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Policy Relevance of New Institutional Economics?

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Policy Relevance of New Institutional Economics?
Assessing Efficiency, Legitimacy and Effectiveness

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1. Introduction

Neoclassical economic theory played a central role in the public policy shift from the monopoly paradigm with strong government intervention to the liberalization of utility sectors in the early 1980s (Groenewegen 2005; Geradin 2006; Guthrie 2006).[2] Yet the removal of governmental interferences and the devolvement of public sector activities to private contractors has not produced consistently successful results (Williamson 2000; von Weizsacker, Young et al. 2005; Schouten and Pieter van Dijk 2007). Institutional economists argue that this lack of achievement is in part due to the reliance on neoclassical economic theory, which focused on economic coordination via the price mechanism and production efficiency while ignoring considerations such as rules, behaviors and social norms (Coase 2000; North 2000; Joskow 2008).[3] Their argument suggests that since lessons learned from new institutional economics (NIE) can provide valuable insights into public policy-making (specifically the process of restructuring), NIE should therefore have more clout in public policy-making (Joskow 2008). NIE is indeed gaining widespread attention in social science literature as it is becoming a more mainstream subject (Joskow 2008). Particularly with respect to liberalization of utility sectors, NIE is increasingly used to analyze modes of economic coordination (Rothenberger and Truffer 2003; Finger, Groenewegen et al. 2005).

It is thus relevant to apply three criteria linked to public policy-making, namely efficiency, legitimacy and effectiveness (Heinelt 2002), to NIE and analyze how they are addressed in this theory. The objective of this paper is to analyze these criteria from the perspective of NIE. Specifically, this paper assesses 1) whether NIE theorists use the criteria, 2) if so, what do they say about them, 3) what is the underlying logic for employing these criteria in NIE and 4) how might NIE's utilization and perspective of each of the criteria affect its applicability to public policy-making. First, this paper delineates NIE by disentangling it from original institutional and neoclassical economics and stating its main objectives. To elucidate NIE's goals, the paper describes the theory's basic premises, such as the behavioral assumptions of human actors, institutions, institutional levels and modes of interaction between various means of coordinating exchange. Next

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[2] Liberalization involves altering the institutional structure through such mechanisms as deregulation and privatization. Finger, M., J. Groenewegen, et al. (2005). "The Quest for Coherence Between Institutions and Technologies in Infrastructures." Journal of Network Industries **6**(4).
[3] Neoclassical is used in this paper to represent conventional economics and is not specifically defined as it is only used as a point of comparison.

efficiency, legitimacy and effectiveness are analyzed from the perspective of NIE. The paper is concluded with remarks regarding the strengths and weaknesses of NIE as well as the theory's applicability to public policy in terms of its utilization of the three criteria.

2. Disentangling and Reconstructing New Institutional Economics

NIE has its origins in what is known today as original or old institutional economics, which departed from neoclassical economics in its recognition of institutions' importance in structuring human behavior and economic exchange (Hodgson 2000; Menard and Shirley 2005). Beyond incorporating institutions into economic analysis, this approach also focuses on policy goals, understanding the process of economic change as well as human behavior, learning and beliefs (Hodgson 2000).[4] However, the original institutional economics is critiqued as lacking a systematic theoretical framework, empirical analysis and as over emphasizing economic history (Groenewegen 2005; Joskow 2008). Hence NIE theorists generally relegate this initial approach "to the history of economic thought" (Williamson 2000: 595).[5]

Departing from original institutional economics, NIE seeks to merge institutionalism into neoclassical economics by analyzing institutions with economic theory tools and accepting the assumptions of scarcity and competition (Williamson 2000; Menard and Shirley 2005). The variety of methods is a result of NIE being a compilation of different theories and traditions such as economics, law, organization theory and industrial organization as well as drawing from political science, sociology, anthropology, psychology (cognitive science in general) and evolutionary biology (Brousseau and Glachant 2008).

Despite its varied components and multidisciplinary approach, NIE operates within the field of economics; incorporating some principles of neoclassical economics, modifying others and adding new dimensions. For instance, by making institutions central to comprehending economies and assuming that transactions have positive costs, NIE discards neoclassical economics' notion of a frictionless market with zero transaction costs (Menard and Shirley 2005; North 2005b; Williamson 2008a).[6] In fact, as transactions and their costs lie at the core of NIE theory, one branch of the theory is referred to as transaction cost economics, which employs the lens of contract to assess economic organization.[7] Furthermore, NIE has moved beyond

[4] See also Hamilton 1919, Veblen 1919, Commons 1965, and Galbraith 1969.
[5] However, original institutional economics continues to evolve as it is still published in such journals as *Journal of Economic Issues* and *Review of Political Economy*.
[6] A transaction is the basic unit of analysis in NIE and can be defined as an economic exchange. Examples of transaction costs include finding feasible partners, obtaining enough information, creating a contract, negotiating, monitoring, enforcing and dispute settlement.
[7] A contract is described as a bi- or multi-lateral, purposefully designed mode of coordination that involves a clear agreement to make a reciprocal commitment based on mutual approval between actors, which is necessary to organize transactions. It is a legal commitment that is enforceable via contract law. Brousseau, E. and J.-M. Glachant (2002). The economics of contracts and the renewal of economics. Cambridge, Cambridge University Press.

neoclassical economics' assumption of equilibrium where all actors can concurrently maximize their utility, as the theory recognizes the disequilibria of market failures that necessitate non-market solutions (i.e. institutions) to cope with humans' limited cognition (Chhotray and Stoker 2009).

2.1 Main Objectives of NIE

At the macro level, NIE holds that the diverse performance of economies[8] can be explained by understanding the process of economic change. In turn, it is possible to comprehend this process through assessing institutions that can be defined as rules diminishing uncertainty in economic exchanges (North 1990). Furthermore, the transformation can be understood by analyzing institutions' role in economic growth as well as their interface with modes of coordinating economic exchange among human actors (Williamson 2000; Menard 2004; North 2005a). Moreover, the theory aspires to explain why and how institutions emerge, function and evolve (Joskow 2008; Williamson 2008b). In addition, NIE seeks to expand the static conventional economic theory into a dynamic one by including the dimension of time and creating modest hypotheses about economic change to enhance the utility of social theory to address human problems (North 2005b). Simultaneously, the theory is concerned with explaining how to improve economic performance, and hence welfare, by comprehending human incentives, preferences, perceptions, beliefs and learning (North 2004).

