

Institutional Analysis and Development Framework:

Mapping and Governing the Tri-layered Economy with the Shared Resources
toward a Novel Commons

CheolSoo PARK

Abstract

This article is intended to extend the conventional dichotomy of the market-state/government in economics by setting out a framework for a *tri-layered socio-macro economy* with diverse institutional arrangements beyond the two domains dichotomy. The study introduces a new way of looking at a shared resource toward a novel Commons that is subject to a social dilemma. I argue adopting and applying the approach pioneered by Elinor Ostrom and other collaborating scholars to a commons arrangements in the natural environment provides a template or platform for examining the governance mechanism in the new commons such as knowledge commons in the cultural environment as well as for understanding properties of organizations and the self-decentralized governance within the social economy domain in addition to both market and public economy domains. The novel framework helps to clarify the policy process in conjunction with the *trilateral or tri-layered property regimes* in practical and implemental senses in order for solving the social and economic problems both at local-spatial location and in contemporary era. Keywords: social dilemma, IAD framework, shared resources, the new Commons, governance, policy process, the market-state dichotomy, a tri-layered socio-macro economy, social enterprise organization. JEL Classification Numbers: B22,E61,G32, H4, H7, O53, P1, P47, P48.

... Exactly 100 years after *Rerum Novarum*, the *New Rerum Novarum* was issued by Pope John Paul II on May 1, 1991, identifying the problems that plague the world today as “the abuses of socialism and the illusions of capitalism” (John Paul II, 1991, and Uzawa, 2009, p. 6).

Introduction

Many policy and economic problems have attributes of social dilemmas. The dilemma is a situation in which social problems occur. A social dilemma arises when too many group members choose to pursue individual profit and immediate satisfaction rather than behave in the group’s best long-term interests. Social dilemmas can take many forms and are studied across disciplines including psychology, economics, and political science and others as well. For several decades, generations of scholars had been challenged to reexamine the Commons as a governing institutional arrangement as an adjunct to the two dominant (top-down) solutions: government regulation and privatization as

institutional arrangements.

In the action arena under which actors or organizations perform activities, the social economy and the new forms of social economy organizations (SEOs) are emerging as an alternative domain where social dilemma might be mitigated under certain conditions. They are, though, in no way a new phenomena, and have been reinvigorated in recent decades, and further been noted after the recent world financial crisis, a crisis which exposed some serious limitations to the current economic system. Challenges especially after the globalization, financialization and technological progress, resulting in the polarization of society in conjunction with high growth after WWII, have contributed to the reinvigoration of the new sector or domain with the diverse institutional arrangements where an alternative mechanism of governance to fill the gap left by such conventional institutions as both markets and the state. The rediscovery of the social economy domain (SED) and SEOs within SED and across domains society are also expected to play such roles. Both institutions and actors within them have themselves required to be innovative, adaptable, and responsive to the local needs of community or/and the local region when provided with opportunities and an environment which allows and enables them to reveal their potential in fulfilling certain goals or values they set.

To address the issues mentioned above, we need to probe more deeply into the working architecture of the *contemporary* economic system and the different institutional roles within the economic system at large. The purpose of this study is to learn this methodology from a myriad of perspectives of the Institutional Analysis and Development (IAD) Framework developed by Ostrom and her colleagues, in order to improve understanding governing resources with variety of characteristics and social interaction. Through adopting and modifying a framework approach, we are able to address such social dilemma facing a community such as the commons dilemma, searching the underlying structures for these particular situations.

A new approach of the commons employed in the study helps to recognize how traditional economists undervalues the importance of shared assets with a distinct bias in favor of private property. For example, among others, one bias is how rules and principles have influenced the governance of the commons as a shared resource or a property arrangement and the underlying structural factors within a framework for studying problems in

conjunction with the economy and society inclusive social economy domain. To improve the understanding of shared resources and the Commons, we must pay attention to the importance of actors such as individuals and organizations and the requirement for governance to recognize their diverse roles within the analytical framework. It is accompanied by their wider role within community as an underlying structure of the action arena at the multiple levels, at levels both at regional and the national levels.

The contributions of this study are two folds. At first, though there were some efforts in the previous study in positioning organizations as actors in the action arena, those are in the lack of compatibility with theoretical perspectives with which all types of organizations are interacting with each other for activities and transactions across domains in the architecture of economy at large. In order to fill these gaps, this study adopts and learns from the framework approach in section II. The second contribution is that, in order to derive empirical implications, we try to do mapping cases of organizations as actors by setting up the criteria of incentives and drawing common attributes in the institutional framework whose constituents are components of full spectrum economy.

