ACADEMIA | Letters

Economic Psychology

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Abstract

Market-driven economic growth is based on a psychology of reciprocity between a majority of consumers maximizing utility and technological creativity by a small minority. The neural correlates to these qualities in the Frontal Cortex explains the option of economic growth. The Big5 psychology integrates with neuroeconomics into a positivist economic psychology with personal risk-will as parameter. The open-minded is identified as a key person in the formation of social standards for instance regarding consumption and technological development. Economic psychology appears as a pragmatic step-by-step alternative to idealist Humanistic psychology. "Simple Living" is identified as rational behavior in digitized economies with low marginal utility. It comprises a variety of humanistic alternatives to consumerism.

However, today market-driven growth is challenged by severe market failures, for instance the Greenhouse effect. Psychology identifies the basic effect of culture as moderation of opposites. In economic policy moderation means better democratic collaboration across-the-center, for instance on a Tariff of CO2 emission that lets the polluter pay for the transition to a carbon neutral economy.

Keywords: Pluralism; Behavioral economics; Neuroeconomics; Big5 Taxonomy; Consumer behavior; Entrepreneurship; Behavioral health; Reciprocity; Political economy.

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1. Introduction

The core of Economics is the vision of better human conditions by economic growth [Smith, 1789]. Economic growth is illustrated in Figure 1 where the broad condition is consumers maximizing utility while a minority of creative entrepreneurs delivers technological progress. Simple machines, such as the "Spinning Jenny" and steam engines, inspired to conceptualize the First Industrial Revolution [Smith, 1789].

Today, we are in the midst of digitizing, the Fourth Industrial Revolution [Schwab, 2017]. This includes brain scanners that are so sensitive to both emotions and thoughts they become veritable "Mind Readers". Neuroeconomics is today a new multidisciplinary field between Neurology, Psychology and Economics. This study focuses, how Neuroeconomics can contribute to economic growth?

