

# The Role of Neuroaccounting (the Science of Neural-based Accounting) in Decision Making

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**Abstract:** The present study aims to determine the role of neuroaccounting in decision making. The data collection method is conducted by using interviews, moreover, the data analysis is analyzed by administering the interpretation of subjective understanding of informants which then followed by researchers' reflexivity. The results suggest that principal-agent relationships can occur when the legislature and the executive establish agency relationships in the policy-making process. In the perception of neuroscience; the interest of interest, the limited time of office, the inclination and limitation of knowledge to know all the public needs can be imprinted and settled in the brain, thus, it can create moral hazard and adverse selection of behavior.

**Keywords:** Neuroscience; Neuroaccounting; Agency Theory.

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## 1. Introduction

Indonesian people possess a long history of corruption since before the war of Java 1820-1830, then the case of mega corruption in the procurement of E-KTP (electronic id cards) that wrapped up state finance to 2.3 trillion rupiahs, sharing "*kue*" for the Regional Budget (APBD) in 2017. According to Indonesia Corruption Watch (ICW) records, there were 360 regional heads at the level of Governor to Deputy Regent who were entangled in corruption cases till 2015. The indicated public official is suspected of not acting alone but instead collaborating with the DPRD or other local government apparatus, and in the end, the autonomy of managing the APBD is trapped in political negotiations that lead to corruption.

The important questions that keep crossing the minds of researchers are why policymakers tend to behave corruptly? How do the thinkers of policymakers think? how does the brain work at the stage of making decisions, making choices, producing, and evaluating the consequences of actions? And how agency theory answers that behavior can influence decisions?

Agency relationships in agency theory as a contractual relationship (nexus of contract) between the owners of economic resources (principal) and managers (agents) who take care of the use and control of these resources (Kim et al., 1998; Ying & Dawei, 2019). Agency theory can be applied in public organizations, it is stated that a modern democratic state is based on a series of principal-agent relations (Amayah, 2013; Raczkowski, 2015).

The model of principal-agent is considered very useful in public institutions with two possible conditions, namely (1) there are several principals with each purpose and interests that are not coherent and (2) the principal can also act out of line with the interests of the community, but prioritize their interests narrower (J. C. Andvig, 1993). Moreover, (CHRISTENSEN, 1992; Upping & Oliver, 2011) stated that the principal-agent theory can be an analytical tool for the preparation and implementation of public budgets.

In government concept, there is a linkage in principal-agent agreements that can be traced through the budget process: voter-legislature, government legislature, finance minister-budget user, prime minister-bureaucrat, and service provider officials (McAfee & McMillan, 1986; Nyman et al., 2005; Tommasi & Weinschelbaum, 2007). The same thing was

stated also by (Van Slyke, 2007) and (Hepburn, 2010) who inspected the agency relationship as a chain of delegation, namely the delegation of the community to its representatives in parliament, from parliament to the government, from the government as a whole to a person minister, and from the government to the bureaucracy. The relationship does not always reflect the hierarchy, but it can be in the form of a delegation relationship (Bar-Gill & Sunstein, 2015; Feltham & Xie, 1994).

The delegation has four characteristics (1) the existence of principals and agents, (2) the possibility of a conflict of interest, (3) the existence of information asymmetry, and (4) the principal may reduce agency problems (Lupia & McCubbins, 2000).

The principals must provoke costs to obtain the information needed to monitor the performance of agents and to determine the structure of incentives and efficient monitoring (Lupia & Mccubbins, 1994; Lupia & McCubbins, 1994, 2012). Behavioral assumptions in public choice theory state that politicians are primarily concerned with maximizing prospects for re-election and bureaucrats are primarily concerned with maximizing enjoyment, which comes from the use of workplace facilities (e.g. prestige and influence) (Austen-Smith, 1999; Lupia et al., 2012).

Executive and legislative relations as a self-interest relationship model (Raile et al., 2011; Shugart, 2009) where legislators want to be re-elected while bureaucrats want to maximize their budget, and constituents want to maximize their utility. The executive-legislative agency relationship was also stated by (Rockman, 1984) and (Powell, 2007; Zucco, 2013). As a Principal, the legislature can also behave in a moral hazard or in realizing its self-interest (Laver & Shepsle, 2012; Whitford, 2005) as corrupt principals (Jens Chr Andvig & Moene, 1990; Della Porta & Vannucci, 2012). According to (Colombatto, 2003, 2018), the existence of discretionary power on one side will lead to violations of agency contracts, such as the occurrence of rent-seeking behavior and corruption.