The study is structured as follows. The dramas of Commons in studying institutions are discussed in chapter one. It includes commons, *old and new*, in studying institutions and this chapter summarizes what we learn for building on Ostrom's institutional framework approach. Chapter two outlines a framework for analyzing the shared resources with institutional arrangements that govern the Commons. In chapter three, mapping organizations and institutions in Commons environments, through which conduct the novel attempt to do mapping organizations onto the spectrum of the incentive space within the full domain of the economy at large. We also try to identify the relational aspects between motivation and organizations in order to identify attributes of the action arena described in the institutional framework and development developed by Ostrom that are may be consistent with the architecture of "economy at large". In the last chapter, we discuss issues regarding the new commons in the cultural environment for the possible modification of the framework as research agenda for future study.

I. Dramas of the Commons in Studying Institutions

1.1 The Commons in studying Institutions

The commons is an important issue when we intend to use to analyze global and local resources on Earth. There has been long history, in both the academic and practical worlds, regarding traditional commons for feasible solutions to the exploitation of natural resources and to the environment.

Hardin's allegory: An article entitled "The tragedy of the commons" by Garren Hardin in 1968 in the journal *Science* played a key role in reintroducing the debate on the commons, a debate with a long history of controversies. This article had a profound impact on social science, including economics. The hypothesis and arguments thereafter became a reference for the problems that traditionally occur in the area of natural resources area. The essence of the problem is that resources are over-exploited because agents (or actors, players) want to have the maximum benefits as a consequence of a selfish individual behavior. The phenomena was referred as the *tragedy of the commons* which is a result of a collective action or decision.

Based upon a story line from historical cases such as non-regulated extraterritorial fishing zones and that of common lands in England before the Industrial Revolution, Hardin argued that, "in fact, when access to a resource is free and it is not defined by private or public property, choices of rational individuals and the depletion of this resource." Hardin proposed several measures to preserve resources under this social dilemma, given the presumption that tragedy is inevitable. He suggested that only privatization of it or, in second place, resort to making it state property, would be able to eliminate this behaviour and safeguard the resource. From the point of view of efficiency, his prescription implies that the commons should probably be replaced by systems of public or personal ownership which corresponds to two solutions through either the market or the state. This assumes that self-governance of common goods is impossible.

Ostrom's allegory: Ostrom (2007) critically reviewed the tale of Hardin and argued that the tragedy of the common is not necessarily tragic and furthermore the dilemma might be solved in an alternative institutional arrangement when some conditions were satisfied, which we will discuss in section II. The situation is called as the comedy of the commons. Many scholars including Ostrom and Hess, based on the new political economy of commons, developed an original criticism of Hardin's theory, focusing on his approach and the underlying assumptions. Academic contributions extend our understanding of how

resources are shared and successfully managed or/and failed to be managed in the framework. Their views renew the theory of property rights and of public or collective goods so that they define commons according to different criteria within a framework, rather than one of previous studies¹⁾. From analytical perspective, Ostrom further explained that a slight change from outside the model of Hardin's or just recognizing that some other factor is relevant to the situation, or relaxing one of the assumptions, may result in solutions that are often not considered.

Problem solving beyond a conventional dichotomy of institutional arrangements: This criticism by Ostrom and others reveals important implications for social science, especially for social-political macroeconomics, as well as for policy prescriptions. Decades of research paid attentions to solve the problem of the commons problem as a sort of a solution to the social dilemma. As an alternative institutional arrangement, cooperation to avoid tragedy becomes theoretically feasible without resort to one of Hardin's two solutions: either government command-and-control (micro-management), *leviathan* (government regulation) or private property-enabled markets, *privatization* (market regulation). In terms of institutional economics, this implies that community management, social norms, and other institutional arrangements could be relevant solutions that can and often do outperform the dominant institutional arrangement according to solutions based upon the dichotomy of either/both government regulation or/and market regulation.

Lessons learning from Ostrom's work: To deepen understanding the main idea, it is helpful to introduce lessons from the academic contributions by Ostrom and other studies. Let me discuss these lessons and the novel perspectives that researchers could learn from them in studying *institutions* and the commons *old and new*. Beyond recognizing the limits of models and acknowledging what is theoretically feasible, in *Governing The Commons: The Evolution Of Institutions For Collective Action*, Ostrom (1990) explained how models such as the tragedy of the commons lead to myopic analyses of solutions and policy prescriptions, ignoring alternative institutional arrangement that may provide more effective ways for governance, based on study on actual resource system and governance

1) For example, the redefinition of the distinction between *res nullius* and *res communes*, the concept of the proprietary structure as a bundle of rights, the typology of goods and the principles of governance.

institutions in the real world.

