

Pluralist Behavioral Economics (PBE) for Consumers, Firms, Gender, Health and Society

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ABSTRACT

The paradigm of economic rationality is eroded by criticism from related behavioral disciplines, especially psychology. Neuroeconomics is a new multidisciplinary approach to behavioral economics. Neuroeconomics orders the Big5 Taxonomy by risk-will into a pluralist behavioral economics (PBE) that changes the classical and develops new domains of economic behavior: Firstly, consumer behavior is not sovereign but formed by group standards centering Open-mindedness. The rational consumer standard is now “Simple Living” as an alternative to consumerism. Secondly, the prototype of open-mindedness in production life is identified as the Pilot-in-the-plane entrepreneur that expands the production scope far beyond maximization of profit to include characteristics such as pragmatism, versatile team composition and perseverance to overcome obstacles. Thirdly, stress-management by meditative in-depth relaxation is evidenced as a complement to fitness. Fourthly, gender economics is supported by neuroeconomic findings on mental gender differences. Fifthly, Neuroeconomics explains the qualitative value of industrialization as “Rise of the Creative Class” due to liberal upbringing, broader and better tertiary education and more business options. The Discussion focuses on spillovers from PBE to the democratic culture. The option is to moderate historical economic-political polarization to that of complements with a broader population base.

1. Introduction

The term *behavioral economics* describes the modern approach to understand decision making and behavior within the field of Economics (Production, distribution and consumption of scarce goods and services). The ruling paradigm of rational economic behavior has been criticized for 50 years from related disciplines of behavioral science - especially psychology. Behavioral economics is today widely accepted as heterox or inconsistent with pluralism and consistency as the poles (Graebner and Struck, 2020). However, they find no arguments against pluralism, but identify two main challenges to be faced by advocates of pluralism:

- The need to derive adequate quality criteria for a pluralist economics
- The necessity to propose strategies that ensure the communication across research programs

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Within the profession, two different schools reflect the polarization of behavioral economics. The Austrian School of Economics, advancing the “Marginalist Revolution”, believes economic behavior arises from the motivations and actions of individuals whereas psychology is very important (Menger, 1971). A contemporary representative of this line is the Prospect theory (Kahneman & Tversky, 1979). In contrast, the dominant Chicago School of Economics, believing in Neoliberalism, holds monetary policy as the only effective regulation of economic activity. Recently, students of economics have joined the discussion with a claim of pluralism regarding both *plurality of theories, versatility of methods and interdisciplinarity* (ISIPE, 2014).

The present study aims to restructure behavioral economics as a positivist discipline that respects established criteria of falsification (Popper, 1959). The point of departure is inspired by Davis who 2006 claimed that Experimental Economics / Neuroeconomics could provide a new positivist base for mainstream behavioral economics. Neuroeconomics is today a multidisciplinary field of Neurology, Psychology and Economics based on new high-resolution brain scanners. This neuroeconomic research setting can detect the neural correlates to ordinary emotions and thought processes related to economic choices as veritable “Mind Readers”. A review of neuroeconomic trials identifies risk-willingness as the basic parameter of economic behavior (Larsen, 2017). Already, ‘Willingness to take risks in general’ is operated on a scale from 0 through 10 in a representative German survey on ‘risk attitudes’ with 20,000 respondents (Dohmen et al., 2012).

Having identified the “Risk-will in general” as a positivist base of behavioral economics, the study aims to clarify the consequences to important economic domains:

1. Consumer behavior (a classical domain)
2. Production (the other classical domain)
3. Behavioral health (a new domain derived from Neuroeconomics)
4. Gender economics
(a new domain combining Neuroeconomics and Feminist Economics)
5. Qualitative aspects of industrialization (a new domain supported by Neuroeconomics)
6. Inclusive Democratic Economics
(New domain required by the climate crisis and supported by Neuroeconomics)

2. Method

This study is an *integrative* review on pluralist behavioral economics (PBE) which is supposed to be in the maturing phase of behavioral economics. An integrative review usually 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 of pluralist behavioral economics (PBE):

1. The “Big Five Taxonomy” (Big5) is selected as representative of pluralist behavioral psychology (Goldberg, 1993). No psychological alternative to the Big5 is identified
2. A neuroeconomic model integrating trials on simple (Ultimatum Game (UG)) sharing, 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)

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)

The pre-selection of 4 complementary studies to constitute the pluralist model implies that the review gets 2 phases:

Firstly, studies directly related to the 4 selected core studies are considered, as far as they contribute specific to falsification of the interdisciplinary synthesis of behavioral economics.