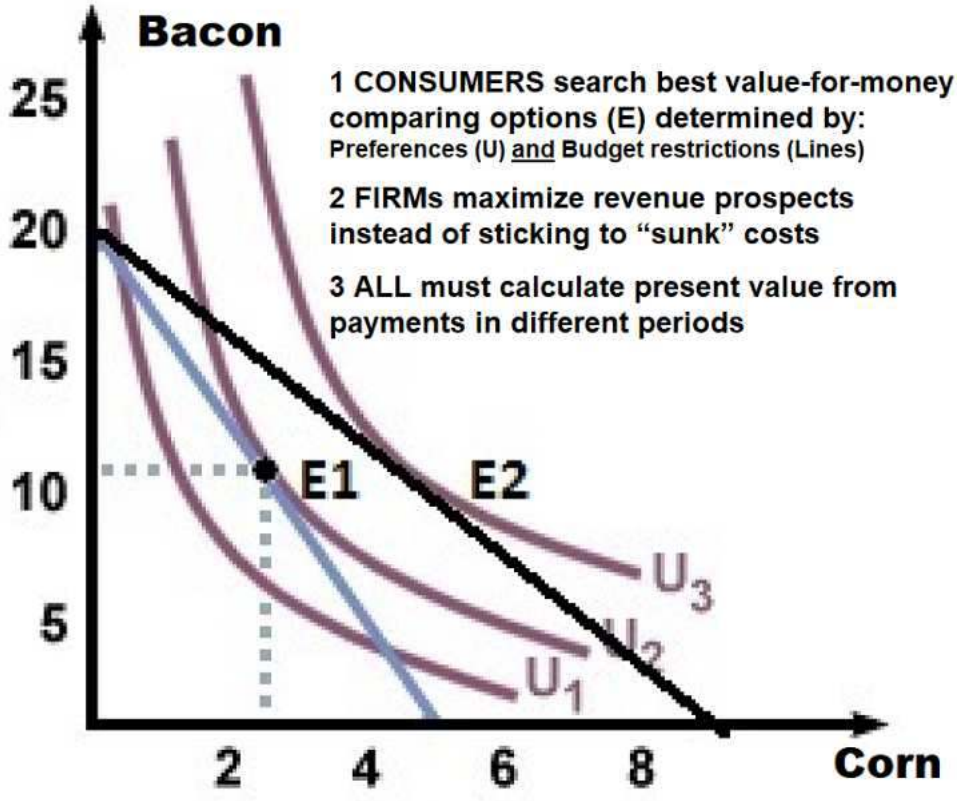

Figure 1. Behavioral Economics

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2. Method

This study is an *integrative* review on "neuroeconomic psychology". An integrative review aims to assess, critique, and synthesize the literature on a research topic in a way that enables new theoretical frameworks and perspectives to emerge [Snyder, 2019]. The neuroeconomic approach implies that 3 large scientific databases are of priority in search for studies on positivist behavioral economics:

- *PubMed* is relevant for neurobiological studies
- *PsychInfo* is relevant for psychological studies
- *EconLit* is relevant for studies in economics

Searching the above and other science databases the following pre-selected studies constitute in all a multidisciplinary model:

1. A neuroeconomic model integrating trials on intertemporal (IC) and explorative (EC) choices is selected as representative of economic decision-making [Larsen, 2017]. This model is operated as the Dohmen-scale of risk-willingness [Dohmen et al., 2011]
2. The "Big Five Taxonomy" (Big5) is selected as representative of pluralist behavioral psychology [Goldberg, 1993]. No psychological alternative to the Big5 is identified
3. A statistical correlation study between economic risk-willingness and the "Big Five" is selected as representative to the transdisciplinary synthesis between behavioral economics and personality psychology [Becker et al., 2012]

These studies constitute together with Figure 1 a model of economic psychology. A special case of economic psychology is the Prospect Theory which is supported by empirical studies [Kahneman & Tversky, 1979]. It states that the population as a whole responds far stronger to prospects of loss than to gain which contrasts the Neoclassical paradigm of Bounded Rationality [Simon, 1959]. However, the Prospect Theory is not a comprehensive model of behavioral economics.

Other special case studies relate to Overload of information, Limited information, The Zero price effect, Discounting, Emotional biases and other situational and contextual biases. This integrative review focuses exclusively on development of a comprehensive model of economic psychology.

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3. Results

3.1 Neural correlates to Behavioral Economics

In accordance with the triune brain model of neurobiological evolution (McLean, 2002), Figure 1 illustrates neurodynamics as reviewed [Larsen, 2017]:

1. Ambivalent autonomic passion and fear processes (Dopamine pathways ANS) constitutes the Orbitofrontal Cortex (OFC) or "Preferences" in terms of Economics (ANS operates as Heart Rate Variability [Thayer et al., 2912] that might be measured on a smartphone app).

2. Memory-based adaptation within the Prefrontal Cortex centers the Dorsolateral Prefrontal Cortex (dlPFC) or "Analysis" in terms of Economics (Analysis is most simply operated as Fast versus Slow thinking [Kahneman, 2011]).

3. Within the Prefrontal Cortex, OFC and dlPFC is integrated by the Frontopolar Cortex in a pending self-balancing circuit with the Ventromedial Prefrontal cortex [Koechlin & Hyafil, 2007].

Within this neural framework, neuroeconomics has identified the following specific economic characteristics:

- Complex (Intertemporal) choices (IC) identify a minority population with both low analytic activity and a strong or fearful risk-aversion [McClure et al., 2004]. The majority of consumers with a good Analysis and moderate risk-aversion can make this type of choices fulfilling the broad condition of market-based economic growth

- Explorative choices (EC) activate the subcortical root of imagination combining a moderate analytic activity with low risk-aversion [Daw et al., 2005]. The second condition for market economy is fulfilled by a minority of persons with good entrepreneurial ingenuity for explorative choices to develop new products