Legislative and public relations in terms of policy-making, (Arter, 2006) argued that the principal relationship that occurs between voters and the legislature shows how voters choose politicians to make decisions about public spending for them and they provide funds with pay taxes. According to (Baltrunaite et al., 2014; Bozeman et al., 1982), elected politicians can be opportunistic and therefore voters want to eliminate the opportunity to get rents by making politicians bound to a rule that determines what they can or should do under certain conditions. The agency relationship between voters and politicians can be seen as an incomplete contract (Gagliarducci et al., 2010; Galasso & Nannicini, 2011; Street, 2004; Thatcher, 2005).

In the perception of neuroscience, the decision-making process is the act of choosing from various alternatives, which begin as a sensory process in the brain cortex. So, when these decisions are made, the sensory information must be interpreted and translated into behavior. Decision making is defined as a perception that is influenced not only by the sensory information at hand but also by factors such as attention, level of difficulty, concentration, or an earlier event and consideration of the consequences of the decision. Although traditional psychological theories suspect that the decision-making process consists of components that act in a hierarchical or structured manner, with the serial development of perceptions of actions and the latest neuroscience findings show that some components of this process occur in parallel.

The current study aims to determine the role of neuroaccounting (neuro-based accounting) in decision making.

## **Research Methods**

The present study uses a qualitative approach using active participation observation in collecting the data. The data collection method is conducted by using interviews, data analysis is administered by interpreting subjective understanding of informants, which is then followed by researchers' reflexivity.

## **Results and Discussion**

The interview with the House of Representatives of the Republic of Indonesia, Commission IX expert staff regarding how is the relationship between the executive and the legislature in decision making? The informant answered that; when the Legislature makes policies then proposes to the Executive a relationship occurs, wherein the policies also contain executive interests. Based on the informant's statement, the researcher has the view that when executives formulate policies in the context of budgeting can have a charge of interest. We know that executives submit budgets for financial and non-financial benefits, thereby increasing constituents' trust that they receive benefits from the government without having to pay the full cost. In the end, the superiority of information possessed by the executive that is used to compile the draft budget will be faced with the discretionary power possessed by the legislature.

The interview with the House of Representatives of the Republic of Indonesia, Commission IX expert staff on how is the relationship between the legislature and the public in formulating public policies that protect the

public interest? The informant answered that; when the public elects' legislative members to make public policies, the public as the owner of the resources will support it through tax payments, so it is expected that the legislature can represent the public interest. Based on the observations of researchers through print and electronic media, public support for the legislature is littered with various mega corruption cases. This is reinforced by the statement of an informant that not all public interests formulated in policies can be realized because of limited office time, political inclination, and knowledge to know all public needs. It is clear that the relationship between the legislature and the public can be considered an incomplete contract.

The interview with neurologists regarding how are the mental processes and behavior of leaders' influence in decision making? Explanations that bring leadership functions in the nervous system are interpreted and translated into leader behavior, in decision making can be viewed from the noble functions that characterize humans such as; character or character, intelligence, personality, policy in making decisions. As a leader who has a decision-making function, the leader can regulate himself in achieving organizational goals by measuring himself following his noble function through the nervous system, especially the brain. In the brain, there is a process of freezing and settling all experiences where the freeze and experience are started since the period of his career achievement, the prospective leader of an organization has gone through various stimuli that create impulses and various trajectory patterns in the celestial cortex that is the term used as the last station for all impulses triggered by sensory devices and all types of receptors.

The interview with neuroscientists about how to interpret the managerial functions or leadership of the organization as planners, regulation, and management in the nervous system? The explanation begins with the managerial function or organizational leadership as a planner, arrangement and management can be interpreted in the nervous system by understanding the domains that underlie the basic mental processes or known as gnosis and cognizes are perceptions, joints and deviations are the manifestations of dominance in the organization's functions the sublime that develops shows planners, regulation and management in the nervous system. This can be interpreted by the organizational structure of nerve pathways that underlies planned external activity in the cerebral cortex of the frontal lobes. From an anatomical point of view, the cervical frontal lobe is the part of the brain that has the most connections with the brain stem and also with other cortex parts. The links are reciprocal. The external manifestation that

shows the nature of planning, regulation, and management in its entirety is known as the activity of intervention which is a typical human activity.