Secondly, additional studies are considered as far as they contribute to prognosis of economic behavior in one or more of the 5 specified behavioral domains in the introductory target description. Regarding evidence in specific domains, the character of this study is that a multidisciplinary approach is aimed at concrete domains of economic behavior. Domain 6 on democratic voter behavior is dealt with as the first point of Discussion as neuroeconomic arguments are only secondary.

The lack of a comprehensive approach to behavioral economics means that far the most research in behavioral economics the last 50 years has focused on special cases. A review of this line of research is summarized in the Introduction to the Behavioral Economics Guide (Samson, 2014 and 2021). An important special case is the Prospect Theory (Kahneman & Tversky, 1979). The Prospect Theory states that the population as a whole responds far stronger to prospects of loss than to gain. This loss aversion thesis is later confirmed by empirical studies. Other special case studies relate to Overload of information, Limited information, The Zero price effect, Discounting, Emotional biases and other situational and contextual biases. The present integrative review, focusing on the core of PBE, has to ignore most of the research on special cases of behavioral economics.

3. Results

3.1. Documentation of PBE

3.1.1. The Big5 Taxonomy

The Big5 is identified by statistical correlation analysis of personality studies (Goldberg, 1993). The Big5 presents differentiated alternatives to paradigmatic economic rationality. The Big5 identifies 5 different personality traits that must be respected in a pluralist approach:

- Extraversion (outgoing/energetic vs. solitary/reserved)
- Agreeableness (friendly/compassionate vs. critical/rational)
- Openness to Experience (inventive/curious vs. consistent/cautious)
- Conscientiousness (efficient/organized vs. extravagant/careless)
- Neuroticism (sensitive/nervous vs. resilient/confident)

Open-mindedness is a modern trait arising from modern liberal manners of rising offspring, more intense formal science education and a rising demand for creativity in business life. In contrast to the culture-based Open-mindedness, the extreme Tempers Extraversion and Neuroticism are rooted in genetics and therefore far more difficult to change over a few generations. The most flexible profile is the Open-minded due to a unique ability to interpret novel impressions in a context of deliberate experiences (communication skill).

Probably, there are specific parallels between four of the Big Five traits and the classical concept of four Tempers (Sanguine, Phlegmatic, Melancholic and Choleric). However, no

empirical studies have so far elaborated such an analogy as the 2 classifications are rooted in different methodological approaches.

The societal impact of the Big5 is studied among students in different Academic Majors (Vedel, 2016). 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 (Vedel & Thomsen, 2017)
- Students of psychology/arts/humanities score high on Open-mindedness
- Students of science (including engineering) score high on Agreeable

An independent review confirms the Big5 personality group differences across academic majors. Calculated effect sizes of these differences are fairly homogeneous across studies for comparisons of the same or similar pairs of academic majors. Medium effect sizes were frequently found for all Big5 traits, and for Openness even large effect sizes were found regularly (Zack, 2020).

The findings on personality traits across Academic Majors correspond well to the broad profiles of the different Majors. In the natural sciences, students are expected to be risk neutral. Students of Academic Majors with high social status and Income as Economics, Law and Medicine are expected to attract the more Extravert. Finally, psychologists, making a living on dialogue with patients, are expected to be Open-minded communicators.

3.1.2. A Review-based Neuroeconomic Model

In accordance with the triune brain model of neurobiological evolution (McLean, 2002), Figure 1 illustrates the neurodynamics between ambivalent autonomic passion and fear processes (Dopamine pathways ~ ANS) and memory-based adaptation by the Frontal Cortex (Analysis). Within this framework, a review of neuroeconomics identifies the following dimensions of decision-making (Larsen, 2017):

- 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 analytic capacity and moderate risk-aversion are able to make this type of choices which is the first condition to 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 a minority of persons with ability for explorative choices to develop new products

These qualities explain why man has been capable of implementing industrialization within a historical context of a Protestant culture searching for economic equality. Already Smith reached such conclusion 1787 observing novelties as "Spinning Jenny" and Steam Engines

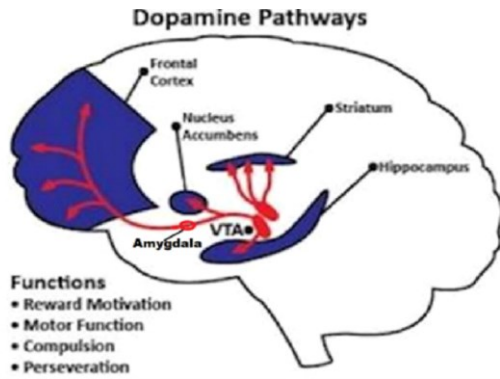


Figure 1. Tripartite Neurodynamics

Legend:

- The Autonomic Nervous System (ANS) is an ambivalent state formed by (Red) Dopamine Pathways. Passion arising from the Reptile level (VTA) is internally inhibited by fear (Am) at the Mammal level
- Analysis arises in the Frontal Cortex (Fast versus Slow Analysis) by recollection of memories
- In all neurodynamics is an integrated circuit between ANS (Passion/Fear) and Frontal Analysis

Risk-willingness or Temper is in this background identified as the basic parameter of decision-making (Larsen, 2017). Individual risk-willingness is operated on a scale from 0 through 10 (Dohmen et al., 2011) documenting the significance of economic choices. The correlation with 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 population distribution of risk-willingness is skewed with an overweight of low risk-willingness (Mean=4.4, Median=5.2 and SD=2.25).