Under the purview of transaction cost economics, the theory focuses on micro-analytic methods looking at institutional arrangements that sustain and safeguard transactions (Menard 2004). In order to comprehend why certain institutional arrangements emerge and interact in different institutional settings, NIE utilizes a comparative institutional analytical framework that is founded on feasible alternatives – not hypothetical benchmarks - that are inherently flawed in comparison to the theoretically optimal solution (Klein 1996; Coase 2000; Joskow 2008; Williamson 2008b). Furthermore, NIE's goal is to understand and explain the means of coordination (e.g. contracts, institutions and organizations) via the application of rational choice theory, which focuses on individual choice. At this level, NIE aims to explain both the internal structure of organizations as well as the question of when and why transactions are coordinated by hierarchical means instead of the market mechanism; hence alternative forms of institutional arrangements such as hybrids between markets and organizations are addressed. Additionally, NIE theorists delve into the black box of firms and markets in order to understand the process of production, exchange and economic performance as

[8] Economic performance is loosely defined as combined income and wealth as well as its distribution, quality of life and its direction of change, level of poverty, security, response to availability of resources, individual and collective opportunities. Joskow, P. L. (2008). Introduction to New Institutional Economics: A Report Card. Cambridge, Cambridge University Press.

well as to comprehend the complex interrelationships between formal, informal, private and public institutions (Coase 2000; Williamson 2000).

3. Basic Premises of New Institutional Economics

To provide more insight about the main objectives of NIE theory, some of its basic premises are described below. NIE operates on the assumption that social structures can be explained by individual choices because, in accordance with methodological individualism, collective actions can emerge from individual choices (Menard 1995; North 2005b).[9] Therefore, before examining the definitions of institutions and other mechanisms of coordination, it is necessary to explicate the theory's assumptions and characterizations of human actors that profoundly affect the process of economic exchange.

3.1 Behavioral Assumptions and Human Actors

NIE adopts one of the fundamental characteristics of neoclassical economics, namely the **rational choice model**, which assumes that individuals (presumed as *homo economicus*) choose the alternative that maximizes their personal preferences and thus make decisions that lead to efficient outcomes (Eggertsson 1990; Williamson 2008a). Hence, NIE adopts the lens of *individual choice* (Williamson 2008b) that focuses on decision-making based on the assumption that individuals have the *freedom* to choose between alternatives (Peter 2004). In contrast with neoclassical economics, NIE rejects the assumption of *instrumental* rationality as it recognizes that individual choices are influenced by mental models that are based in part on values, norms and experiences (North 1995). In further disparity with neoclassical economics, NIE assumes that human actors have **bounded rationality** (Simon 1957) rather than perfect knowledge. This concept describes human actors as lacking complete knowledge to assess their decision alternatives due to their cognitive limitations, time and information constraints (Williamson 2000; Brousseau and Glachant 2002). Therefore, human actors accumulate transaction costs in the process of attaining information as they invest time and expend resources (Menard and Shirley 2005). Furthermore, bounded rationality and self-interestedness lead to **opportunistic** behavior as information asymmetries arise due to human actors' differing levels and quality of information that enables some to maximize their personal preferences. Furthermore, **uncertainty** is prevalent because human actors not only have incomplete knowledge but they also interact in a world of continuous and unpredictable change (Brousseau and Glachant 2002). While the above assumptions of human behavior have negative implications for an efficacious transaction process (as they induce transaction costs), NIE also operates on the premise of **"feasible foresight,"** which helps offset costs due to the assumption that humans

[9] A social structure can be defined as incorporating all types of social relations that are made up of institutions including both formal rules and informal norms. Hodgson, G. (2006). "What Are Institutions?" Journal of Economic Issues **XL**(1): 1-25. North, D. C. (2005b). Understanding the Process of Economic Change. Princeton, Princeton University Press.

have the capacity to think ahead; enabling actors to mitigate problems before they arise (Williamson 2008a). However, although NIE recognizes human actors' ability to process information and **learn** from past experiences (which can assist in offsetting transaction costs) ultimately, human actors cannot escape their limited cognition.

Human actors in NIE include employers, entrepreneurs, managers, owners (shareholders), purchasers, suppliers, and employees (members of organizations), contractees (individuals contracted to provide a service), property-rights owners, non-owners, voters, legislators and policy implementers (North 2005b). These actors, subject to the above premises of self-maximization with bounded rationality, utilize resources and play games via decision, use and access rights. They also make choices that are coordinated by institutions that evolve through trial an error (Brousseau and Glachant 2008). Since the presence of uncertainty necessitates that individuals anticipate future wants and needs, it is argued that a certain class of human actors, namely entrepreneurs, emerges that has the skills to recognize and implement opportunities by making decisions in the face of uncertainty; hence organizing by instructing others and paying wages (Coase 1937). Therefore, an entrepreneur must motivate an employee, who may have different goals than the entrepreneur, to accomplish the entrepreneur's objectives. Conditions of asymmetric and incomplete information create what is called a **principal-agent problem** where there are conflicting objectives between a principal (e.g. entrepreneur) and an agent (e.g. employee or contractee) that affect a collective outcome such as making a profit (Chhotray and Stoker 2009). While there is often no outright controlling in contractual arrangements, the principal gives explicit instructions about the desired objectives and therefore have implicit control as their prevailing beliefs shape rules and norms, which become institutionalized over time as agents adhere (North 2005a). In outcome-based arrangements, a certain amount of freedom is implied as the agent can decide (i.e. based on the freedom of choice assumption in the rational choice model) not to fulfill the duties and forfeit payment (Miller 2005). In such arrangements, either incentive mechanisms (e.g. pay raises, bonuses) or competition among agents are implemented so that they cooperate (Brousseau and Glachant 2008). In contrast, contracts based on monitoring the agent's behavior involve more outright control that necessitate more rules (Miller 2005).

3.2 Institutions and Institutional Levels

While NIE lacks a single established definition of the concept of an institution, the theory generally operates on the foundation that institutions are systems of rules created to offset uncertainty and risk by providing a social structure that allows humans to gain certain control over their environment (North 1990; Menard 1995). On the one hand, institutions steer human behavior by placing constraints on the number of choices available to human actors and determining who has rights of access, decision or use (North 2005b). On the other hand, institutions are human actors' instruments: NIE theorists conceive that institutions emerge as a result of cumulative individual choices that are continually reshaped by human beliefs and decisions (Williamson 2000; Groenewegen 2005; Menard and Shirley 2005). Hence, NIE theorists argue that institutional contexts are the collective result of institutions that tend to emerge spontaneously via individual choices (Klein 1996). Due to this evolution of the institutional context, it is held that institutions are neither fully adapted to coordination demands needed to facilitate exchange, nor completely efficient as they are imperfect and temporary. Therefore, there is no guarantee that the most efficient institutional arrangements will be chosen (Brousseau and Glachant 2008). However, institutions contain an element of predictability as institutionalized rules and norms hold a certain level of stability since they have constraints that inhibit rapid change (Nabli and Nugent 1989).