The cumulative results by Ostrom about how self-organized community governance often is an effective alternative for a wide range of shared resources. In some contexts, communities, as self-organized and governing institutional arrangements, can and do solve the tragedy of the commons, collective action, and other related resource management problems without (turning to) government regulation or market-driven allocation. They do so in a variety of ways, often relying on informal mechanisms for coordinating behavior. However, community solutions sometimes succeed and sometimes fail. A lesson from previous study is that *context matters* (Madison, Frischmann and Strandburg, 2010). It is worth noting that arguments of Ostrom's had been built upon a basic notion that people sometimes cooperate effectively and build *self-manageable* institutions to enable sustainable shared use of common pooled resources. The spectrum of vision brought by Ostrom help improve understanding not only of *informal institutions*, but also of *formal institutions* by revealing the many different ways in that government, market, and community institutions work together. In other words, from an economics perspective, three distinct domains within a framework of socio-economy, such as market economy domain, public/government economy domain, and community/social economy domain, depend on each other to be successful.

Commons Old and New: To improve understanding mechanisms governing commons old and new, Ostrom introduced definition of common goods within not only the intrinsic characteristics of goods but also the social structure of the governance of common. Based on the new political economy of commons, Ostrom developed an original criticism of Hardin's approach, the tragedy of the commons. This new approach renews the theory of property rights and of public or collective goods to arrive at a definition of the commons²⁾.

Multi-dimensionality of Goods and the Shared Resources: Ideas of shared resource or the commons in terms of a global dimension are also important to deepen theoretical aspects of institutional arrangements for various reasons. Two among others are: In the traditional economics of development aspect, there are large portion of people who are living on less than \$2 a who day still depend in some way on commonly held resources.

2) It was organized around central elements : (1)the redefinition of the distinction between *res nullius* and *res communes*, (2) the concept of the proprietary structure as a bundle of rights, (3) the typology of goods and (4) the principles of governance, management principles, cooperative notions of *individuals* beyond *homo economicus*.

In the advanced countries, the concept of the commons is also spreading to new areas, called as the “*new commons*”. In order to understand what this variety of commons we need to understand their fundamental characteristic as a resource itself. The essential feature of a common good or common resource is that they share one characteristic with private property and another with public goods.

Figure I-1. Classification of Goods based on Criteria: Subtractability and Exclusion

Goods-Type vs Criteria		Subtractability and Rivality	
		High	Low
Exclusion	Easy	Private goods	Club goods, Toll goods
	Difficult	Commons (Common-pool resource)	Public goods

Note: Ostrom (2012)

There are four types of goods and services as in figure I-1. The dilemmas in the society are related to their production and consumption in many situations. Subtractability refers to how the extent of how one’s consumption of a unit of the resource lowers the others, while exclusion refers to the extent of how costly it is to exclude others from consumption of that resource. Private goods and services are in high subtractability and low cost of exclusion frame. They can be produced efficiently through the process of market exchange. In order to operate those activities of transaction efficiently, market must be located within the supporting framework of such public goods as rule of law, secure property rights, and a medium of exchange. Public goods are characterized as nonsubtractability and a high cost of exclusion since they are not excludable. By structure, free-rider problem results in the less production and provision of public goods and services than one predicted by efficiency in the market. Toll goods (or the club goods when consumption can be restricted to a defined club members), are in the sections of nonsubtractability and low cost of exclusion. However, realization of potential net benefits to consumers can be reduced greatly due to congestion effects, though the cost of exclusion is low.

Common pool resources (CPRs) or common resources³⁾, like public goods, are not “excludable.” The common resource is too extensive to keep people out very easily. But they are also “subtractable” or “rivalrous,” like private property. If one person uses them, another’s access is diminished. The resource units are extracted or appropriated from a common pool. We can suppose three situations about how the resulting resources or products may be used: (i) by the appropriator for consumption, (ii) used as inputs in some production process, and or (iii) exchanged with others. In an open access CPR with no governance arrangements in operation as in Hardin’s hypothesis, appropriation will tend to over-exploit the resources and may destroy the resource itself. It is tragedy of the commons that comes in within a complex institutional framework we will discuss. It is related with such various forms of notions as appropriation externality, rent dissipation, assignment problems, technological externality and the provision of infrastructure.

As a background of a new category (public, common goods) based on “subtractability” notion shown in the graphic representation of the types of “goods and services or resources” there is a notion of ownership of commons as *a bundle of rights*⁴⁾. In addition to the problem of the commons as an economic theory of property, this notion has been applied to the economic theory of common property as the mixing property that is complementary to the importance of well-defined private property rights as a central factor for development. Because different components of a resource or goods or service may simultaneously express properties of different types of goods, we need to consider not only the exploiting side but also where to use in terms of category of goods (*demand side* that is connected among goods type). For example, a resource taken from a common-pool may be consumed as a private goods or used in the production of a club/toll or public goods. Interaction between different category of goods through actors or participants could be reflected by shifting spaces in the matrix in Figure I-2.