3.1.3. A Model of Pluralist Behavioral Economics (PBE)

The relation between ‘Risk Willingness’ operated by the Dohmen scale and the Big5 is investigated in a cross-correlation study (Becker et al., 2012). The overall conclusion is complementarity. Firstly, a positive correlation is found between risk willingness and personality traits as extraversion and open-mindedness. Secondly, a negative correlation is found between risk-willingness and personality traits as agreeable, conscientious and neurotic. These cross-correlations constitute a pluralist behavioral economics (PBE) with a spectrum of 5 different behavioral profiles as illustrated in Table 1.

Table 1.

Pluralist Behavioral Economics (PBE)

Type	Extravert	Open-minded	Agreeable	Conscientious	(Neurotic)
Valence	++	+	-	--	---

A Norwegian population interview study (N=1000) on risk-attitude and behavior confirms both the positive (Extraverts and Open-minded) and negative (Agreeable and Conscientious) cross correlations of Becker et al. 2012 (Breivik et al., 2020). Also, this study confirms that males are more willing to take economic risks than females. Finally, the Norwegian study excluded the Neurotic trait as a diagnosis that should not be applied among normal persons.

Figure 2 models Pluralist Behavioral Economics (PBE) based on the Big4 Tempers among ordinary healthy adults. The axes are already defined above in relation to Figure 1:

- Specific benchmarks are added to the X-axis (ANS) referring to Becker et al. 2012.
- The Y-axis (Analysis) reflects Fast versus Slow cognition (Kahneman, 2012)

The individual temper is illustrated by a circle delimiting a specific area on the curve.

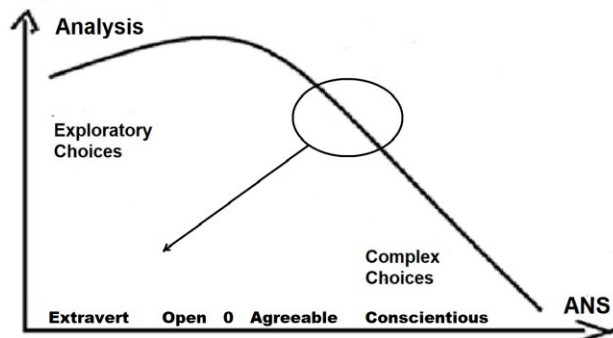


Figure 2. Pluralist Behavioral Economics (PBE)

Apply PBE to communicate with 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. 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?
- Do you make decisions fast or slow?

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

3.2. Application of Pluralist Behavioral Economics (PBE)

Firstly, the impact of PBE is reviewed on classical domains for consumers and firms in 3.2.1-2. Next new domains such as gender and behavioral health are included too in 3.2.3-4. Further, the qualitative social domain is addressed in 3.2.5.

3.2.1. Consumer Behavior

The dynamic center of PBE is Open-mindedness, characterized by risk-willingness and relative slow decision-making as moderated by liberal upbringing, a broad access to tertiary education and challenging business experiences. PBE changes the methodological focus on behavioral economics from individuals to group processes where the Open-minded plays a key role in the shape of group processes. The Open-minded shapes group processes due to its unique ability to integrate perception and cognition as demonstrated in both consumer behavior (Gountas et Corciari, 2010) and innovative R&D (Kern et al., 2019). A crucial knowledge in modern marketing.

A crucial international consumer trend 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 3. The split between ‘Consumerism’ and ‘Simple Living’ is growing, as strong drivers for health, ecology and household economics play together in the strive for “Simple Living”. This choice becomes more and more obvious for a growing share of households as technological progress materializes only as lower and lower marginal consumer improvements by more subtle digitizing.