Since an objective of NIE is analyzing institutions across levels and time, it is pertinent to delineate Williamson's (2000) analytical framework depicting interconnected levels of economic institutions shown in figure 1. The first level is described as **embedded institutions** that are comprised of informal institutions such as norms, customs, traditions (based on beliefs), choices and goals of individuals (Williamson 2000; Menard and Shirley 2005).[10] According to Williamson (2000), these fundamental socio-cultural institutions change slowly as adaptation takes at least a hundred years because they are difficult to alter. At the second level lies the **institutional environment** that delineates the formal rules of the game, which includes the political system - with a focus on property rights (Williamson 2000; Joskow 2008).[11] While change at this level is described as occurring faster than at the first level, adjustment still takes at least ten years. At the third level is **governance,** which is comprised of **institutional arrangements** that define the play of the game. This level refers to contracts, firms and other modes of coordinating economic activities that should provide order, offset conflicts and allow actors to maximize personal preferences (Williamson 2000).[12] Change at the level of institutional arrangements occurs more rapidly since this level is less path dependent than the first two levels. At the fourth level, the **institution of resource allocation and employment,** change occurs continuously as it involves the daily operation of the economy with constant and spontaneous adaptation. This is the purview of neoclassical economics that looks at the outcome of the institutional infrastructure (established in the first three levels) (Williamson 2000). In contrast to neoclassical economics, which does not aim to explain economic change, NIE focuses on levels one to three and hence looks at the institutional

[10] Norms are defined as informal rules that are generally followed but not legally imposed, hence becoming behavioral regularities. Klein, P. (1996). New Institutional Economics. Ghent, Edward Elgar and University of Ghent, Greif, A. (2005). Commitment, Coercion, and Markets: The Nature and Dynamics of Institutions Supporting Exchange. Handbook of New Institutional Economics. C. Menard and M. Shirley. Dordrecht, Springer.

[11] Property rights refer to laws that delineate formal incentives and frame actors' capacity to engage in contracts. Brousseau, E. and J.-M. Glachant (2002). The economics of contracts and the renewal of economics. Cambridge, Cambridge University Press, North, D. C. (2005a). Institutions and the Performance of Economies Over Time. Dordrecht, Springer.

[12] While some theorists refer to institutional arrangements as modes of organizing outside the market, others include markets into this terminology. In this paper, the term institutional arrangements, rather than governance modes/structures, is used to define organizations (i.e. firms), markets and hybrids.

processes and *interactions* that help explicate change and sustain a market economy (North 2005b; Joskow 2008).

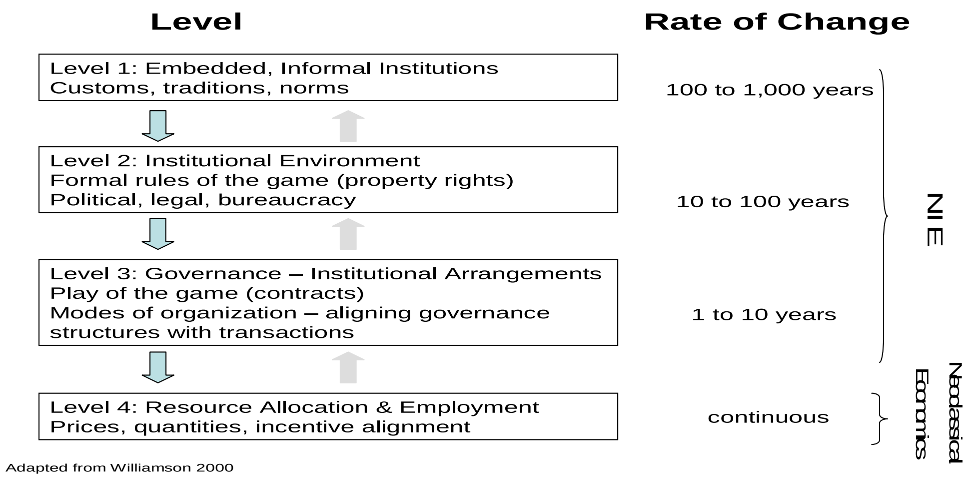

Figure 1: Levels of Economic Institutions

3.3 Interaction within Levels of Economic Institutions

Within the institutional levels described above, modes of coordinating economic exchange dynamically interact both between and within levels (the arrows in figure 1 indicate interdependence between levels; while the main influence is from lower to higher levels - i.e. level one → level four - feedback in the other direction also occurs). Since these interchanges involve costs, they need specific types of supportive institutions that make commitments among human actors engaged in exchanges credible and enforceable. These institutions as well as forms of coordination are described below.

3.3.1 Incomplete Contracts, Contract Enforcing and Coercion Constraining Institutions

Transaction cost economics dominates the level of governance (level three) as it is argued that all (except for the simplest) transactions need an institutional arrangement to protect actors against potential hazards generated by an exchange (Klein 1996). Here the focus is on **incomplete contracts,** which are assumed to be imperfect under complex circumstances due to human actors' opportunistic behavior and the presence of uncertainty that cannot be resolved in an initial contract (Finger, Groenewegen et al. 2005; Groenewegen 2005). Hence, contracts are generally viewed as not completely self-enforcing, which requires that action be taken after the signing of contracts (*ex post*) in order for them to be *enforceable* (Williamson 2000; Menard and Shirley 2005).[13] Furthermore, as a central focus of NIE is how human actors cope with incomplete

[13] Despite the centrality of contracts in NIE, it is argued that contracts fail to completely elucidate economic structures as economic innovations do not necessarily depend on contracts (and individual choices) but rather on the institutional environment, market conditions and conditions within organizations. Menard, C. (1995). "Markets as Institutions versus

contracts and opportunistic behavior, the theory emphasizes the enforcement of contracts (Brousseau and Glachant 2002). This makes it relevant to address two types of institutional "pillars" of economic exchange that determine whether human actors are willing to engage in exchanges (Greif 2005). One pillar concerns itself with *contract enforcing institutions* that sustain efficient exchange by offsetting opportunistic behavior. These have been the focus of NIE as all institutions, in order for them to function, place constraints on humans that need to be enforced. Such institutions can be informal or formal as well as public or private. This is accomplished by influencing human behavior in exchange relationships - i.e. specifying who is included and what goods can be traded (Greif 2005).[14] More specifically, public contract enforcing institutions include the *legal* and *regulatory* systems, which are seen as being more effective in supporting exchange than private institutions because they rely on the "authority of the state" (Greif 2005: 737). For instance, with respect to the coordination of activities in privatized utilities, the need for government intervention is recognized when private institutions fail to uphold the public interest in their provision of services (Finger, Groenewegen et al. 2005).

