

Economic psychology for laymen

Abstract

Neuroeconomics can now replace the Paradigm of Bounded Rationality (BR) by a rooting in positivist economic psychology. The key finding is that the neuroeconomic Model of Decision-Making (NeM), based on neuroeconomic trials, suspends subjectivism, identifying risk-willingness as a basal parameter of economic behavior. Further, NeM and behavioral psychology (Big5 Taxonomy) integrates correlation studies into an Economic Psychology that simplifies Sensi-training in the Big5 to persons without specialism in Psychology. Finally, this Economic Psychology implicates a new interdisciplinary outlook on three domains of Economics:

- 1 Evidence of the Florida Thesis on the Rise of the Creative Class as a qualitative growth effect
- 2 A positivist framework for modern stress-management by classical meditative in-depth relaxation
- 3 Recognition of prejudices as a special problem of behavioral science due to the interaction of subject and object

Discussion focuses on the significance to economic growth theory to abandon BR. The conclusion is, that the simple model of accounting real growth in GDP, must be replaced by a tripartite model already termed 3P in management research (Planet, Personnel and Profit) including negative growth factors, too. The 3P has a common outcome in Quality-Adjusted Life Years (QALY) which at the global level has a negative aggregated value in the 21 Century. So, political measures to counterbalance, for instance the damage to the climate, are discussed concluding an urgent need for a global CO2 Tariff (ET).

Keywords: neuroeconomic, psychology, behavioral economics, growth

Volume 15 Issue 3 - 2024

Torben Larsen

Retired EU Coordinator from University of Southern Denmark, Denmark

Correspondence: Torben Larsen, Retired EU Coordinator from University of Southern Denmark, MSc Econ et Strat Man, Denmark, Email torlar46@gmail.com

Received: April 20, 2023 | **Published:** May 07, 2024

Introduction

The Paradigm of Bounded Rationality (BR)¹ has been a useful base for the breakthrough of industrial growth in simple daily necessities. However, a number of shortcomings have been revealed to BR (market-failures) as long-term paradigm of economic behavior:

1. As already claimed by Simon many people act selfish for career purposes in corporations and institutions
2. Many are biased with loss aversion in periods with economic recession²

3. In complex choices like healthcare and Eco-protection, a minority is biased by risk-aversion³
4. Students have called for a pluralist approach regarding theory, method and interdisciplinarity⁴

A psychological approach to behavioral economics rooted in empiricism is the Big5 Taxonomy.⁵ The Big4 personalities for use by laymen are defined in Table 1 in accordance with APA.

Table 1 Psychological personality profiles (Big4)¹

Extravert	Open-minded	Conscientious	Agreeable
Stimulated by Other	Receptive to arguments, for instance: Cultural experience and Aesthetics	Organized	Collaborative
Outbouded	Curious/Innovative	Responsible	Considerate
Energetic	Not necessarily consistent	Diligent	Orderly and Quiet
Talkative		Efficiency-oriented	Sympathetic
No Reservations		No Procrastination	Non-selfish

Note 1: The fifth profile, Neuroticism, is not included because it's a diagnosis that doesn't apply among laymen.

The societal impact of the Big5 is studied among students in different Academic Majors.⁶ The psychological differences across Majors are often moderate (about 0.5 standard deviation), but especially open-mindedness differentiates strongly among Majors. Findings of direct relevance are:

- Students of economics, law and medicine score high on Extraversion. A later study elaborates the characteristics of students

of Economics/Business as more infected by the 'Dark Triad' (Narcissism, Psychopathy and Machiavellianism) in contrast to students of psychology

- Students of psychology/arts/humanities score high on Open-mindedness
- Students of science (including engineering) score high on Agreeable

So far, application of the Big4 requires specialist psychological know-how. The purpose of this study is to develop a Big4-Heuristic for laymen.

Method

Economic preference for risk-willingness is operated on a Scale 0-10.⁷ This Dohmen Scale correlates strongly with central behavioral parameters as 1) Car driving ($r=0.49$), 2) Financial matters ($r=0.50$), 3) Careers ($r=0.61$), 4) Sports/leisure ($r=0.56$), and 5) Health ($r=0.48$). The population distribution of risk-willingness is skewed with an overweight of low risk-willingness (Mean=4.4, Median=5.2 and SD=2.25). Risk-willingness is negatively correlated with age and being a female and positive correlated with height and formal education. The gender skewness is illustrated by the means (Male 5, Female 4). Further, a study has demonstrated the correlations between Big4 and Dohmen-Scale:⁸