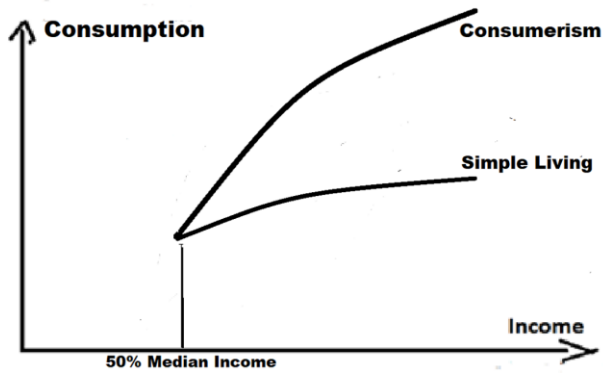


Figure 3. The Basic Consumer Choice

The recognition of high-level mass consumption as driven by group norms, rather than sovereign individual optimization of satisfaction, changes the economic consumer target in the post-industrial society from maximization to individualization. To the middle class, with more than twice the income of the relative poverty line, the consumer challenge is to individualize consumption in accordance with personal preferences as alternative to status maximization following group norms. Individualization as an alternative to status maximization can express itself in various ways:

- The simple classical alternative to short-term consumption is savings eventually combined with active investments
- Unfoldment of individual interests/talents that has been neglected
- Engagement in the “Common Good”, for instance Charity
- A relatively new and fast-growing path for the “Common Good” aims to reduce CO₂-emission and waste of materials. Already, the individual consumer has a range of action-options along this path, however, large changes require collective political action as elaborated in 4.1
- Another individual consumer target arises from the recognition of an epidemic stress load related to modern business life. Many people in the workforce may simply choose to reduce job-related stress to improve health and life-expectancy as elaborated in 3.2.3

3.2.2. Production Economics

The business psychology of Open-mindedness is elaborated in a study of entrepreneurship as the prototype of behavioral economics (Saraswathy et al., 2005). Saraswathy summarizes the findings in the “Pilot-in-the-plane” model with the following four characteristics for the most creative managers:

- 1) Be pragmatic enough to prioritize “Bird-in-hand”
- 2) Show integrity to clarify your “Affordable Loss” by an Alternative Budget for the Worst-case-scenario
- 3) Be versatile enough to diversify team building as much as possible like a “Crazy Quilt” of all relevant skills stimulating continued individual motivation and development
- 4) Be perseverant enough to overcome obstacles as “Sweeten a sour citrus

In support of the Pilot-in-the-plane model, a study of business creativity demonstrates the relative efficacy of entrepreneurs compared with other Academic educated managers (Laurie-Martinez et al., 2005). In all, the Pilot-in-the-plane model demonstrates that excellent production management requires far more than classical striving for maximal profit!

Economics is still an overall business condition as specified in the formula of Revenue-of - investment (**ROI**) whatever the business purpose is exclusively private-for-profit or for the

Common Good. A firm must be aware of the state of **ROI** at any state of the development and running of a business. The best tool to assure a realistic state of the economy is to have both a normal budget for the case the business develops as planned and an alternative Worst-case budget stating when it's necessary to abandon the project.

$ROI = Qx(M - 1)Vc - F(Y, i)$ where

Q_x is the quantity produced per period; M is the profit margin multiplied by the variable unit costs (V_c) to find the consumer price. However, the consumer price must cover the fixed costs (F) to production equipment too. F is often a function of the expected life-time of equipment (Y) and the borrowing rate for firms (i).

Determination of M varies much between different business sectors depending on the level of competition and requires a lot of pragmatism. Today, M is so important that larger companies have their own marketing specialists.

V_c requires true ingenuity of entrepreneurship regarding original selection of components and technology for the product/service. This is reflected in the Pilot-in-the-plane model as a “Crazy Quilt” indicating the crucial importance of including the most different qualifications in the entrepreneurial team to find the best combination of components in the final product.

In a global business perspective, Q_x is the most important parameter of production due to economies-of-scale other than the physical size of the assembly line, for instance:

- 1) Technical - Large capital equipment with high fixed costs
Localization Benefits from 2) Closeness to end-users or 3) Cheap labor
- 4) Specialization - More division of labor and specialization within production
- 5) Bulk Buying - Lower average costs for buying large quantities
- 6) Marketing - National Ad campaigns are more effective due to brand effects
- 7) Risk Bearing - Bigger firms are more able to survive downturns
- 8) Financial - Larger firms get better interest rates from the banks
- 9) External - Larger benefits to large companies when the industry grows as a whole
- 10) Tax shelters

In summary, PBE operated as the Pilot-in-the-plane model expands the scope of business economics beyond a linear maximization of ROI. The learning is that what creates ROI is:

- Pragmatic analysis of all experiences and options
- Enough integrity to specify how much a venture may cost before it must stop
- Search of complementary, versatile skills to improve the product
- Enough perseverance to turn unexpected challenges to benefits in the project

3.2.3. Gender Economics

Feminist Economics is a relative new field emerging in the 80s as an alternative approach to welfare economics. PBE contributes to the field with clarification of gender differences in brain function. The single far most important factor differentiating ‘General risk willingness’ is gender (Dohmen et al., 2012). Females are moderately more risk-averse in economic behavior than males (Average: Male=5 and Female=4). The wiring of the brain explains the gender differences in the way that males have strong Frontal-Posterior connections which promote stringent deliberate thinking while females have better interhemispheric connections promoting collaborative and balanced thinking. Recognizing these differences, it appears biased to develop a normative feminist economics claiming complete equalization of females to males in all socio-economic aspects. A more useful approach is to develop a gender economics based on complementarity of the genders synthesizing similarities as well as differences. Regarding

similarities both genders must agree on equal salary for equal jobs and equal social rights in general.