The other institutional pillar involves *coercion restraining institutions* that influence decisions about power (Greif 2005).[15] While these two pillars dynamically interact, the effectiveness of the first type depends on the second as it is argued that human actors will be afraid to engage in exchanges unless coercion restraining institutions are in place (Greif 2005). The coercion restraining institutions are more vaguely defined than the contract enforcing institutions as they are described as mechanisms that offset potential power abuse (e.g. government branches placing restrictions on each other, as well as devices implementing economic sanctions or providing incentives (Greif 2005; Menard and Shirley 2005).[16] While coercion restraining institutions need not correlate with the existence of a state, they are often associated as it is argued that a state is necessary to protect against power abuse and support market exchange. Hence, the coercion restraining institutions are closely linked to political institutions such as decision-making rules and the justifiable utilization of power (Greif 2005: 728) as these institutions (presumed to be legitimate) should lead to increased efficiency in exchanges insofar as they uphold rules (Brousseau and Glachant 2008). Here NIE theorists grapple with the dilemma of needing a strong government to enhance economic performance by defining and enforcing

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Organizations as Markets? Disentangling some Fundamental Concepts." Journal of Economic Behavior and Organization **28**: 161-182.

[14] Such contract enforcing institutions not only involve economic institutions but can also be linked to social structures such as networks, communities and business groups. Greif, A. (2005). Commitment, Coercion, and Markets: The Nature and Dynamics of Institutions Supporting Exchange. Handbook of New Institutional Economics. C. Menard and M. Shirley. Dordrecht, Springer.

[15] Coercion is defined as involving legal, economic and social sanctions in order to attain compliance. Those with coercive power include governments, rulers in general as well as elites.

[16] For instance, it is found that when local governments are given control over their jurisdiction, they have higher incentives to improve public goods at the local level than if the national government intervenes. Weingast, B. (2005). The Performance and Stability of Federalism: An Institutional Perspective. Dordrecht, Springer.

property rights, while at the same time this power could be abused as government officials are subject to opportunism (Weingast 2005).

3.3.2 Markets, Organizations and Hybrids

The ability to coordinate and engage in economic exchange depends on the latter institutional pillars. Since NIE theory places emphasis on assessing how such modes of coordination (i.e. markets and organizations) emerge and interact, these arrangements are briefly described below. While neoclassical economists define the **market** as simply the price mechanism that coordinates transactions between minimally two parties, NIE defines it in more complex terms: A market is a mode of decentralized coordination employing high powered incentives to enable regular voluntary exchanges of property rights that are reversible and regulated by the price mechanism (Menard 1995: 172).[17] While in neoclassical economics markets can presumably coordinate transactions effectively via the efficiency of the price mechanism (Coase 1937; Groenewegen 2005) with "hands-off" administrative control (Williamson 2005), NIE theorists recognize that markets need institutional support in order for them to function (Greif 2005; Menard and Shirley 2005). An example is the need to have clearly defined and protected property rights for transactions to take place.

Organizations are typically described as the polar opposite modes of coordinating transactions as markets since they involve centralized coordination (Finger, Groenewegen et al. 2005). These institutional arrangements are defined by NIE theorists as a means to overcome humans' limited cognitive abilities through coordination and cooperation as well as by using low-powered incentives (Williamson 2005; Brousseau and Glachant 2008).[18] Furthermore, organizations are depicted as collective and purposefully designed modes involving **hierarchical** coordination (typically by an entrepreneur) that are *vertically integrated* as transactions are coordinated internally with considerable administrative engagement (Williamson 2005; Hodgson 2006).[19] Additionally, while the contract enforcing institutions in markets are legal (and rely on courts), organizations have internal dispute resolution mechanisms (i.e. an organization has its own appeals court) (Williamson 2005). In NIE, the **firm** is defined as an organization that emerges when an entrepreneur organizes transactions and directs resources (Coase 1937). Thus, rather than being defined as a self-evident production function (as is the case in neoclassical economics), the firm is defined as a governance structure (i.e. an institutional arrangement) in this theory (Williamson 2000).

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[17] The price mechanism is a term taken from conventional economics that can be defined as an efficient (least transaction costs) means to convey information and align parties in a market exchange.
[18] While some analysts consider organizations to be special types of institutions (e.g. Hodgson 2006), others consider them as being separate from institutions (e.g. North 2002).
[19] The term organization is often used synonymously with hierarchy as it involves vertical integration. Menard, C. (1995). "Markets as Institutions versus Organizations as Markets? Disentangling some Fundamental Concepts." Journal of Economic Behavior and Organization **28**: 161-182.

Since there is no best prescribed way to coordinate transactions, as there are only feasible alternatives that all involve costs, the branch of transaction cost economics employs a **comparative institutional analytical framework** that defines a range of alternative institutional arrangements - from spot markets to internally organized hierarchies - that instructs how to compare the costs of alternative modes of coordination and hence allows the analyst to systematically recognize which modes of coordinating transactions are the most efficient (in terms of reducing transaction costs) and hence the most effective (Joskow 2008). This led NIE theorists to realize that beyond the discrete market or firm, there are diverse **hybrid**[20] forms of coordination that combine market and organizational mechanisms, which strengthen credible commitments (Williamson 2005). Through such characteristics as interacting, sharing and trading products, services, technologies and capital, as well as adapting without much help from the price system and functioning without joint ownership, hybrids enable transactions to occur more smoothly than distinct modes (Menard 1995; Menard 2004).[21] For instance, by incorporating attributes from markets and firms, unique contract enforcing institutions (i.e. new forms of dispute resolution or penalties against early withdrawal from a contract) are implemented in hybrid forms, which create safeguards that help offset transaction costs (Williamson 2005).

3.4 Summary of NIE

In sum, NIE takes into account the profound effect of institutions on economic interactions as it acknowledges that legal, political, social and cultural institutions affect the performance of an economy (Coase 2000). Furthermore, NIE employs feasible alternatives in its economic analysis instead of relying on hypothetical ideals and abstract models (as is the case in neoclassical economics) (Coase 2000). In addition, the theory acknowledges transaction costs and regards institutional arrangements as imperfect and temporary, which is argued as being a more accurate portrayal of economic exchange in the real world than neoclassical assumptions of a frictionless market (Menard and Shirley 2005). Moreover, human actors are depicted pragmatically as having bounded rationality; not as having complete knowledge of all relevant information (Williamson 2005). Additionally, NIE's approach keeps significant contact with its focal phenomena (Williamson 2005). NIE has indeed yielded plentiful corroborative empirical applications since the 1980s that include various studies of economic relationships like the organization of work, regulation and franchising (Shelanski and Klein 1995; Williamson 2000).