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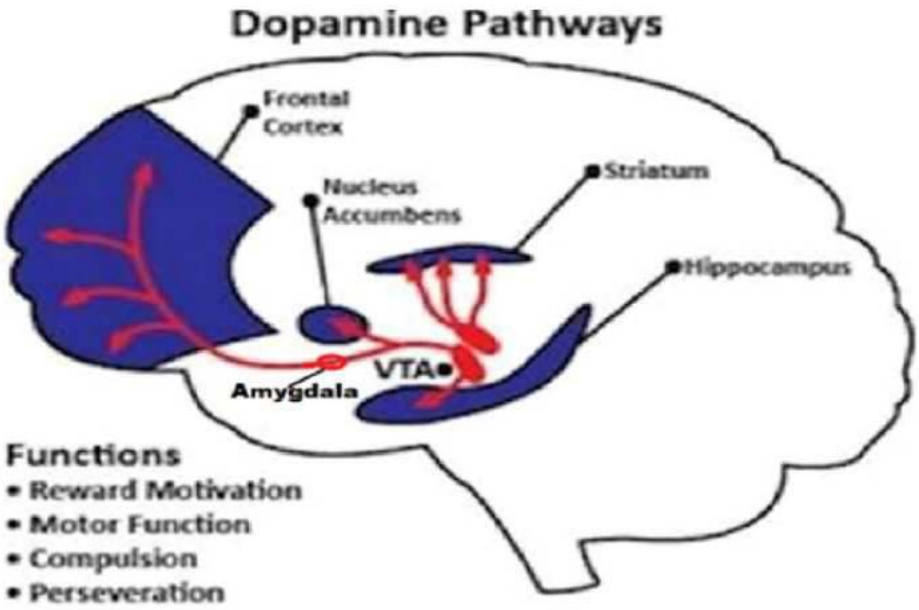

Figure 2. Triune Neurodynamics

Neuroeconomics identifies risk-will as the comprehensive parameter of economic behavior [Larsen, 2017]. 'Willingness to take risks in general' is operated on a scale from 0 through 10 in a representative survey on 'risk attitudes' with 20,000 respondents [Dohmen et al., 2012]. The correlation on important life domains are: 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 Dohmen-scale has an average of 4.4 with SD=2.25. More factors affect the 'General risk willingness', however, the single far most important factor is gender as females are moderately more risk-averse than males (Average: Male=5 and Female=4).

3.2 Integrative Neuroeconomics

3.2.1 The Big5 Taxonomy

- The Big5 Taxonomy is identified by cross-correlations [Goldberg, 1993]. The Big5 define 5 personality traits in the general population:
  - EXTRAVERT (outgoing/energetic vs. solitary/reserved)
  - AGREEABLE (friendly/compassionate vs. critical/rational)

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- *OPEN TO EXPERIENCE* (inventive/curious vs. consistent/cautious)
- CONSCIENTIOUS (efficient/organized vs. extravagant/careless)
- NEUROTIC (sensitive/nervous vs. resilient/confident)

The validity of the 'Big Five Taxonomy' is demonstrated in a study of students in Academic Majors using the 'Big Five' Taxonomy [Vedel, 2016]. The psychological differences across Majors are often moderate (about 0.5 standard deviation), but especially open-mindedness differentiates strongly among Majors.

3.2.2 Model of Economic Psychology

The Big5 is ordered by Risk-willingness [Becker et al., 2012]:

- Risk-willingness correlates positively with EXTRAVERT and OPEN-MINDED
- Risk-willingness correlates negatively with AGREEABLE, CONSCIENTIOUS and NEUROTIC. However, for use among non-psychologists Neuroticism is not included reducing the Big5 to the Big4 [Breivika et al., 2020]

Economic psychology arises from the combination of findings in relation to Figure 2 with the findings on the Big4. Figure 3 serves dialogue between yourself and friends, colleagues, relatives, acquaintances and other contacts to find out which of the Big4 you and others resemble the most. Noting both the ex-ante and ex-post judgments from both yourself and others. In this way you shall gradually improve your skills to judge the dominant traits of other people.

