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A behavioral model of the dual motive approach to behavioral economics and social exchange

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Abstract

New findings in brain physiology, especially evolutionary neuroscience, have profound implications for behavioral economics. The new findings show that the transactional commercial market evolved from the interplay of our self-preservational (egoistic) and affectional (empathetic) neural circuitries. These fundamental brain circuitries, under homeostatic physiological regulation, are the neural substrate of our human social exchange activity—from sharing in primitive families to the gift exchange economy to the commercial market. Current microeconomic theory is structured on the assumption of a sole primary self-interest motive. The presence of the dual physiological motives, however, is clearly demonstrated in demand, supply, and equilibrium curves as well as in the basic calculus of price theory. This confirmed duality of motives opens the way for new and productive directions in research. The conflict systems neurobehavioral (CSN) model developed by the author in several recent publications expresses the reciprocal interactive dynamic of these circuitries in socio-economic exchange behavior.

JEL classification: A1; D00; D5

Keywords: Dual motive approach; Conflict systems neurobehavioral (CSN) model; Social brain; Socio-economic exchange behavior

1. Introduction

The brain is a physiological organ. That is a fundamental fact of science. The gene-specified neural circuits or architecture constitute that fundamental physiology. And physiologically, the human brain is also a *social* brain. The emergence of the *social brain* concept, emphasizing both the self-preservational (self-interested) and affectional (other-interested) components necessary to social exchange, has been landmarked by the publication of two recent handbooks—*Foundations*

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in Social Neuroscience (Cacioppo et al., 2002) and *Handbook of Affective Sciences* (Davidson et al., 2003)(see also, Cory and Gardner, 2002; Wilson, 2004). Earlier, but still recent volumes included *Descartes' Error: Emotion, Reason, and the Human Brain* (Damasio, 1994), *The Integrative Neurobiology of Affiliation* (Carter et al., 1997) and *Affective Neuroscience* (Panksepp, 1998). The author's *The Reciprocal Modular Brain in Economics and Politics* (1999) and *The Consilient Brain: The Bioneurological Basis of Economics*, *Society*, *and Politics* (2004) represent efforts to tie these new findings graphically, algorithmically, and mathematically to behavioral economics. Recent years have thus brought great advances in detailing the many complex and interrelated pathways of brain's interactive social circuitry.

The social circuitry was forged over millions of years of evolutionary history in small kinship groups, which required a cooperative interactive dynamic for survival. These dynamic social circuits motivate human social interaction and social exchange at all levels of our lives today. Like many other physiological processes – for example, blood pressure, body temperature, glucose level – that mediate between our internal and external environments, these social circuits are homeostatically regulated (see, Herbert and Schulkin, 2002; Bloom et al., 2001, pp. 167–206; Kandel et al., 2000, pp. 871–997; Nelson, 2000, pp. 447–494; Lapeyre and Lledo, 1994; Becker et al., 1992; Cannon, 1932). In fact, the broader term *allostatic*, which means adaptive, perhaps better describes the social circuitry's rather wide, variable, and modifiable set points and boundaries (see McEwen, 2003; McEwen and Seeman, 2003; Sterling and Eyer, 1981).

2. The evolutionary background

Leading evolutionary neuroscientist Paul MacLean, long time head of the Laboratory of Brain Evolution and Behavior of the National Institutes of Health, pioneered the study of the neural circuitry substrating the brain's social architecture. In his 1990 masterwork, *The Triune Brain in Evolution*: *Role in Paleocerebral Functions*, MacLean tells us that the primary function of the human brain is the preservation of the individual self and the human species. Although this may be said of the nervous system of any organism which must survive as an individual to reproduce, MacLean leads us to consider not just automatisms or tightly prewired instinctual mechanisms but the evolved social architecture or circuitry of the human brain upon which social choices are made. His concept of brain evolution, appropriately updated, provides the necessary conceptual platform for this undertaking. For a detailed, documented critique and update of MacLean's concepts see Cory (1999, 2002a, 2004).

The warmblooded, nurturing mammalian circuits, overlaying the earlier self-preserving circuitry, became the basis of family life and our capacity for extended social bonding (e.g., see Carter and Keverne, 2002; Numan and Insel, 2003). Without knowledge of neuroscience, such scholars as Bowlby (1969), Harlow and Harlow (1965), and Harlow (1986) earlier identified these behaviors as forming the basis of infant–mother attachment and affectional relations. These mammalian characteristics were neurally integrated with the life-support functional and behavioral circuitry of the earlier self-preserving circuitry to allow for the emergence of our higher brain centers.

The unique features of our human brain were refined over a period of several million years in a mainly kinship-based foraging society where sharing or reciprocity was necessary to our survival (e.g., see, Humphrey, 1976; Isaac, 1978; Knauft, 1994; Erdal and Whiten, 1996; Boehm, 1999). Such sharing and reciprocity strengthened the adaptive evolution of the now combined mammalian characteristics of self-preservation and affection. Ego and empathy, self- and other-interest, are key features of our personal and social behavior deriving from these basic motivational circuits.