[20] Hybrids include subcontracting, long-term contracts, networks, franchising, partnerships, cooperatives and alliances. Menard, C. (2004). "The Economics of Hybrid Organizations." Journal of Institutional and Theoretical Economics **160**: 345-376, Finger, M., J. Groenewegen, et al. (2005). "The Quest for Coherence Between Institutions and Technologies in Infrastructures." Journal of Network Industries **6**(4).

[21] Hybrid forms do not nullify the distinct polar cases of market and hierarchies. Menard, C. (1995). "Markets as Institutions versus Organizations as Markets? Disentangling some Fundamental Concepts." Journal of Economic Behavior and Organization **28**: 161-182.

4. Assessing the Criteria through the NIE Perspective

Now that a basic picture of NIE's premises has been depicted, the next section focuses on the three criteria related to public policy. Efficiency, legitimacy and effectiveness are respectively analyzed and defined based on the perspective of NIE.

4.1 Efficiency

NIE operates on the premise that efficient economic coordination stems from aligning multiple imperfect contractual and institutional arrangements to find the most appropriate means to conduct an exchange, which should minimize transaction costs as much as possible (Brousseau and Glachant 2002). Hence efficiency can be defined as perceived net benefits provided by one institutional arrangement in relation to another, or the "maximization of discounted net present value" (Ostrom, Gardner et al. 1994: 8). NIE theorists also describe the ground rules of the institutional environment as enabling efficiency in institutional arrangements (e.g. firms, markets, hybrids) by providing a structure for interaction that reduces uncertainty and risk (Brousseau and Glachant 2002). In addition, by employing the rational choice model, NIE appears to assume that individual rational choices should lead to efficiency as institutional arrangements with the least amount of transaction costs should be chosen.

4.1.1 Problems with Efficiency

Despite the centrality of efficiency to the theory, when one looks at how the criterion is defined and utilized by NIE theorists, some problems emerge. First of all, while the theory assumes that institutional arrangements are chosen on the basis of their adaptive qualities to reduce transaction costs, and hence are the most efficient (as described above), NIE theorists also state that the process of creating institutions fails to guarantee that the most efficient institutional arrangements are chosen (Brousseau and Glachant 2008). This reasoning is based on the theory's premise that human actors in a dynamically evolving world with bounded rationality can neither devise nor choose completely efficient institutional arrangements (Brousseau and Glachant 2008; Foss and Klein 2008).

Secondly, NIE theorists note that while efficiency is an essential background assumption of the theory, it has not been tested (Foss and Klein 2008). Thirdly, the rational choice assumption of individual choices leading to efficiency is intrinsically linked to Pareto optimality in neoclassical economics, where it is not possible to make one individual better off without making another one worse off. However, applying this concept to NIE is problematic because institutions can exist without benefiting any individual. This has been acknowledged by NIE theorists as they state that "[i]nstitutions may be durably inefficient" (Brousseau and Glachant 2008: liv). Furthermore, while NIE uses survival of an institutional arrangement as an indicator of efficiency, this is a weak pointer as an institution may survive due to “inefficient competitors, regulatory protection, or legal barriers to exit” (Foss and Klein 2008: 441). Fourth, there is no universal efficient solution in NIE theory, as efficiency in one institutional context may not be the case in another (i.e. while water privatization may function efficiently in a developed country due to a transparent government and subsequent regulation, it may fail in a developing country as a result of corruption and no regulation). Furthermore, while certain institutional arrangements may have been efficient in the past, they may not adapt to changing circumstances and hence they become inefficient (Platteau 2008). Finally, a major critique of NIE is that “there is no unique efficient institutional solution to a problem involving transaction costs” (Platteau 2008: 446). Only under “restrictive assumptions” will the “efficiency principle mean that institutional forms are determined to ... minimize transaction costs” (Platteau 2008: 447).[22] Therefore, NIE theorists acknowledge that institutions as well as institutional arrangements will never be completely efficient (Menard and Shirley 2005). In fact: “Even the notion of institutional efficiency is questioned” (Brousseau and Glachant 2008: liv).

4.1.2 Remediable Efficiency

To offset this problem underlying the concept of efficiency, a “remediableness criterion” is proposed that assumes the existence of an outcome where no better feasible alternative can be explained or applied (i.e. implemented) with the same net benefits and is thus presumed to be efficient (Williamson 2000). This remediableness criterion is presented in contrast to the Pareto principle of neoclassical economics, as the former addresses feasibility and the aspect of implementation (Williamson 2005). NIE therefore appears to use the term efficiency in relative instead of absolute terms: Given the institutional environment and its constraints as well as humans’ bounded rationality, efficiency is achieved when the least possible production and transaction costs exist (North 2005b). However, while previously the focus of NIE seemed to be solely on minimizing transaction costs (Groenewegen 2005), others argue that the main emphasis currently is to “empower human beings” (Brousseau and Glachant 2008: lv). This new focus broadens the previous goal by seeking to increase the capability of human actors to decrease uncertainty through learning from past experiences and making use of pre-existing institutions (i.e. building on present infrastructures, legal systems etc). In this sense, efficiency can be achieved via human actors, particularly entrepreneurs, who learn and use their feasible foresight to employ safeguards. Yet this new aspect has the same motive as the older objective as it also leads to offsetting transaction costs and increasing the efficiency of economic exchanges in the end.

[22] Restrictive assumptions include “the possibility of transfer payments, zero negotiating costs, ability to implement and enforce decisions reached in the bargaining process and the absence of wealth effects.” p. 447. Platteau, J.-P. (2008). The Causes of Institutional Inefficiency: A Development Perspective. Cambridge, Cambridge University Press.

4.1.3 Organizational Efficiency

NIE theorists also describe efficiency in organizations by identifying elements that make them more feasible than markets. According to NIE theorists, together the criteria of control, cooperation, information and communication operationalize command, which empowers human actors and offsets transaction costs (Menard and Shirley 2005). This process of increasing efficiency occurs accordingly: Control minimizes transaction costs by reducing the amount of contracts, the need for negotiation as well as uncertainty. Cooperation (i.e. cooperative adaptation), defined as human actors' willingness to pool resources, offsets the costs of control and increases efficiency through a "cooperative atmosphere" by, for example, increasing the sense of responsibility among human actors in a firm (Williamson 1974). Finally, firms can process information more efficiently than the market as they create routines and a common language (i.e. develop a corporate culture) (Menard and Shirley 2005). However, it must be taken into account that while the above elements can lead to internal efficiency, they also induce bureaucratic costs (Menard and Shirley 2005).