- i. Extravert and Open-minded correlate positively with economic preference
- ii. Conscientious and Agreeable correlate negatively with economic preference

A Neuroeconomic model of Decision-Making (NeM) is based on the Triune Conception of Brain and Behavior where the X-axis represents the activation of the Limbic System (Autonomous Nervous System (ANS)) and the Y-axis represents the Frontal cognitive Analysis. This model identifies by neuroeconomic trials a convex functional relationship between ANS and Frontal Analysis identified as risk-willingness.³

- i. Its specified in the parameters of the Triune Conception of Brain and Behavior (ANS and Frontal Analysis)
- ii. The functional integration of ANS and Frontal Analysis is by neuroeconomic trials identified as a curvilinear function expressing risk-willingness (NeM)
- iii. The integration with the Big4 personalities is documented by correlation studies
- iv. The first purpose of this study is by review of empirical research to find guidelines on the operation of EP. Other purposes are to identify new central guidelines on the whole function of economic life.

Results

Simplified sensitivity training to the Big4 for non-specialists in Psychology

Operate the Big5 for laymen by the Dohmen Scale 0-10, as illustrated in Figure 2. Use it by questioning both yourself and others and compare the answers from both parties. Collaboration with others gives an opportunity of systematic learning comparing the self-evaluation of others with your own pre-evaluation of that person. Based on the correlations in Becker et al., Table 2 guides the interpretation of the Dohmen Score, for instance indicating 5 on the Dohmen Scale suggests a Conscientious personality.

- 1) Table 2 includes only 78% of persons >18 years as 22% Neurotics (Score 0-2) are excluded.
- 2) Extraverts representing 10% of the population are deducted to represent the score.⁸⁻¹⁰
- 3) The exact distribution between "Agreeable" and "Conscientious" is not known, but Agreeables are supposed to be the larger group orienting themselves after the Conscientious.

Table 2 Development in the demographic distribution of economic agents (%)

Group	Agreeable conscientious	Open-minded	Extravert
(Dohmen Score)	(3-6)	-7	(8-10)
All before 20001	56	12	10
(Creative Class 20202)	-28	-40	10

Sources: Recalculation of data^{7,9}

Evidence on "The rise of the creative class" as a qualitative aspect of economic growth

Beyond the use for individual training of sensitivity on the Big4, Table 2 gives evidence on the overall development of creative man by industrialisation after WW2. So, the Florida 2012 Thesis on the "Rise of the Creative Class" has been verified in a study by the European Union.⁹ This study confirms a crucial rise of the creative class after WW2 demonstrating a tripling of the creative class to now about 40% of the workforce. Other studies show that extremes such as "Neuroticism" and "Extraversion" are mainly due to genetic heritage wherefore the modern rise is mainly due upgrading of the "Conscientious" personality by modern upbringing, education and business experiences. The economic psychology of modern creative man is further elaborated in a study with entrepreneurship as the prototype of creative man.¹⁰ Saraswathy summarizes the findings in the "Pilot-in-the-plane" - entrepreneur. The Pilot-in-the-plane entrepreneur elaborates the Open-minded personality by these four qualities:

- i. Pragmatism to prioritize "Bird-in-hand" before "Birds-On-Roof"
- ii. Integrity to clarify your "Affordable Loss" by a Budget for the Worst case-scenario
- iii. Versatility to diversify team building as much as possible like a "Crazy Quilt" of all
- iv. Perseverance to overcome obstacles or "Sweeten a sour citrus."

The Pilot-in-the-plane model is supported by a study of business creativity demonstrating the relative efficacy of entrepreneurs compared with other Academic educated manager.¹¹ However, Economics is still a business condition, too, whatever the business purpose - Revenue-of-investment (ROI) - is private-for-profit or for the Common Good. An enterprise must be aware that the state of ROI depends on factors like "Variable unit costs", "Contribution margin" and "Fixed costs".

Stress-management by meditative In-depth-relaxation

NeM reveals, too, classical (Vedic) meditation as relevant to modern stress-management, as evidenced in more studies, for instance at Harvard Medical School.¹² Practice of meditation affects a significantly deeper relaxation movement, from the Temper circle towards Origo in Figure 1. This was not possible without the meditation procedure. Such release of preconscious blockings by relaxation, frees associations as a fourth neurodynamic factor complementing basal reward-seeking, fear responses and cognition.^{13,14} Modern mantra-meditation is practiced in a relaxed sitting position, for instance on a simple chair in a quiet place where thoughts are dissolved by a mantra. Such homeostatic in-depth-relaxation shows subjectively slow breathing and objectively low galvanic skin conductance. The long-term effects of regular mantra meditation are basal health effects:

- I. Significant decline in the stress hormone (plasma cortisol) characterizing a more relaxed pattern.

