 2010)

Data collected by the Global Footprint Network suggest that very few countries are achieving high human development (HDI 0.67 or higher) within a globally replicable level of biocapacity demand (per capita Footprints lower than 1.79 global hectares for 2007). Moran et al. (2008) observe that as countries improved human well-being, their resource use grew. Beyond a certain level, small HDI gains are likely only obtainable via large ecological footprint increases.

A recent study by the European Environmental Agency (2015) show that there is no country today which provides very high level human well-being while staying within the world biocapacity demands. (Figure 2)

To achieve the sustainable prosperity requires other actions and policies than those recommended by mainstream economics. Ecological economists suggests that prosperity can be attained without economic growth. Tim Jackson (2017) forcefully argues that the economy of tomorrow may be transformed in ways that protect employment, facilitate social investment, reduce inequality and deliver both ecological and financial stability.

Figure 2 *Ecological Footprint versus Human Development Index*



Source: *European Environmental Agency* (<http://www.eea.europa.eu/legal/copyright>)

5 Conclusion

The ontological assumptions of mainstream economics should be reconsidered. Better ontology can provide a basis for developing more ethical and effective economic actions and policies.

In the 21st century economy economic actors represent diverse types of beings and the monetized transactions are only one form of the interactions among them. Economics should minimally consider the following types of economic actors: individuals, organizations, communities, networks, and robots (or algorithms). Among the economic actors different types of interactions can be identified: market exchange, bureaucratic coordination, ethical transaction, and aggressive action. In reality different types of interactions are usually combined but “crowding in” and “crowding out” effects may happen among them. For example, market exchange may crowd out ethical coordination or bureaucratic coordination may crowd out market exchange.

Taking a more universal perspective the ultimate goal of the economic system is not to produce material gains but to provide livelihood for those who are involved. In this way sustainable and just prosperity can be considered as the ultimate goal of the economy against which the performance of any economic system should be measured.

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