4.1.4 How to achieve the most Efficiency?

Neoclassical economists depict the spot market as being the most efficient mode of economic coordination as it is able to continuously adapt via the price mechanism; thus facilitating information transmission and the realization of opportunities (see table 1 for more examples). While NIE acknowledges that a spot market functions effectively in the absence of complexity (as actors can incorporate uncertainties into contracts), NIE theorists also recognize costs (i.e. opportunism; see table 1) incurred by market transactions in complex circumstances (when uncertainties cannot be resolved in contracts, which leads to incomplete contracts) (Finger, Groenewegen et al. 2005; Williamson 2005). Thus NIE theorists have broadened their scope to include non-market mechanisms as well as hybrid forms of coordination. For instance, NIE theory posits that it becomes advantageous to implement an organizational mode as a means of coordination rather than the market when the price mechanism generates costs under complex and hazardous conditions.[23] In such circumstances, NIE theorists argue that a hierarchical form can reduce costs by capitalizing on organizational efficiency, as described above (Williamson 1996; Coase 2005). Specifically, when transaction costs are high, more rules are necessary in order to allocate resources to their "highest value" (Eggertsson 1990: 456). However, it is argued that such internal organization is a "last resort that we turn to only in the presence of significant contracting hazards and associated transaction costs" (Joskow 2008: 14). This is due to an organization's inflexibility and poor capacity to adapt to new opportunities, innovations and technology as well as its inability to gain information regarding least costs (Joskow 2008). For example, a public bureau is

[23] The degree of complexity can be determined by asset specificity, uncertainty as well as the number and type of actors. Asset specificity makes reference to investments in transactions that are tailored to a certain exchange and cannot be easily utilized for other transactions (i.e. one time investment in a dam). Finger, M., J. Groenewegen, et al. (2005). "The Quest for Coherence Between Institutions and Technologies in Infrastructures." Journal of Network Industries **6**(4).

described as an extreme case that should be the last resort (when competition is not possible) because its bureaucratic costs are so high (Groenewegen 2005). Hence an organization's internal as well as external transaction costs must be taken into account when assessing which mode is more efficient (see table 1) (Klein 1996; Menard and Shirley 2005). Therefore, when organizational costs are high and market failures exist due to opportunistic behavior in the market, hybrids enter the game in order to increase efficiency in economic exchanges (Menard 1995; Groenewegen 2005).

Taking into account the various institutional arrangements (described above), the institutional environment in which they are embedded as well as the historical success or failures of such modes, NIE theorists use the comparative institutional analytical framework (described earlier) to assess which arrangements have the highest capacity to handle certain transactions most efficiently (Williamson 1996; Joskow 2005). For instance, it is argued that hybrids may nearly always be preferable to a discrete mode because they are able to reap both organizational as well as market benefits (in terms of efficiency) while offsetting opportunistic behavior in the market and bureaucratic costs of hierarchical organization (see table 1) (Rothenberger and Truffer 2003; Finger, Groenewegen et al. 2005; Joskow 2008; Williamson 2008a). However, if such hybrid mechanisms do not suffice, transactions are taken completely out of the market setting and solved within an organization (Williamson 2008a). NIE assumes that the chosen institutional arrangements are those that can best adapt to the specific characteristics of certain transactions by reducing total costs (Joskow 2008).

Table 1 summarizes NIE's definition of efficiency and provides insight into mechanisms that lead to efficiency within different institutional arrangements (modes of coordination at the level of governance - level three). The table neither addresses the interaction between the modes nor looks at external competition. Rather, it sheds light onto the advantages and disadvantages of various efficiency mechanisms within the various modes.

While aspects of defining efficiency are problematic and some NIE scholars go so far as stating the need to refute the "efficiency presumption" (Williamson 2000: 601), the underlying meaning of this criterion relates to the minimization of transaction costs. However, since costs are always present, the theory operates on the premise of "presumed" or "remediated" efficiency (i.e. no institutions are ever completely efficient). Furthermore, as it is recognized that "it is impossible to do better than one's best" (Williamson 2000: 601-602), NIE theorists analyze feasible alternatives that are inevitably flawed (i.e. pros and cons of modes in table 1). Therefore, emphasis is placed on finding the mode of coordination that best fits a transaction in order to arrive at the most efficient outcome.

Table 1: Summary of Efficiency

Definition	Mode of Interaction	Mechanisms	Indicators (advantages)	Costs
Efficiency: Minimization of transaction costs; since costs are always present, remediable-ness criterion is employed.	Organization/ hierarchy	Control/vertical integration	Reduction of uncertainty, risks, number of contracts; hazards & need for negotiation; facilitating compliance; mitigating dispute settlements	Bureaucratic & administrative costs; costs in generating incentives & monitoring; inflexibility & poor continuous adaptation
		Cooperative adaptation	Cooperative atmosphere: sense of responsibility	
		Information processing & communication	Routines; common language; & facilitating (equal) access to information (?)	
	(Spot) Market	Continuous adaptation/competition (via price mechanism)	Realization of opportunities; access to information on technology & least costs; aligning parties	Opportunistic behavior leading to market failures; more legal intervention & enforcement difficulties
	Hybrid	Employ a combination of mechanisms from discrete modes; esp. capable of facilitating credible commitments	Safeguards (i.e. penalty against early termination; unique dispute settlement)	Can offset (some) costs from discrete modes by balancing mechanisms
	Cutting across modes (underlying assumption of NIE)	Feasible foresight	Learning from past; thinking ahead & utilizing existing institutions	Time & resources

4.2 Legitimacy

While at first NIE does not seem to address the issue of legitimacy, the theory does touch on consent, constraint as well as controlling power and trust, which can be perceived as indicators of legitimacy. However, despite some indicators that NIE takes legitimacy into account, it seems that even while addressing issues related to this criterion, the logic of NIE theorists often seems to come back to the efficiency criterion (and the underlying motive of minimizing transaction costs) or they outsource the problem to political science.