3) The term commons is informally used to refer to public goods, common pool resources, or any area with uncertain property rights. Since, for analytical purposes, it is necessary to be more specific, there have been long efforts among scholars.

4) Ostrom had raised questions on North’s theories regarding the importance of the existence of well-defined private property rights as a central factor for development. Ostrom considered the problem of commons as a critical continuation, explicit or implicit, of the theory of property rights by Douglas C. North, and thus also was interested in the theoretical renewal of neoliberal economic theory of property.

Figure I-2 Classifications of Actors and Resources

ACTORS	Antisubtractability	Subtractability	Nonsubtractability
Individual	/	Private goods	/
Local Community	Commons		Club goods
Public	Network	Open access	Public goods

Different Types of Goods and Different Institutional Arrangements: In applications of the IAD framework, attention is paid to the possibility that a particular goods or service activity may have the properties of different types of goods under different institutional settings. It is thus important to understand the linkages between resources and property rights regimes. The diversity of property rights regimes that can be used to regulate the use of common-pool resources has a wide spectrum, including the broad categories of government ownership, private ownership, and ownership by a community. In general, humans using resources of this type face at least two underlying incentive problems. The first one is the problem of overuse, congestion, or even destruction because one person's use subtracts from the benefits available to others. The second one is the free-rider problem that stems from the cost or difficulty of excluding some individuals from the benefits generated by the resource. The benefits of maintaining and enforcing rules of access and exclusion go to all users, regardless of whether they have paid a fair share of the costs.

The institutions that humans devise to regulate the use of common-pool resources must somehow try to cope with these two basic incentive problems. They struggle with how to prevent overuse and how to ensure contributions to the mechanisms used to maintain both the resource and the institution itself. There seems wide room for us to identify "new commons" (such new infrastructures as the internet, and accumulated knowledge) or to claim as commons things not always seen that way. The recent study of the Commons are extending the concept of the commons from traditional natural resources to things such as medicine, knowledge and what are usually seen as local and global public goods, like the cities and the oceans.

1.2 Learning and Building from Ostrom's Institutional Framework Approach

As we discussed above, there are various advantages to base the proposed framework on Ostrom's work on natural resource environment. Research on institutional arrangements in conjunction with both problems and solutions regarding the shared resource and the commons old and new, is challenging by leaning significant lessons from Ostrom's institutional framework approach. This section outlines two out of many: the one substantive and the other methodological, following front-runners's adoption, Frischmann (2013) and Ostrom(2013). One lesson is a practical lesson to face reality beyond the binary government-or-market view, the other is a methodology to study the reality.

One lesson is a practical lesson to face reality beyond the binary government-or-market view. Ostrom emphasized that reality is much more complicated than a dichotomy of government-or-market thinking. The deep problem (with Hardin's tragedy of the common allegory) is the myopia that the model induced and the binary government-or-market prescriptions suggests. Ostrom pointed out that we consistently make the mistake of thinking in binary terms, individual or social, private or public, market or government, (Ostrom, 2013, Frischmann, 2013). The other lesson is a methodology to study the reality. This is Ostrom's approach for how should one go about studying reality by facilitating research on these institutions across diverse resource systems. Ostrom developed a scientific approach to studying and evaluating institutions, based upon the methodology that is bridging disciplines, and enabling systematic, collaborative social science, in part, in order to avoid path dependencies. Applying the IAD framework enables scholars to examine the impact of structural variables on outcomes. Facing a particular situation with dilemmas, the institutional approach helps to specify diverse ways of owning and governing resource, such as individual ownership, joint ownership by a community, and different forms of government ownership, on investment, harvesting, protection, and managing activities and their consequences on resource conditions.

1.3. Institutional Frameworks, Theories, and Models

The study of institutions depends on theoretical work undertaken at three levels of such specificity as *frameworks*, *theories*, and *models*, while analysis conducted at each level provide different degrees of specificity that is contingent on a particular problem. Ostrom

(2005, 28-29) explained the relationship between *a research framework, theories, and models* :

“The development and use of a *general framework* helps to identify the elements (relationships among these elements) that one needs to consider for institutional analysis. Frameworks... provide the most general list of variables that should be used to analyze all types of institutional arrangements. Frameworks provide a meta-theoretical language that can be used to compare theories. Many differences in surface reality can result from the way these variables combine with or interact with one another. Thus, the elements contained in a framework help analysts generate the questions that need to be addressed when they first conduct an analysis.”