Regarding gender differences, a Hong Kong study examined gender differences in the distribution of creative abilities through the lens of the greater male variability hypothesis postulating that men show greater inter-individual variability than women in both physical and psychological attributes (He & Wong, 2021). The findings enrich the current understanding of gender differences in creativity, as well as the discourse surrounding greater male variability. Bearing in mind the domain-specific patterns in the occurrence and effect size of gender differences in variability, the consistent observation regarding greater male variance in the overall distribution in creativity and other ability scores is in accordance with the stronger Risk-willingness of men. In all, this calls for complementary female contribution to the stabilization of extreme male variance.

3.2.4. Behavioral Health

The individual Temper is a fragile balance between Passion, Fear and Analysis as illustrated in Figure 2 whereas it is subject to change by somatic, cognitive and sensory inputs. The primary neurological advice for better mental health is self-control or *stamina* based on physical fitness [Oaten & Cheng, 2006]. However, job-related stress is a growing threat that deserves special attention in modern business life! In 2020, Depression was the second leading cause of world disability. However, by 2030 Depression is expected to be the largest contributor to the burden of disease according to WHO (Marcus et al., 2012). Marcus et al. recommends meditation as a complementary intervention to physical fitness. A direct application of the neuroeconomic model for stress-management is explained by Figure 2 as movement of the individual Temper circle towards Origo. Modern mantra-meditation is practiced in a relaxed sitting position for instance on a simple chair in a quiet undisturbed . Dissolving thoughts by a mantra eg. ONE, a state of homeostatic in-dept relaxation is elicited characterized by: 1) Slow breathing and 2) Reduced galvanic skin resistance. The gain in cognitive adaptability by meditative in-depth relaxation is clarified by medical research [Holen 1966; Wallace 1970; Benson & Klipper 1975].

The breakthrough of modern medical research in meditation was the doctoral dissertation by Wallace on Transcendental Meditation (TM) demonstrating mantra meditation as a special state of in-depth relaxation. These results are reproduced in subsequent studies, for instance a series of experiments with mantra-meditation at Harvard Medical School (Benson & Klipper, 1975). Long-term effects of regular practice of mantra meditation are since demonstrated:

- A significant decline in the stress hormone (plasma cortisol) characterizing a more relaxed pattern of behavior (McLean, 1997)
- A meta-analysis finds that regular relaxation exercises complement physical fitness as health activity dissolves stress and anxiety (Manzoni et al., 2008)
- A 14-year, pre- and post intervention study retrospectively assessed government payments to physicians for treating the TM and comparison groups. This indicates that the TM technique reduced payments to physicians between 5 % and 13 % annually relative to comparison subjects over 6 years. Randomized studies are recommended (Herron & Hillis, 2000).

The de-stressing effect as well as the cost-effectiveness of meditative in-depth relaxation is today documented enough to have a role in public healthcare to prevent epidemic job-related stress becoming pandemic. In order to find an appropriate format for meditation services in public healthcare, a planning commission is required with participation of physicians, psychologists and health economists as well as representatives of existing cooperatives (NGOs)

offering meditation courses. Until such a commission becomes established, local experiments are encouraged between NGOs and local representatives of public health.

3.2.5. The Qualitative Aspect of Industrialization

A thesis on the “Rise of the Creative Class” is advanced on the qualitative changes related to industrialization (Florida, 2001). Florida sub-divides the creative class into a super-creative core that includes those whose work constitutes ‘directly creative activity’, creative professionals, and others whose work is constituted by a significant creative component. Members of the super-creative core include those classified by the BLS (Bureau of Labor Statistics, in their Occupational Employment Survey) as working in ‘Computer and mathematical occupations’, ‘Architecture and engineering occupations’, ‘Life, physical, and social science occupations’, ‘Education, training, and library occupations’, and ‘Arts, design, entertainment, sports, and media occupations’. Furthermore, Florida maintains that there are others whose work, at least to some extent, involves the creation of meaningful new forms (e.g. shopkeepers, chefs, creatively oriented factory workers), and should thus be thought of as part of the creative class. The creative class is characterized by the 3T (Talent, Tolerance and Technology) and statistical analysis of the development of the US job structure showed a tripling from 10% to 30% 1970-2000.