4.2.1 Legitimizing Authority at the Level of Governance

With NIE's emphasis on organizations, such as firms at the level of governance (i.e. institutional arrangements at level three), the theory intrinsically addresses authority and command held by such actors as employers and entrepreneurs. This leads NIE theorists to raise the question as to why human actors *consent* to the authority of an employer (i.e. a visible hand) rather than maintain their freedom under the invisible hand of the market (Menard and Shirley 2005). Since consent has been established as a basic characteristic of political legitimacy and moral action (Peter 2004), by addressing this issue, NIE theorists touch on legitimacy. One argument is that a firm is a mode for coordinating assets where members are part of a team. It is argued that since centralized control of assets should lead to more efficient coordination, human actors freely consent to the visible hand (Menard and Shirley 2005). Another argument regarding consenting to authority is that a firm is defined as being hierarchical with asymmetric relationships where human actors consent to the fact that some actors hold more authority than others because they simply need secure employment. This is based on the reasoning that the costs of going on the job market are too high and that it's more efficient to accept the constraints within a firm than opt for the alternative choice of searching for a new job or becoming self employed (Menard and Shirley 2005). Another solution for inducing consent is implementing an "efficiency wage" that is higher than the market wage, which also makes it more preferable for the human actor to accept the alternative of less autonomy (Miller 2005). However, focusing on human actors' set of choices, which can be legitimized through their freedom to consent to an alternative, does not provide insight into the institutional constraints under which these actors must make decisions (Peter 2004). Therefore, as NIE takes the institutional environment into consideration, it helps to understand whether the constraints placed on humans provide them with enough freedom to choose from attractive alternatives or whether they are coerced into unattractive options due to their institutional environment; hence, whether the choices provided are legitimate or not.

While the latter argument above about the constraints of the institutional environment is extrapolating on NIE's premises, this presents an example where the legitimacy criterion is addressed without an underlying motive of efficiency.[24] In contrast, in the first part of the above paragraph, the efficiency criterion underlies the concern for legitimacy. For instance, NIE theorists argue that authority is a practical tool for principals (e.g. employers or entrepreneurs) to control opportunistic behavior among agents (i.e. employees or contractees) (Bardhan 1989: 1394; Menard and Shirley 2005). Hence the issue of command is validated by the efficiency criterion as reducing the transaction cost of opportunistic behavior, for example, leads to more efficiency and avoids the issue of legitimacy. However, it is argued that the control held by principals could also lead to opportunistic behavior as they may abuse their power (Bardhan 1989). The same applies to governments that should constrain coercive power but are themselves subject to governmental opportunism as individuals within the government can take actions to maximize their self-interest and not the common good (Menard and Shirley 2005). Hence, explicitly incorporating legitimacy could make NIE more robust as the criterion could assist in making those with power more accountable to those they control by employing the indicator of consent.

4.2.2 Legitimizing Coercive Power at the Level of the Institutional Environment

On the broader level of the institutional environment (level two), NIE theorists do acknowledge the need to constrain coercive power. Restraining power is often linked to the legitimacy criterion (particularly in

[24] However, NIE focuses more on individual choices than on constraints, which minimizes its concern for legitimacy.

political science) because in order for powerful entities, such as governments, to function properly they need to be accepted by those they affect (Peter 2004; Menard and Shirley 2005). It is also argued that this criterion should be applied to market mechanisms as they may wield coercive power and hence should be validated (Peter 2004). While realizing the need to control coercive power of market mechanisms, private institutions as well as the government, NIE theorists give this responsibility to public institutions (Greif 2005; Menard and Shirley 2005). As noted above, coercion restraining institutions are linked to public institutions that, in democratic societies, focus on legitimizing coercive power (Peter 2004). In addition, private institutions utilize transparent public institutions in order to enhance their contracting arrangements (Greif 2005). This is the case with contracts based on monitoring that involve more rules, which are often linked to public institutions to legitimize authority. Therefore, by connecting markets and private institutions with public institutions (i.e. political or legal), it seems that NIE escapes the legitimacy issue by "outsourcing" the problem to political institutions and hence to the realm of political science. Yet, while relying on political institutions for legitimacy may be feasible in certain institutional environments (i.e. representative democracies), in other institutional contexts no such legitimacy may be present (i.e. corrupt governments or dictatorships).

4.2.3 Trust

Aspects of NIE literature also include the concept of trust, which is linked to legitimacy (Menard and Shirley 2005). For instance, NIE theorists have found that repeated behavior leads to embedded institutions of customs and norms that become legitimate as human actors trust and thus consent to the rules attached to such behavior (i.e. creating equilibria that take a long time to change) (Menard and Shirley 2005; Hodgson 2006). Furthermore, some institutional analysts focus on trust and how this can help offset transaction costs. They also address the relevance of distrust and hence the need for cooperation in order to achieve enforcement (Menard 2000; Greif 2005); however, most such research is beyond the scope of NIE (Keefer and Knack 2005). In addition, it must be noted that some NIE theorists take the stance of avoiding "user-friendly" and "illusive" concepts as trust (Williamson 2008a).

Table 2 summarizes how legitimacy may be defined by NIE. The theory's discussion of consent seems to apply only to the institutional arrangement of organizations where actors are subject to authority. The issue of trust can apply to all modes of coordination as it can assist in minimizing transaction costs in any exchange. The aspect of constraining power at the broader level of the institutional environment is not summarized in the table as this seems to be outsourced to political science. While the issue of legitimacy may be a relevant criterion for NIE (and should be further defined on its own terms), explaining the term via this theory does not provide new and valuable insights about legitimacy as NIE's underlying reason for addressing issues connected to the term relate back to the efficiency criterion (i.e. reducing transaction costs).

Table 2: Summary of Legitimacy

Definition	Mode/Level	Indicator	Explanation	Implications	Outcome in relation to Efficiency
Legitimacy: Freedom to consent to an alternative and/or trust a rule; however, choices are constrained by the institutional environment.	Organization Governance	Consent	Actors agree to be subject to authority if it entails more efficient coordination of assets or more opportunities than alternatives	Consent is only legitimizing when coercion is absent. By taking the institutional environment into account in NIE, it is possible to assess the presence of constraints	Acceptance of authority can lead to mitigation of opportunistic behavior, which reduces transaction costs
	Applicable to all modes & levels	Trust	Improves ability/willingness to accept rules/conditions & cooperate	None	Facilitates exchanges and thus reduces transaction costs

4.3 Effectiveness

Unexpectedly, effectiveness is the most difficult criterion to decipher in NIE theory. Complications with this term arise as it is often intertwined with the efficiency criterion in NIE literature. Effectiveness through the perspective of NIE may be perceived as an outcome of efficiency as NIE theorists utilize this criterion to refer to offsetting transaction costs. For example, an economic exchange is described as being effective if the transaction is conducted in the most efficient way (i.e. transaction costs are eliminated as much as possible). Hence economic exchanges are made more effective by rational individuals choosing the best feasible, or most efficient, outcome (Greif 2005). However, such utilization of the effectiveness criterion becomes tautological: If effectiveness is defined as achieving a goal (i.e. an outcome) and if the main objective of NIE is efficiency in terms of reducing transaction costs (and not some other outcome) then the term effectiveness becomes redundant as it essentially has the same meaning as efficiency.