“The development and use of *theories* enable the analyst to specify which elements of the framework are particularly relevant to certain kinds of questions and to make general working assumptions about these elements. Thus, theories focus on a framework and make specific assumptions that are necessary for an analyst to diagnose a phenomenon, explain its processes, and predict outcomes. Several theories are usually compatible with any framework. Economic theory, game theory, transaction cost theory, social choice theory, covenantal theory, and theories of public goods and common-pool resources are all compatible with the IAD framework.”

“The development and use of *models* make precise assumptions about a limited set of parameters and variables. Logic, mathematics, game theory, experimentation and simulation, and other means are used to explore systematically the consequences of these assumptions in a limited set of outcomes. Multiple models are compatible with most theories.”

II. Developing for Framework for Analyzing of the Shared Resources

This chapter introduces the IAD framework approach for natural resource commons, developed by Ostrom and colleagues. Before explaining elements of the framework, it is helpful understanding the crucial aspects of the framework approach that are distinguishable from existing methodologies.

2.1 Challenges and notions across disciplines for a coherent analysis

There are several important notions that are related with the framework adopted in this article and some difficulties to overcome involved in studying institutions for a coherent approach across disciplines. The conceptual categories and their analytical perspectives has been playing the useful role as the “language” for scholarly interdisciplinary collaboration. For the coherent description in this article, we adopt notions and definitions

that are shared with researcher on the commons mainly by Ostrom(1994, 2010) on natural resources, Hess and Ostrom(2014) on knowledge common, and Madison et. al (2010) on legal economics, among others. Given the variety and confusion over definitions and usages in concept and terminology, we confine notions used in this study and summarize them from the previous literatures as follows: the *commons*, *common-pool resources*, *institutions*, *organizations*, *rules*, *norms*, *strategies*, *institutional arrangements*, though they are not comprehensive.

The notion of the *commons*: given analytical advantages existing in separating the concept of the resource or goods valued by humans from the concept of the rules that may be used to govern and manage the behavior and actions of humans using these resources. A *common-pool resource* is a valued natural or human-made resource or facility that is available to more than one person and subject to degradation as a result of overuse. Common-pool resources can be characterized as ones for which exclusion from the resource is costly and one person's use subtracts from what is available to others. In the long history of social science regarding institutions, a major challenge was just to provide a coherent definition of the term institution. In this article, *institution* refers to many different types of entities, including both organizations and the rules used to structure patterns of interaction within and across organizations. In other words, institution includes both an organizational entity and the shared concepts used by humans in repetitive situations organized by *rules*, *norms*, and *strategies*. Rules could be defined as shared prescriptions (must, must not, or may) that are mutually understood and predictably enforced in particular situations *by agents responsible for* monitoring conduct and *for* imposing sanctions. By *norms* these could be defined as shared prescriptions that tend to be enforced *by the participants themselves* through internally and externally imposed costs and inducements. By *strategies*, is meant the regularized plans that *individuals* make *within the structure of incentives* produced by rules, norms, and expectations of the likely behavior of others in a situation affected by relevant physical and material conditions. Though we sometimes will use these interchangeably, we will distinguish two terms: *organizations and institutions* in a sense that organized entities (organization), such as buildings or the legally registered and located, are quite *visible*, however, institutions

themselves are *invisible*. To develop a coherent approach, the study define such diverse types of *institutional arrangements* including markets, hierarchies, firms, families, voluntary associations, national governments, and international regimes, which need multiple inputs from diverse disciplines for the fruitful meanings and notions⁵⁾.

2.2 Institutional Analysis and Development (IAD) Framework and the Commons

Though the IAD framework for institutional and structural changes was initially illustrated primarily with reference to work on the theory of common-pool resources dealing with various types of natural resources, called a traditional resource, it seems also appropriate for extending toward the other sorts of resources where both new technologies are developing at rapid rate as well as the increase of diverse demands.

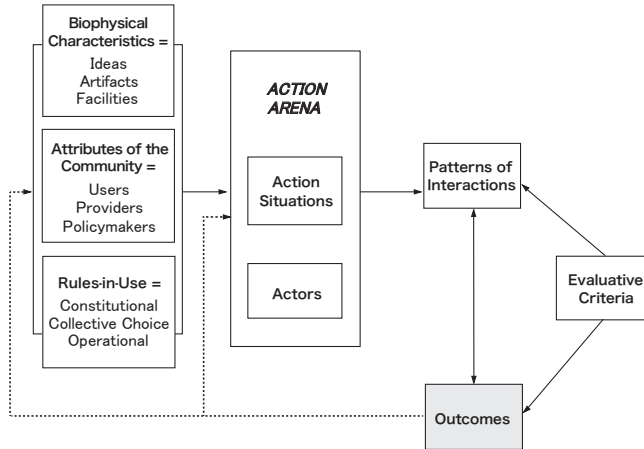
An institutional framework approach allows us to identify the major types of structural variables (the most general set of variables) that should be used to analyze all types of settings relevant for the framework adapted in question by presenting to some extent in all institutional arrangements, though value of variables may differ according to different institutional arrangement. In this sense, the IAD framework is a multi-tier conceptual map (see Figure II-1). The map in the framework divides the investigation of such variables into blocks or groups, which had initially developed by Ostrom(1997) and other disciplines-oriented researchers for *natural* common-pool resources, and then has applied by Frischmann et. al. (2014) in the field of legal economics among others in order to improve understanding of the *constructed* common resources such as knowledge and cultural resources in the new environment.