- II. A meta-analysis finds that regular relaxation exercises complement physical fitness as health activity dissolving stress and anxiety.
- III. A 14-year, pre- and post-intervention study retrospectively assessed government payments to physicians for treating the TM and comparison groups. Payments to physicians declined 5% to 13% annually relative to comparison subjects over 6 years. A randomized study is recommended.
- IV. The psychology of modern meditation is summarized as the "Psychology of Silence".

Due to the strong emotions that may be associated with meditative in-depth-relaxation, it's recommended to learn the procedure from an educated consultant in meditation, for instance a representative of one of the science-oriented meditation NGOs.

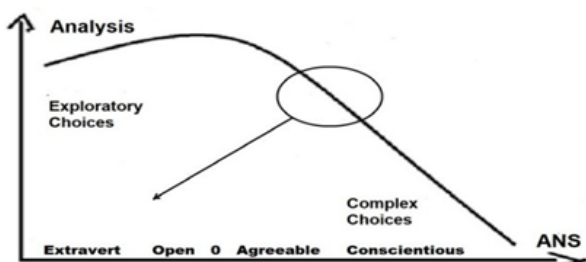


Figure 1 Economic psychology (EP).



Figure 2 Dohmen scale on risk-willingness (Mark 0-10 by a X).

Economics and prejudices

Antique Greece discovered scientific synthesizing as a dialectical process between thesis and antithesis. In the 17th Century, British Empiricists like Bacon, Locke and Hume added empiric falsification

Table 3 Positivist economics

True value	Sample-based probability decision	
	Accept	Reject
Thesis	Representative knowledge	Type I Error (Objectively 5% significance; Subjectively Conscientiousnes
Antithesis	Type 2 Error (Objectively 5% significance; Subjectively Extraversion)	Integrity

Discussion of a balanced contemporary growth criteria

BR is an axiom of GDP per Capita as a simple model of economic growth was in line with Adam Smith that real growth in GDP per capita increases the quality-of-life, was originated 1863.¹⁵ Modern research evidences a logarithmic correlation between life-expectancy and growth in GDP: 2% long-term growth in GDP per capita raises life-expectancy by 3 months. Such growth in GDP during 200 years has more than redoubled average life-expectancy in the industrialized world.¹⁶ Today, the one-dimensional classical model of market-based growth suffers from serious shortcomings. Since WW2 market-based growth failures have become more and more obvious as illustrated by the exponential rising Market- Failure curve in Figure 3 which refer to an elaborated analysis. The most important research findings on market-failures are:

- 1) Already Mill demonstrated that market-based economic growth implies an unequal distribution in income wherefore the total quality-of-life of the population can be improved by social redistribution of income,¹⁴ for instance by Universal Basic Income

to the dialectical process to overcome prejudices by religion, tradition and personality. This implies that subjective biases as the special cases of Type 1-2 Errors in the positivist method have a special relevance to Economics and other behavioral disciplines, see Table 3. In positivist behavioral science is it typically clear to colleagues, if non-professional individual interests, for instance in career, biases the personal professional judgment. However, in Economics the personal interest in utilitarianism is typically identical with the professional, which makes it more subtle to document personal biases, for instance among the important share of the population that is either "Extrovert" or "Conscientious" (as often followed by "Agreeable"). It's a special ethical obligation to economic psychologists to control their subjective biases to gain representative knowledge on their target group. Even Conscientiousness can be too strong and implicate rejection of the most useful solutions. Extraversion is easier to identify, but even more dangerous due to follow-up by a part of agreeables. The ultimate conclusion is in accordance with the axes of Figure 1 that developmental guidelines rooted in empirical evidence are as important as extravert solidarity policies. Knowledge on Economics is in itself a growth factor.¹⁴ Following the Human Capital model improved public knowledge on the relevant means to correct evidenced market-failures is crucial to continue economic growth (rising QALY) in a fragmented world. The crucial challenge of Economic Psychology is to upgrade specialist scientists in the social sciences to think at an interdisciplinary level! This process has been tested in Discussions of individual papers at Academia.edu with more thousands of respondents. A major finding is that especially researchers in BRICS, where economists are still searching their identity in the globalized economy, are a central target group. The conclusion is that a broad dissemination of Economic Psychology within the social sciences is a realistic long-term target to upgrade specialist researchers to a common interdisciplinary level of thinking by an appropriate introductory course.