The Florida thesis is criticized by both economists and other social scientists as superficial, lacking evidence on more substantial changes in modern urban life (Peck, 2005). However, a European research project has falsified the Florida Thesis mapping and analyzing the statistical distributions and correlations of the Danish creative class (Andersen & Lorentzen, 2005). The study confirms that the creative class, occupations as defined by Florida, is attracted to the city culture, diversity of educational institutions and businesses as well as their special localizations for other creative people. All of which is foreseen by Florida. In all, the study estimates the share of the creative class to be about 40% of the workforce in Denmark. As this trend definitely has continued, the creative class accounts for half the workforce in the most advanced industrialized countries by 2021.

PBE supports the Florida Thesis explaining the dramatic rise of the creative class in Table 2 as a cultural effect approximately tripling the share of Open-mindedness after 1970. Especially other center-oriented tempers such as Agreeable’s can improve their cognitive flexibility in modern society.

Table 2.
Demographic Distribution of Economic Agents (%)

Group (Score)	Neuroticism (0-2)	Conscientious (3)	Agreeable (4-6)	Open-minded (7)	Extravert (8-10)
Males	5	5	23	9	8
Females	17	8	20	3	2
All (2004) (Creative Class)	22	13	43	12 (35)	10

*Source. Recalculation of German data based on Dohmen et al. 2012 and Danish Andersen & Lorentzen 2005.
Note. Over time ‘Open-minded’ raise Agreeable by breeding and education as the center-profiles are culture based while the poles, associated with genetics, stay relatively unchanged.*

A behavioral characteristic of the creative class is advanced as *Nudging* (Thaler, 2008). Nudging is based on the thesis that friendly elbowing is a useful alternative to simple compassion that helps to improve rational decision-making at the level of ordinary people. As Thaler is awarded the Nobel Prize, Nudging is today part of mainstream Economics.

The crucial impact of PBE on the quality of modern economic behavior is that the former working-class majority, primarily complying to hierarchical instructions, now is reduced to about 20% of the workforce. The new majority of the working force is best characterized as a creative class due to job-conditions resembling classical artists that have to perform independently to succeed. The modern creative class contributes independently across societal sectors in various ways to innovation of products, services and employèe relations making education and personal development even more crucial than before.

4. Discussion

4.1. Inclusive Democratic Economics (IDE)

PBE comprises the full spectrum of behavioral tempers according to psychology as ordered by economic preferences (risk-willingness). However, since the 60s Economics has had an internal movement for pluralism known as the Austrian School of Economics and today represented by the International Students Initiative for Pluralist Economics (ISIPE, 2014). ISIPE is more concerned with political economy (voter behavior) than with the specific behaviors reviewed above. Lately, Doughnut Economics represents a comprehensive approach (Raworth, 2017). The Doughnut itself symbolizes the focus of orthodox mainstream economics. However, to deal with the threat of damaging the Ecosystem including economic transactions, social adaptability must be improved from the center of the Doughnut. Unfortunately, Raworth is not specific about what economic interventions are relevant for sustainable development wherefore the economic-policy aspect of PBE must be discussed.

The classical distinction between Economics and politics is on third-party effects. Only the direct effects of an economic transaction between the involved buyer and seller are the object of economic analysis (Pigou, 1920). Third-party effects, for instance pollution of the environment by toxic material, are in the classical paradigm termed externalities and as such an object to political decision-making. Today global warming by CO2 emission threatens the basics of economic growth, as demonstrated by the Intergovernmental Panel on Climate Change, for instance (IPCC, 2021). Democratic Economics must internalize such third party effects to inform the democratic public on appropriate interventions to strengthen the knowledge element in democratic decision-making. In a historic perspective on industrialization, democracy has been characterized by strong polarization between the Left (Socialist) and Right (Neoliberalist) wings on economic-policy. However, the experiences show narrow and short-termed democratic options for social change on this path due to an approximate 50-50% distribution of the wings in most established democracies. In reality, this model is under stress by the internal fraction of both wings, too. The right-wing experiences the formation of national-conservative extremist parties that are seen as movements protesting against guardianship from the well-educated, creative class. On the left-wing, most social democrat parties are eroded by the decline of the classical working class. Also the rise of the creative class is raising the voter share of radical left wing parties. The balance between the wings does not change markedly, but the internal polarization on each wing makes it more and more difficult to form stable majority governments.