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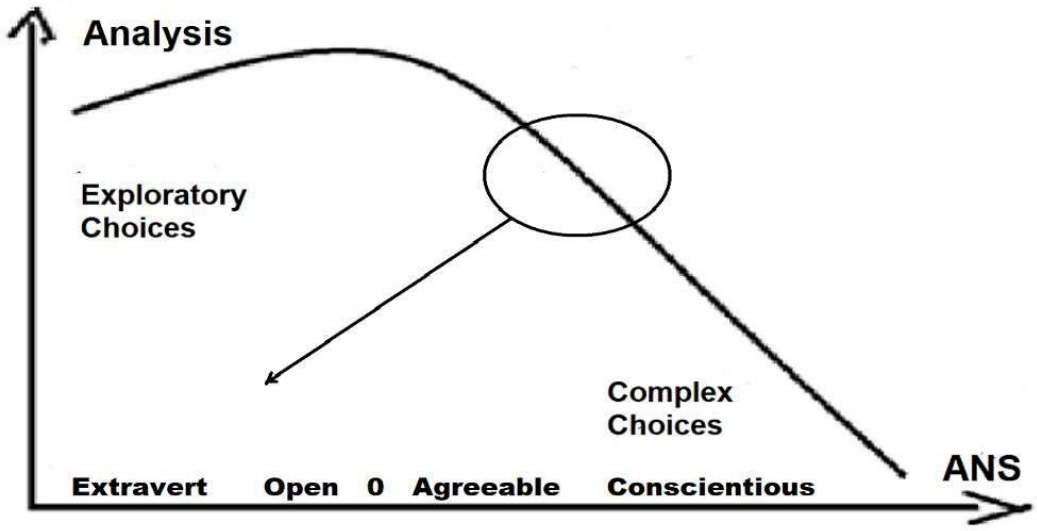

Figure 3. Economic Psychology

A simple Heuristic to differentiate between Extravert, Open-minded, Agreeable and Conscientious is to ask:

- Are you willing to take a chance or are you risk-averse (X-axis)?
- Do you make decisions fast or slow (Y-axis)?

Check out if Slow thinkers, who are willing to take a chance, are really Open-minded?

4. Discussion

4.1 Economics as pragmatic humanism

The dynamic center of Economic Psychology is Open-mindedness as moderated by liberal upbringing, a broad access to tertiary education and challenging business experiences. Economic Psychology changes the methodological focus in behavioral economics from individuals to group processes where the Open-minded plays a key role in the formation of social norms due to unique ability to integrate perception and cognition as demonstrated in both consumer behavior [Gountas & Corciari, 2010] and innovative R&D [Kern et al., 2019]. A basic experience in modern marketing.

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A crucial new international consumer norm is "Simple Living" as an alternative to "Consumerism" [Luhr, 1997]. Today, the middle class disposes of more than double of what is needed to satisfy basal physiological and social needs. This presents modern consumers with a significant choice as illustrated in Figure 4.