The interview with neurologists about how to interpret the behavior of leaders who emphasize the relevance of accounting information to the leadership and group decision making caused by communication between them? Neuroscientists' answer that the leaders' behavior emphasizing the relevance of accounting information to leadership and group decision making caused by communication between them can be observed through external manifestations that show aspects of planning, regularity, and management in the form of muscle activity expressed in the form of movement agile in carrying out his professions such as language and writing activities. Language and writing are human communication tools. Every human needs communication, and every human has complete tools to develop communication. Gnosis is very closely related to the description of the motion patterns which are both determined by dominance factors. Instead, cognize is not related to hemisphere dominance but rather is integrated with both frontal lobes. If disturbed gnosis means the lesions in certain brain regions are also disturbed, whereas cognitive impairment is a manifestation of diffuse lesions on both hemispheres, these disorders are called organic syndromes such as orientation disorders, memory disorders, impaired intellectual functions such as understanding, counting, learning, assessment disorders, and judgment disorders and disruption of emotional livelihood stability, which can only be analyzed in terms of psychiatric associated with power that is organic.

The interview with neuroscientists about how to interpret decision making as actions of leaders who have an awareness motive? Motive awareness when someone is doing orientation activities, remembering accounting events, doing counting activities, learning, valuing and activities of various emotions, the components of sublime functions function so that orientation, memory, judgment and so on can be manifested in a high degree of vigilance, vigilance it is a brain activity known as consciousness as an integrated reflection state between efferent impulses (commonly called the output of the central nervous system) and afferents (commonly called the input of the central nervous system). Healthy and adequate awareness is known as a caution, where actions, and reactions to what is seen, heard, and felt. High quality of awareness also raises the degree of awareness, therefore, making quality decisions come from leaders who have high quality and degree of awareness as manifestations of mental functions.

The interview with psychiatrists about how to find leaders who have good mental functions to create quality decisions? The answers received by

researchers are to know the mental function of leaders is one way to get quality leaders who can produce quality decisions by observing mental functions consisting of degrees of awareness (or level of alertness), ability and implementation of intellectual activities, emotional reactions (affective reactions), way of thinking, psycho-sensory patterns, psychomotor patterns, language, and language. To test the seven groups of mental functions to the leadership, can conduct clinical functions of mental testing.

Neurology classifies characters that can influence the behavior of leaders in the process of making or making quality decisions, which explains that in the world of clinical neurology human behavior is influenced by emotions, thoughts and intellectual conduct of these three characters have a close relationship and influence each other.

The interview with psychiatrists about what are the behavior influences of leaders in the process of making or making quality decisions? Based on data that has been analyzed by researchers, that interpreting that the leader's emotions can affect his brain is through the status of human emotions can be assessed reaction to doctor's questions, can also pay attention to the behavior of the leadership of the people around him, or from the state of physical feelings from themselves. Emotions color the behavior of the leadership, of course, the coloring of the behavior looks real and sharp when psychogenic or organic pain. Organic pain or diffuse organic lesions interfere with the brain, so tenacity in mental function is reduced or even no more. The result is a cautious attitude that will not last long and a long time decreasing the power of concentration, the nature of the mind which is unstable. Thus, the mind or consideration for making decisions is not good and not qualified. In such circumstances, the management of emotional feelings decreases or even disappears, resulting in an emotional state known as irritability, insistence, feelings of sadness, and sentimentality will emerge showing the weeping behavior of events that are insignificantly sad and laugh out loud events that not funny at all. This emotional state is called emotional lability which can contribute to damage to the nervous system of the brain caused by diffuse cerebral lesions. When they are mild, diffuse cerebral lesions will show symptoms of adaptability to be less, so that the leader will be neuro-typical, he will easily become tense and anxious where these feelings can be veiled in the form of psychosomatic symptoms, conversion reactions, depression or compulsive activities that can produce neurotic syndromes as a manifestation of brain damage or as a symptom of psychogenic disorders.

## Conclusions and Suggestions

### *Conclusions*

The results of the present study show that the principal-agent relationship can occur when the legislature and the executive establish an agency relationship in the policy-making process. In the perception of neuroscience, the charge of interests, limited tenure, political inclination, and limited knowledge to know all public needs can imprint and settle in the brain to create moral hazard and adverse selection of behavior.

### *Suggestions*

Concerning the intense interaction between researchers and informants, there are several suggestions that in mutation systems and policy formulation activities, expertise involvement in neurology and cognitive psychology is needed by using clinical neurology and cognitive psychology testing tools to create quality leaders to produce quality decisions.

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