Table 2 above shows that about 70% of the population is flexible Tempers around the center of the distribution. So, democratic coalition policies across-the-center may collect a solid majority of democratic voters supposing voters at the poles do have a relatively fixed partitioning between the wings. Such development of center-oriented moderated policies is strongly supported by scientific findings. Neoliberalism is outdated by the climate threat (IPCC, 2021) and the opposite, socialist centralized planning (Communism based on Marx), must be outdated after the poor outcome of the mega social experiment in Eastern Europe 1917-

89 (Madison, 2003). Not to mention that China, as a close ally of the USSR, discovered the economic inefficiency of Communism, and encouraged the market economy from 1980 or 10 years before the Fall. A complementary view on economic policy is also supported by neuroeconomic findings on sharing (Ultimatum Games). Man is definitely neither completely individualist, as presumed by Neoliberalism nor collectivist, as presumed by Socialism, but a hybrid with an economic solidarity at the level of 20%-40% (Oosterbeck et al., 2004). This is in accordance with mainstream economics assuming that the human relations in economic transactions are characterized by reciprocity. Reciprocity is a mediation between the dominance characteristic of the Biosciences (Darwinism) and idealist approaches characteristic to the Humanities. Social opposites become in general moderated towards the center by group processing (Deck et al., 2010).

Specific to the democratic culture, inclusiveness is advanced in political science (Barry-Jones 2001; Gare 2003). Democratic inclusiveness has more benchmarks. Already, the formal equalization of visual differences regarding gender and race, is recognized in most Western democracies. The next step is advanced as recognition of the complementarity of alternative economic-political ideologies. For instance, the democracies in Scandinavia and Germany are familiar with coalitions across-the-center regarding welfare sectors such as healthcare, education and social security. A pluralist spectrum of democratic economic-political ideologies are illustrated in Figure 4. The right wing represents various degrees of belief in entrepreneurial freedom while the left wing represents various degrees of humanist belief in ensuring equality by central managed economies and both positions seem relevant for sustainable growth.

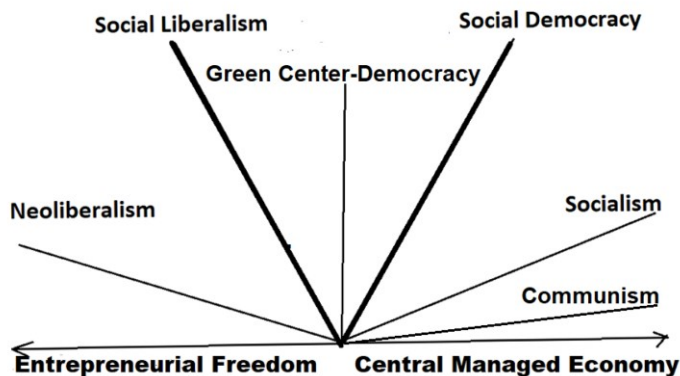


Figure 4. Pluralist Democratic Economy (PDE)

Regarding climate policy there is broad support among economists to a *CO2 tariff* (ET) as the most effective intervention to accelerate the transition towards a carbon neutral economy:

- ET is originally advanced by the Nobel Prize Laureate Pigou (1920)
- A model of Dynamic Integration of Carbon and Economics (DICE) has recently been awarded the Nobel Prize (Nordhaus, 2018)
- A review of 27 ET projects around the world confirms that it is both simple to administer and delivers effective CO2 reductions (Metcalf, 2020)
- Also, ET qualifies as a complementary synthesis of the interests of 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

Further, inclusive economic policy opens a long-term scenario for classical economic redistribution policy suspending relative poverty by Universal Basic Income (UBI) as

recommended by a series of Nobel Laureates (Milton, Meade, Samuelson, Simon, Solow, Tinbergen and Tobin). :

- For left-wingers in the post-industrial economies UBI at the level of 50% of the median income suspends relative poverty
- For right-wing liberals UBI can be financed without deteriorating the national level of internal competitiveness and at the same time simplify and clarify the system of personal income tax. Recent sample studies on UBI, for instance in Finland (Kela, 2019), rejects the classical liberalist objection that UBI undermines the willingness to work and long-term growth

In all, inclusive democratic economic policies (IDE) guides voter behavior towards interventions that correspond well with recommendations of the economic profession too on core political issues as redistribution and environmental protection. The overall acceptance of IDE by voters would not weaken the impact of specific political positioning, on the contrary it improves the probability of direct political influence. The Top-Top priority in this situation is massive public information on the societal benefits of understanding the complementarity of the dominant democratic ideologies on economic policy. The effect of such a project is supported by an evolutionary study that concludes that economic reciprocity is strong when human survival is threatened, for instance by the Greenhouse effect [Bowles & Gintis, 2011].

4.2. Pluralism and Field Research in Behavioral Economics

Already a large amount of field research in behavioral economics exists. How does PBE, based on laboratory experiments, relate to the field experiments? The core of PBE is that Temper (Risk Willingness) is a core parameter across individuals (Big5) with extension to political economy (IDE) as discussed above. The Introduction to the BEHAVIORAL ECONOMICS GUIDE 2021 states 5 criteria that a field experiment with qualitative methods must fulfill (List, 2021).