(UBI) at the level of the line of relative poverty. Contemporary studies by the International Monetary Fund (IMF) show that inequality is rising in the globalized economy due to the gigantic multinational companies.¹⁷

- 2) Referring to WHO stress is an epidemic job-related disease burden that typically leads to Depression or other fatalities, for instance cardiovascular disease. Depression is expected to become the most heavy disease burden 2030.¹⁸ In the USA, a workplace survey estimates the costs of Workplace stress to be 500 billion USD or 2% of GDP in the USA.¹⁹
- 3) Since the report on "Limits to Growth" from the ROM-Club, the damage to the climate has been a rising concern all over the world.²⁰ The global CO₂ -emission aggregate 2023 to 35 Billion tons. This is five-fold more than before WW2. By the most effective substitution and catching from the Atmosphere the average cost is estimated to 150 USD per ton incl. pollution of air, earth and water.²¹ With global GDP aggregating to nearly 100 Trillion USD per year, substitution CO₂ down to the 1990-level (20 Billion tons) as agreed by the UN Paris Agreement 2015 would cost 2% of global production capacity.

- 4) Formula 1 accounts the global marginal growth in the beginning of the 21th Century:

Formula 1 of Economics: Marginal QALY = Financial Growth - Stress - Ecoeffects

(+2%) (-2%) (-2%)

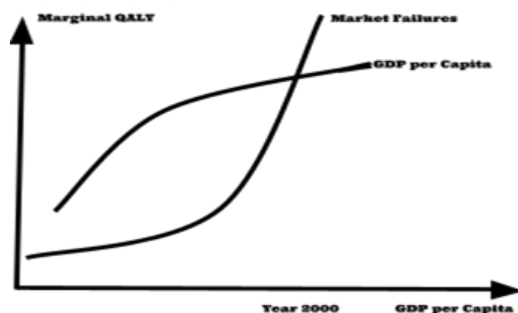


Figure 3 Balanced model of growth.

In summary, Formula 1 accounts the Marginal QALY to -2% per year in the 21st Century! As illustrated in Figure 3 the negative growth effects surpass the positive in the 21th Century!

In mainstream market economics such a dynamic system, ruled by supply and demand, is self-stabilizing, but the dynamics in Figure 3 is in no way self-stabilizing. It depends completely on democratic economic policies that must overrule specialist interests, for instance humanistic ideas and/or simple economic dogmas as Neoliberalism or Communism. The most relevant economic policies to correct the market failures 1-3 are elaborated in a number of specialist studies reviewed in my textbook:

Ad 1 Inequality: The best intervention is Universal Basic Income (UBI) corresponding to the level of relative poverty or 50% of the median national income
Ad 2 Stress-Management: The best individual training is a combination of physical fitness and meditative in-depth-relaxation as already discovered by the Indian Vedic tradition

Ad 3 Climate Protection: There is a broad support among the profession of economists to a CO2 tariff (ET) as the most effective intervention to accelerate the transition towards a carbon neutral economy. ET was originally advanced 1920 by the Nobel Prize Laureate Pigou. Nordhaus was awarded the Nobel Prize 2018 for his model of Dynamic Integration of Carbon and Economics (DICE).²² A review of 27 ET projects around the world²³ confirms that ET is both simple to administer and delivers effective CO2 reductions. Also, ET has complementary qualities to both political wings:

- To the satisfaction of right-wingers, ET relies on business ingenuity to find CO2-neutral products, within the revised price structure
- To the security of left-wingers, the major part of the ET revenue can serve social compensations, without weakening the transition incentive towards carbon neutrality

In a global perspective, Chinese Confucianism is a non-democratic alternative to Western democracies that accepts natural hierarchies, but also expects authorities to fulfill their duties, for instance

Eco-protection. Chinese Confucianism has a comparative advantage in the central long-term planning of economic growth while Western democracies have a stronger rooting in the population preferences. Only the future can show whether Western democratic market economy or Chinese socialist market economy provides the best quality-of-life (QALY) for its citizens, but more respect for

scientific knowledge among democratic politicians is an important factor in this game.