Steps for a framework approach in analyzing a social problem: The framework consists of steps in analyzing a problem solving to solve in a situation. The foundation of the framework-driven analysis is divides it into four blocks or clusters of variables as illustrated in Figure II-1: (i) to identify a conceptual units, (ii) to understand the initial structure of an action arena, that is, the underlying factors or the exogenous variables as the structural aspects and (iii) the action arena to examine how shared understanding of rules,

5) Given the multiple languages used across disciplines, a coherent institutional framework is needed to allow for expression and comparison of diverse theories and models of theories applied to particular puzzles and problem settings.

state of the world, and nature of the community affect the values the variables characterizing action arenas, (iv) the patterns of interactions and outcomes. The section will explain what the role of each block is.

Figure II-1 A Framework for Institutional Analysis for the conventional Commons



Source: Adopted from Hess and Ostrom(2007,609), the revised version of Ostrom, Gardner and Walker (1994)

2.2.1 Factors of underlying structure

The block consists of three aspects of attributes: ① biophysical characteristics as foundation “platform” structure, or as the physical and material world of a Resource, ②community “foundation” attributes of community producing and using a resource, and ③“rules-in-use” (or governance mechanisms) affecting the decisions of participants. In the short run analysis, these attributes will be treated as exogenous variables. In other words, when analyzing a particular situation, these attributes of the resource are fixed because the underlying structural factors are represented by the selected exogenous variables in the framework.

① *Biophysical and Technical characteristics*: Both the physical nature and technical availability are determinant in terms of the limitations and possibilities of a particular resource, i.e. a commons. The scope of characteristics of resource is wide scope from size, location, boundaries, capacity, and abundance of the resource. *Physical attributes*: The physical attributes always play a crucial role in shaping the community (or organizations with certain goals) and the decision, rules, and policies.

A mixture of property rights, rather than a conformity of property rights: In Hardin’s

description in the model, when no property rights define who can use a common-pool resource and how uses are regulated, a common-pool resource is under an open-access regime. Human beings in this storyline use common-pool resources by harvesting or extracting the finite flow of valued goods produced by them or by putting in unwanted byproducts, thus treating the resource as a sink. The conventional policy prescription is based on the assumption that the privatizing ownership is an only institutional arrangement. According to modern scholarship on the commons and property theory, however, property, as experienced on the ground, is never held in common, but instead always represents a mix of ownership types, Fennell(2014). The fact is consistent with a view that as long as some resources cannot be reduced to individual control, propertization should be partial because more elements could be placed under common control where the actors as commoners share rights (out of bundle of rights)⁶. We adopt perspective from theoretical work on the semi-commons that provide the useful implications about challenges in thinking attributes of institutional structure and building a framework in this study.

Technical attributes: The effect of new technology (which may be embedded in the physical nature of the old and new resources) has influenced on shaping many of the “commons” characteristics of knowledge and information in the emerging digital era, especially after the World Wide WEB of internet development in 1992. The vast amounts of knowledge that are digitally distributed so that the heterogeneous attributes or characteristics of commons and commons dilemmas are emerging and increasing. Types of knowledge commons are broadening, not necessary confined to libraries and archives as in the pre-digital era.

②*Community (Organizations) Attributes:* As a second set of structural factors or variables that affect the structure of an action arena is related to the community (or the networked organizations) in which an action situation is located. The attributes affecting the structure of an action arena include generally (i) cultural repertoire such as accepted norms, (ii)

6) For example, many of the neighborhood and the corporation, as two of the most fundamental institutions in contemporary society, constitute “mixed system communal and individual property rights.” This perspective provides us a valuable insight that the prototypical tragedy of the commons is produced not by common ownership alone, but rather by interacting between individual and collective entitlements. In other words, outcome of common dilemma is also resulted by an interface a communally owned element (the pasture) and individually owned elements (cows and the grass they digest).