1) Evidence Base

The basic evidence on PBE covers multiple behavioral disciplines: Psychology [Goldberg, 1993]; Neuroeconomics (Larsen, 2017); Behavioral Economics (Dohmen et al. 2011 & Becker et al. 2012).

2) Representativeness to the Population

PBE represents the whole spectrum of human risk-willingness represented by the Big5.

3) Representativeness to the Situation

PBE explains 50% of behaviors in a variety of important domains, for instance 1) Car driving, 2) Financial matters, 3) Sports/leisure, 4) Health, but 60% of 5) Career making (Dohmen et al., 2012). In this way, PBE gains an overall representativeness to behavioral economics rather than to specific situations.

4) Expected Spillovers

A most crucial pluralist spillover is from the level of individual behavior (PBE) to political economy (PDE) as elaborated above. However, to gain full positivist acceptance, a “laboratory” study of the collaborative effect on the ideological positioning of a representative group of voters, getting a lecture on the assessment of economists of advantages and disadvantages of the common economic-political ideologies as illustrated in Figure 5.

5) Economies of Scale

The economies-of-scale are very large by PBE dissemination to mainstream economics.

In summary, PBE represents an overall model compared to situationist field experiments on BE. A most relevant future laboratory experiment in prolongation of PBE must clarify how

much information and dialogue can improve complementary thinking on economic-political ideologies. PBE is in no way replacing field experiments, but sets a broad framework for inspiration. For example, future field experiments with consumer behavior must include an assessment of the relative impact of broad consumer alternatives as consumerism versus “Simple Living”.

4.3. PBE, Mathematical Modeling and Interdisciplinarity

An approach termed “Causal Economics” elaborates a complex mathematical framework based on the Prospect Theory (Kahneman & Tversky, 1979) summarized above. “Causal Economics” couples personal benefits (B) and costs (C) of economic behaviors independent of differences in periodication and probability (Horton, 2019). So, Horton sees the core problem of behavioral economics as that of better mathematical calculation tools for a more precise estimate of the asymmetric responses of B respective C. A challenge of pluralist economics is according to this study to develop the cognitive empathy towards boundary disciplines such as psychology and meteorology, see Acknowledgements.

5. Conclusion

The paradigm of rational economic behavior is eroded by criticism from related behavioral disciplines, especially psychology. A new positivist behavioral economics arises from Neuroeconomics - a transdisciplinary field between Neurology, Psychology and Economics.

Neuroeconomics orders the Big5 Taxonomy by risk-willingness into a pluralist behavioral economics (PBE) centering the Open-minded in formation of behavioral standards. However, for use among non-psychologists Neuroticism is excluded as it indicates a diagnosis. A heuristic for training of sensitivity to the remaining Big4 is presented. Further, PBE changes classical and develops new specific domains of economic behavior:

Mainstream (university) economics considers consumption as related to an ever increasing satisfaction (Consumerism) although the marginal utility is decreasing. Conceptualizing consumer behavior as formed by group processes enables a more flexible approach. Due to the existence of a series of alternatives to Consumerism, “Simple Living” is identified as the most rational consumer pattern to modern man.

Mainstream economics considers profit maximization as the basic rule for private firms. However, a study of open-minded managers identifies the Pilot-in-the-plane entrepreneur as the most effective manager. Piloting requires a complex of personal qualities such as pragmatism, economic integrity, versatile staffing and perseverance to overcome obstacles.

Health is today nearly as important to our life-expectancy as income. Neuroeconomics raises a new broad behavioral domain as stress-management by meditative in-depth relaxation to complement physical fitness.

A new exclusive domain of feminist economics focusing economic inequality is arising. Neuroeconomics supports a broader gender economics searching the complementary values of males and females.

The qualitative effect of industrialization is conceptualized as “The Rise of the Creative

Class”, however, this thesis is questioned by mainstream economics due to lack of evidence on how the rise of the creative class differs from ordinary urbanization. Neuroeconomics explains the rise of the creative class as a cultural effect stimulating especially the Agreeable Temper towards Open-mindedness due to liberal upbringing, broader and better tertiary education and a greater demand for creativity in most domains of modern business life.

The Discussion focuses on spillovers from PBE to democratic economic policy. An inclusive democratic culture is supposed to consider historical opposite economic ideologies as complementarities. For instance, coalitions between social liberals and social democrats are close-up for implementation of appropriate interventions towards dominant market failures:

- A broad CO₂ Tariff at the source of emission towards the “Green-house effect”
- Universal Basic Income (UBI) towards rising economic inequality by the multinationals

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