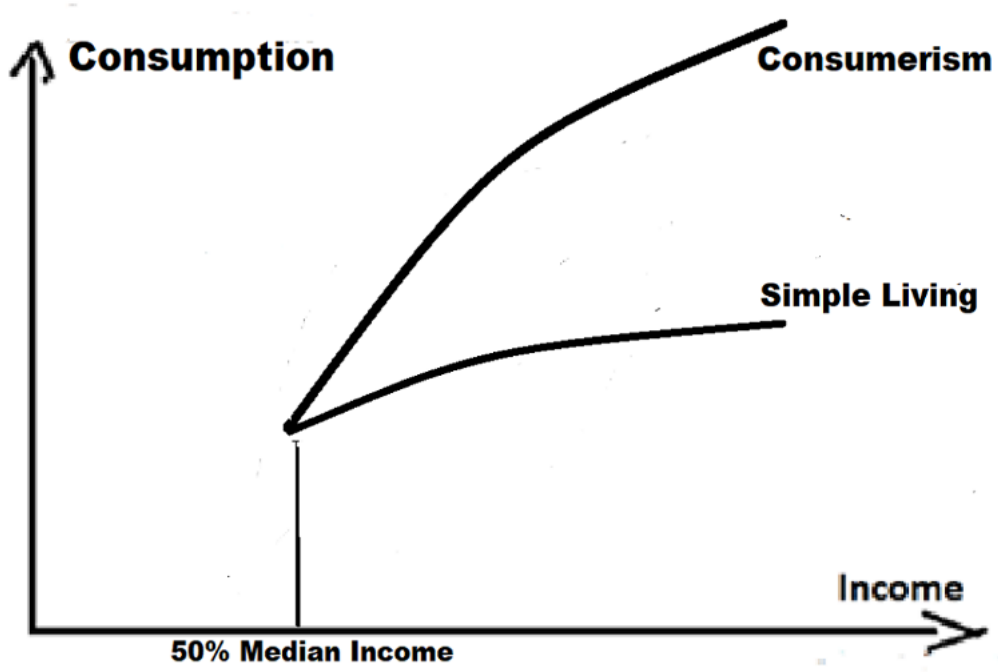

Figure 4. From Pecuniary to Mental Growth

The split between 'Consumerism' and 'Simple Living' is driven by health, ecology and household economies. Also, a growing share of households experiences a lower and lower marginal consumer utility of technological progress (digitizing). To the modern middle class, with more than twice the income of the relative poverty line, a number of patterns are available for personal development beyond consumerism:

Private savings and investment

The simple classical alternative to short-term consumption is savings eventually combined with active investments as seen by the growing share of households becoming shareholders.

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Unfoldment of Individual Creativity

A variety of Artistic activities has been a notable part of European upper class culture since the Renaissance as conceptualized in a humanistic psychology [Mazlow, 1962]. This humanistic trend is integrated with a new business prototype, the Pilot-in-the-plane model [Saraswathy, 2001]. It presents a complex alternative to simple maximization of profit (Return-of-investment) valuing pragmatism, economic integrity by a Worst-case-budget, versatility by colorful collaborators and perseverance to overcome obstacles.

Work for the Common Good

A classical aspect of this path is Charity organized by religious organizations. A new and fast growing trend aims to reduce CO2-emission and the waste of materials.

Already, the individual consumer has a range of action-options along this path, however, large changes in the CO2-emission requires collective political action as elaborated in 4.2.

Behavioral Health

Another individual consumer target arises from the recognition of an epidemic stress load related to modern business life by WHO [Markus, 2012]. Many people in the workforce may simply choose to reduce job-related stress to improve health and life-expectancy. A relative simple procedure is meditative in-depth-relaxation [Benson & Klipper, 1975]. Regular meditation releases subconscious stresses as illustrated by the arrow in Figure 3 [Manzoni et al., 2008]. The benefit of meditation has been characterized as "The Psychology of Silence" [Holen, 1976]. Meditation appears as a valuable behavioral complement to physical fitness [Oaten, 2008].

In a historical perspective, economic growth presents itself as a pragmatic step-by-step path which by declining marginal utility gives more and more people more and more freedom to unfold classical humanistic activities. A development termed "The rise of the creative class" [Florida, 2012].

4.2 Psychology and Political Economy

Democratic economic policy is characterized by strong polarization between the Left (Socialist) and Right (Neoliberalist) wings on economic-policy. The experiences show narrow and short-termed democratic options for social change due to an approximate 50-50% distribution of the wings in most established democracies. Moreover, this model is under stress by the internal fraction of both wings:

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- Right-wing experiences national-conservative extremist parties that are seen as movements protesting against guardianship from the well-educated, creative class
- Left-wing experiences, that most social democrat parties are eroded by the decline of the classical working class. However, also the rise of the creative class raises the voter share of radical left wing parties, too

Over-all, the balance between the wings is not seen to change markedly anywhere, but the internal polarization on each wing makes it more and more difficult to form stable majority governments for long-term policies in most democracies. However, macroeconomic mega-experiences since the 70s may change status quo:

- The obvious consequence of the Greenhouse effect is that the market-based growth model illustrated in Figure 1 can no longer stand-alone. It has Top priority to implement strong effective political interventions as a broad Tariff on CO2 emission that makes the polluter pay and protects low income groups [Nordhaus, 2018]
- A gigantic social experiment with central communist management was done by the USSR in Eastern Europe 1917-89. Already in the 70s a closed ally of the USSR, China, rejected the Communist economic model of centralized management and recommended a Western-like hybrid encouraging private entrepreneurship. An ex-post evaluation confirms the lack of economic effectiveness by central managed economy (Communism) [Maddison, 2002]

An evolutionary study concludes that economic reciprocity is strong when human survival is threatened [Bowles & Gintis, 2011]. As the Greenhouse effect threatens human existence, economic reciprocity extends beyond the normal case of socializing, direct mutual information and learning. Facing the climate catastrophe, reciprocity can be extended to democratic coalitions between social liberals and social democrats on policies of mutual interest as illustrated in Figure 5. Such center-oriented economic-political ideologies are well established in more Western democracies characterizing a new inclusive democratic culture [Barry-Jones, 2001]. Social liberals are rooted in the market economy but recognize the need for a strong government to minimize market failures. Social democrats aim for socialist equality, but recognize the need for collaboration across the center to benefit from growth.

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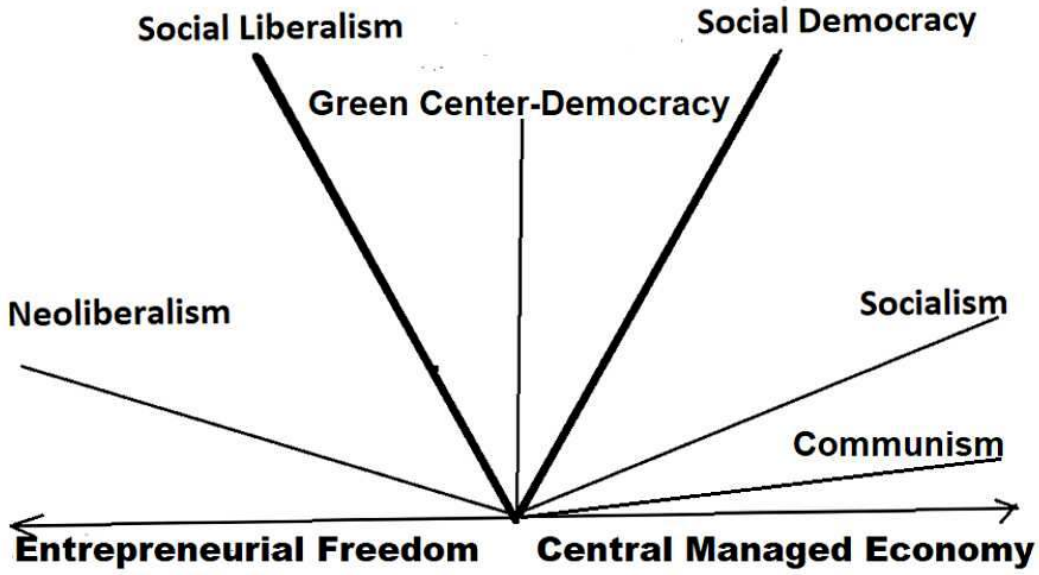

Figure 5. Pluralist Economic Policy

Acknowledgement

Economic Psychology is transdisciplinary. In order to clarify the boundaries between the involved disciplines, I'm thankful for Appendices from the following related specialists to our new Textbook in Economics [Larsen, 2021]:

The boundary to the Humanities is covered by a series of artistic illustrations in the Introduction by PhD, Artist Hiltrud Schinzel.

The boundary to behavioral psychology ("Big5") is covered by PhD Anna Vedel.

Appendix on Calculation of a Tariff on CO2 by economists in the Danish Climate Council Ulla B. Bendtsen and Luis B. Stewart introduces Economic Ecology.

The lifestyle "Simple Living" is covered by Author Ole D. Nielsen.

"Meditation and Medicine" is covered by Professor Emeritus (MD) Are Holen.

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