Conclusion

Neuroeconomics can replace the Paradigm of Bounded Rationality (BR) with an unbiased positivist economic psychology. The idea is suspension of subjectivism by integration of Neuroeconomics and behavioral psychology (Big5 Taxonomy) by the Neuroeconomic Model of Decision-Making (NeM). Neuroeconomic trials identifies Risk-willingness as a convex parameter of human behavior which implies 4 cognitive end-user benefits (human capital):

The Discussion focuses on the significance to economic growth theory abandoning BR. The implication is, the simple model of accounting real growth in GDP must be replaced by a tripartite 3P model (Planet, Personnel and Profit) including negative growth factors as well. Methodologically, this is an extension of Health Technological Evaluation (HTA) with the ecological, planetary dimension giving the 3P a common outcome in Quality-Adjusted Life Years (QALY). The 3P is in reality developed and supported by entrepreneurial bottom-up initiatives from a number of business companies, for instance Novo Nordic. Unfortunately, the global aggregate marginal value of the 3P QALY-effects is negative in the 21th Century! Effective political measures to counterbalance damage to the climate are discussed. The Top conclusion is an urgent need for a broad CO2 Tariff (ET). However, ET is developed for the national level, but must be developed for implementation at an international level in a globalized economy.

Acknowledgments

None.

Conflicts of interest

The authors declare that there is no conflict of interest.

Funding

None.

References

1. Simon HA. A behavioral model of rational choice. *The Quarterly Journal of Economics*. 1955;69(1):99–118.
2. Kahneman D, Tversky A. Prospect theory: an analysis of decision under risk. *Econ J Econ Soc*. 1979;47(2):263–292.
3. Larsen, T: Applied Doughnut Economics and Neuroeconomic Psychology for Business and Politics. IGI. 2021a. Pluralist behavioral economics (PBE) for consumers, firms, gender, health and society. *European Journal of Behavioral Sciences*. 2021b;4(3):14–31.
4. ISIPE. An international student Call for pluralism in economics. Open Letter in The Guardian. 2014.
5. Goldberg LR. The structure of phenotypic personality traits". *Am Psychol*. 1993;48(1):26–34.
6. Vedel A. The personality of academic majors. *Am Sci*. 2016.
7. Dohmen T, Falk A, David H, et al. Individual risk attitudes: measure, determinants and behavioral consequences. *JEEA*. 2011;9(3)522–550.
8. Becker A, Decker T, Dohmen T, et al. The relationship between economic preferences and psychological personality measures. *Annu Rev Econ*. 2012;4:453–78.
9. Andersen K, Lorentzen M. Geography of the danish creative class - A mapping and analysis danish part of "technology, talent and tolerance in european cities: a comparative analysis". CBS. 2005.

10. Sarasvathy S, Dew N, Wiltbank R, et al. *Effectual entrepreneurship*. Routledge. 2001.
11. Laurie-Martinez D, Canessa N. Frontopolar decision-making efficiency: comparing effectiveness of experts with different educational backgrounds during an exploration-exploitation task. *Front Hum Neurosci*. 2005;7:927.
12. Benson H, Klipper M. The Relaxation Response The relaxation response: psychophysiological aspects and clinical applications. *Int J Psychiatry Med*. 1975;6(1-2):87–98.
13. Torben L. A pluralist assessment of industrialization. *JABB*. 2023c;10(5):139–144.
14. Torben L. Case report on transcendental meditation (TM). *J Psychol Clin Psychiatry*. 2023d;14(4):88–90.
15. Holen A. *The Psychology of Silence*. Dyade Publishing. 1976.
16. Becker GS. *Human Capital: A theoretical and empirical analysis, with special reference to education* 3rd ed. University of Chicago Press; 1993.
17. Mill JS, Parker Sun, Mourm. Human development report 2003. millennium development goals: a compact among nations to end human poverty. UNDP. 1863.
18. Dabla-Norris E, Kochhar K, Suphaphiphat K, et al. Causes and consequences of economic inequality: a global perspective. *International Monetary Fund*. 2015.
19. Markus M, Yasami MT, Ommeren M, et al. Depression – A global public health concern. WHO. 2012.
20. Hellebuyck M, Nguyen T, Halpern M, et al. Mind the workplace. *Mental Health America*. 2017.
21. Meadows DH, Meadows DL, Randers J, et al. *The limits to growth*. Universe Books. 1972.
22. Nordhaus W. Projections and uncertainties about climate change in an era of minimal climate policies. *American Economic Journal Economic Policy*. 2018;10(3):333–360.
23. Metcalf GE. An emissions assurance mechanism: adding environmental certainty to a US carbon tax. *Review of Environmental Economics and Policy*. 2020;14(1):114–130.