common or shared understanding such as the degree of homogeneity of preferences, trust (iii) reciprocity (expectation of cooperation each others) and (iv) distribution of “resources” and “social capital” among members as actors. The term *culture* in Ostrom’s framework approach is applied to this bundle of attributes. In the situation of natural resources such traditional commons (pasture, fishery and groundwater), it is not difficult to identify the entire community that is contributing to, using, managing the commons. However, it is more difficult in the case of new commons such as knowledge commons in identifying attributes of the entire community, (Hess and Ostrom, 2011). The community or a segment of the population may be involved with various elements of governance, regulation, enforcement, education, or other activities. By this structure, the strategies adopted within action arena and the resulting patterns of interactions are affected by how the values of a community (institutions or organizations) are shared or divided. As traditional commons investigated, the small, homogeneous groups are more likely to be able to sustain a commons. If a community of providers and decision makers are unified as to the purpose and goals of the resources in question (for example, information resource or knowledge commons) in conjunction with the shared values, then the community could be said to be *homogeneous*. Homogeneity is one of important factor in terms of the ultimate persistency and robustness of a commons, (Hess and Ostrom, 2007, 49).

③ *Rules-in-use*: The third part of an attribute for an action situation is an understanding of the relationship between the rules that affect a situation and the resulting outcomes generated by participants is also important. “Rule-in-use” is used to designate all relevant aspects of the institutional context within which an action situation is located, including formal rule, informal rules/norms, repertoire of strategies, and property rights. Rules specify the values of the working components of an action situation in the sense that each rule has emerged as the outcome of interaction in an adjacent action at a different level of arena of choice in the framework. If an action situation has certain number of working parts, then logically the corresponding numbers of rules types could affect the action situation. These rules are one of the important findings in the traditional commons research that came from the identification of design principles of robust, long-enduring, common-pool resource institutions, (Ostrom 1990, 90-102). These were found as results of a large set of empirical studies on common-pool resource governance. Ostrom, Gardner, and

Walker(1994, 41-42) outlined broad types of rules that operate configurally to affect the structure of an action situation such as the following types of “rules-in-use” or “principles”:

- (1) *Boundary rules* that specify how actors are to be chosen to enter or leave a situation (clearly defined boundaries should be in place);
- (2) *Position rules* that specify a set of positions and how many actors hold each one;
- (3) *Information rules* that specify channels of communication among actors and what information must, may, or must not be shared (availability of information at each decision node);
- (4) *Authority rules* that specify which set of actions are assigned to a position at a node of decision tree.
- (5) *Aggregation rules* (such as majority or unanimity rules) that specify how the decisions of actors at a node are to be mapped to intermediate or final outcomes (i.e. a rule for specifying the transformation function a particular node) ;
- (6) *Scope rules* that specify the outcomes that could be affected (including whether outcomes are intermediate or not) ;
- (7) *Payoff rules* that specify how benefits and costs are to be distributed to actors in positions.

One of the most difficult problems in the study of institutions is to identify and measure institutions.

2.2.2. Action Arena

In order to analyze, predict, and explain the behavior within institutional arrangements, the first step in developing a framework is to identify *a conceptual unit* that is called as an *action arena* in Ostrom’s methology. The block, *action arena* in the framework plays a role as the social space where participants with diverse preferences interact, exchange goods and services, solve problems, dominate one another, or fight among the many things that individuals do in action arenas. Action area specifies the situation and the motivational and cognitive structure of an actor/participant as givens so that analysis proceeds toward the prediction of the likely behavior of individuals in such a structure. In this sense, the “action arena” is the *context* in which exogenous variables combine in particular instances, leading over time to the observed patterns of interactions and outcome. Action arena can be described by both an action situation component and an actor component: *an action situation* and the *actors* in that situation in figure II-1.

An Action Situation: Action situation is the core of the IAD framework because individuals, acting on their own or as agents of organizations, observe information, select actions as decision making, engage in patterns of interaction, and realize outcomes from

their interaction. An actor situation thus can be further described by means of clusters of variables as working components. These variables specify the nature of the relevant *actors* as well as the *resources* and *options* they face, and thus are used for a generalization of the rules of a game. These are seven elements from which the variety of action situation can be constructed immensely: participants, positions, actions, outcomes, action-outcome linkages, information, pay-off, as in Ostrom, Gardner and Walker(1994, 29-32).