Effectiveness is also used in NIE theory to relate to the presence of coercion restraining and contract enforcing institutions as these entities serve the purpose of enhancing economic performance and thus support economic exchanges by addressing the issue of enforceability. While the extent to which the latter institutions are functional depends on their legitimacy, NIE delegates this aspect to political institutions (and hence to fields such as political science as discussed above). However, NIE does note that in order to provide legitimacy, these institutions must be effective, which can only be achieved when agency problems, such as judicial bias or governmental corruption, are counteracted by coercion controlling institutions. Furthermore, effectiveness, in a sense, is linked to authority as contract enforcing institutions are described as being effective when they are backed by the "authority of the state" (Greif 2005: 737).

Table 3 summarizes NIE's definition of effectiveness. While NIE does not clearly operationalize the effectiveness criterion, it can be defined as taking into account the remediableness criterion and hence referring to the existence of the best *feasible* alternatives (i.e. institutions), which are outcomes of individual choices that lead to the most (presumably) efficient economic exchanges. On the one hand, the interconnection of effectiveness with the driving motive of efficiency and its focus on minimizing transaction costs makes the effectiveness criterion difficult to delineate on its own grounds; hence it becomes tautological. On the other hand, effectiveness provides more insight into implementing efficiency at the broader institutional environment level (than the efficiency criterion itself) as the latter mainly sheds light onto the internal efficiency mechanisms in institutional arrangements at the level of governance. Furthermore, the effectiveness criterion elucidates the issue of enforceability that is central to NIE.

Table 3: Summary of Effectiveness

Definition	Mode/Level	Mechanism	Indicator	Explanation	Outcomes
Effectiveness: Existence of best feasible outcomes (i.e. most efficient institutions that make contracts more enforceable)	Institutional environment	Rational choice	Best feasible alternative	Rational individuals choose the most efficient outcomes	Reduction of transaction costs
		Contract law; property rights; separation of power	Enforceability	Contracts are made enforceable via contract enforcing (i.e. legal or regulatory) & coercion restraining institutions	

5. Conclusion

NIE has made considerable progress as its emphasis on institutions as a means to comprehend and explain economic performance is increasingly accepted as mainstream research in various fields (Joskow 2008). NIE indeed involves a wide range of approaches - from analyzing institutions to understanding human behavior and beliefs; taking into account the constraints and opportunities linked to past practices (Menard 1995; Chhotray and Stoker 2009). NIE is also regarded as enabling analysis of economic relationships in a multitude of social settings as it focuses on the fundamental premises needed for exchange: The creation and enforcement of the institution of rights (decision, use and access) that provides means for actors to coordinate in order to exchange resources (Brousseau and Glachant 2008). Therefore, by widening the spectrum of economic theory, NIE has enabled economists to look at non-market institutions, their environment and other modes of coordinating economic activity. Such analysis of alternative institutional arrangements (like firms and hybrids), the institutional environment within which they are embedded as well as the inclusion of human behavior, norms and values into NIE theory has begun to shed some light on the criterion of legitimacy that has been excluded in neoclassical economics. Furthermore, NIE has become linked with political science as well as with other social science fields (Eggertsson 1990), which makes it more applicable to assess criteria central to public policy-making such as legitimacy, efficiency and effectiveness.

Despite its progress, criticisms of NIE remain. NIE's focus on institutions as being based on the outcome of individual choices and its emphasis on efficiency as solving the issue of transaction costs are critiqued as being too narrow. Furthermore, NIE is disparaged as placing too much emphasis on rationality (albeit bounded), which restricts analysis of economic change (North 2005a). However, a closer look at efficiency and rationality in NIE theory shows that theorists are responding to these criticisms. For example, some NIE scholars now conclude that institutions are not created through a process of fully rational choices based on efficiency. Instead, they hold that individuals have constructed their own rationality by "building a social order on the basis of the definition and reorganization of rights and rules" (Brousseau and Glachant 2008: lvii). Furthermore, despite NIE's emphasis on efficiency, it is found that the theory is critical about this criterion as cognitively limited actors can neither create nor choose completely efficient arrangements; thus the theory seems to operate on presumed or remediated efficiency. While this appears to be a more realistic conception of efficiency, perhaps NIE theorists could change their terminology from simply efficiency to "presumed" or "remediated" efficiency in order to clarify their meaning. Another critique of the theory is that it has not focused enough on individual decision-making and human actors' behavioral qualities such as trust and altruism as it has emphasized the general characteristics of bounded rationality and self-maximization (Joskow 2008). NIE theorists thus stress the need for placing more weight on incorporating belief systems (mental models and cognition), human ideas, learning and how these affect institutions. Furthermore, theorists acknowledge the importance of understanding power dynamics and bureaucratic costs in organizations (Williamson 2000; North 2005a; Joskow 2008). An additional criticism of NIE is that while it implicitly incorporates politics and governments, it does not explicitly address them (Chhotray and Stoker 2009).

In conclusion, despite some theoretical glitches, it seems that NIE has made progress in terms of being more pertinent to public policy-making than neoclassical economics as it focuses on the emergence, functioning and evolvement of institutions (Chhotray and Stoker 2009). Furthermore, in terms of the three policy analysis criteria, it may be concluded that NIE is valuable to policy-making since 1) it takes human cognitive limitations into account, which leads to a more realistic conception of presumed or remediated *efficiency* rather than perfect production efficiency; 2) the theory touches on *legitimacy* in terms of addressing human actors' freedom to consent to an alternative arrangement, analyzing the institutional environment and its interface with human actors who are simultaneously constrained by it as well as engaged in shaping it; and 3) NIE defines *effectiveness* as the existence of the best feasible institutions (that are the outcome of individual choices), which increase the enforceability of contracts. Not surprisingly, the dominant criterion in NIE is efficiency as it appears to be the underlying motive of the other two criteria. By assessing the three criteria through NIE, two notable trends emerge. One relates to the emphasis placed on reducing transaction costs, which is evidenced in the analysis of all three criteria. The other pertains to the seeming centrality of authority, as all three criteria are linked to this topic. While there is room for improvement in NIE's utilization of all three criteria, the theory's discussion of authority and its link to political science may necessitate particular development of the legitimacy criterion. First of all, efficiency and effectiveness could be more distinctly defined in NIE. Secondly, legitimacy could be more embedded into the theory rather than being outsourced to political science. Due to NIE's connection with political science, as its core focus on institutions is intrinsically linked to political aspects (Chhotray and Stoker 2009), it could be argued that more emphasis should be placed on incorporating legitimacy into NIE theory to make it more robust in its applicability to public policy-making. Conversely, it could also be argued that legitimacy should remain in the realm of political science (and not be addressed by NIE) since certain institutions (i.e. property rights) are generated by the government (i.e. in the legislature or court) where clear power differentials exist, which rely on political structures and hence necessitate political rather than economic analysis (Bates 1995).

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