While the universality of these working element parts will be maintained, we can analyze the unique combination of elements for theoretical description of an action situation⁷⁾. Each working elementary part is further constituted by combinations of physical, cultural, and rule-ordered attributes. Note that the element links actors to an action situation, given the way they are conceptualized, Ostrom(1994, 29). (1) *Participants*: Actors who have become participants in a situation. (2) *Positions*: these are meant as placeholders to associate participants with an authorized set of actions (that will be linked in some way to outcomes) in the process. Capabilities and constraints of being in a particular position depend on the way the other elements are defined. (3) *Actions* meant to the set of actions that participants on a particular positions can take at different stages of the process, corresponding to *nodes* in a decision tree. In many cases of action situations, the array of potential action is immense so that analysis only attempts to identify the most important actions in a situation. (4) *Outcomes*: the outcomes that participants can potentially affect through their actions. The potential outcome of individuals who are interacting one another in a regularized setting. (5) *Action-Outcome Linkages*: the fifth element is a set of functions that map actions (of participants) into realized outcomes, intermediate or final⁸⁾. (6) *Information*: the set of information available to a participant in a position at a stage in a process. Many situations only generate incomplete information due to the physical relationships and rules

7) In the process of IAD framework, the working parts of a game are best conceptualized as the universal working parts of an "action situation". To identify the relevant structural elements of a game and predict outcomes, Kister and Ostrom(1982) proposed that the theorist had to posit the number of actors; positions they held (e.g., row or column player); amount of information available to an actor; set of actions that actors could take at specific nodes in a decision tree; set of functions that mapped actors and actions at decision nodes into intermediate or final outcomes; outcomes that actors jointly affected; and benefits and costs assigned to actions and outcomes.

8) Properties of transformation function are determinate or stochastic in nature and the degree of uncertainty can vary with the situation. Examples include production function from combinations of inputs into some type of product in economics; in voting situation, take the symbolic actions of individuals into a collective decision.

involved. (7) *Pay-off*: set of payoffs where the costs and benefits assigned to actions and outcomes. The costs and benefits assigned to outcomes.

Actors and Participants: To understand and to predict how actors will behave, we need to make assumptions regarding actor or participant in a situation. The block, *an actor* (an individual or a corporate actor) in a framework approach includes assumptions about four clusters of variables: (1) the resources that an actor brings to a situation; (2) the valuation actors assign to states of the world and to actions; (3) the way actors acquire, process, retain, and use resources (knowledge contingencies and information); and (4) the processes actors use for selection of particular courses of action, (Ostrom 1994, 33-36). The actors in a situation can be interpreted as an individual or a organization as a group functioning in a such variety of forms of organization such as a corporate actor, NPO organization, social enterprise and hybrids of those. We will discuss issues and empirical evidences regarding actors in social economy domain as well as profit-oriented firms in the market domain, chapter III. An actor's characteristics are described as four aspects in the framework as follows: (1) The resources that an actor brings to a situation: *resource's availability and constraints*. In a situation where all actors do not possess sufficient resources to take actions available to them, individuals become facing various constraints in action situation. For example, actions involve budget constrain in terms of high costs, as well as the monetary and time constraints. (2) The valuation actors assign to states of the world and to actions; (3) The way actors acquire, process, retain, and use resources (knowledge contingencies and information); and (4) The processes actors use for selection of particular courses of action.

Multiple-Levels in linking Action Arenas: Regarding multiple-levels of analysis in the IAD approach, it is worth recognizing that there are three dimensions of actions in IAD framework⁹⁾. The differences among actions are at an operational level (such as calling on a local police department or taking water from the tap), at a collective-choice level (such as making policies regarding speed limits on local roads), or at a constitutional level (such as revising constitutional provisions about the authority of municipalities to make collective-

9) In theory, a "single" action arena may include large numbers of participants (actors) and complex chains of actions. However, social reality tends to be composed of multiple arenas linked sequentially or simultaneously. Action arenas are also linked across several level of analysis. Institutional studies need to encompass multiple *levels* of analysis because decisions made about rules at any one level are usually made within a structure of rules existing at a different level.

choice decisions). Studies conducted at a macro-level focus on constitutional structures. These, in turn, affect the type of collective-choice decisions as they eventually impinge on the day-to-day decisions of citizens and/or subjects. Studies conducted at a micro level focus more on operational-level decisions as they are in turn affected by collective-choice and constitutional-choice rules, some, but not all, of which are under the control of those making operational decisions. Finding *ways to communicate across these levels* is the key challenge for all institutional theorists. Note that the outcomes under certain assumptions for natural resources¹⁰, i.e. the common-pool resource are far different from new resources of cultural and knowledge commons as scholars such as Firschmann et. al. (2014) point out when discussing in *Governing Knowledge Commons*.

2.2.3 Outcomes and Evaluative Criteria

Outcomes are generated as of the outputs of a given action situation discussed above, in the conjunction with other closely related action situations and exogenous factors that might be constraints of actors. Regarding evaluative criteria that may be used by actors (participants or observers of nonparticipants) are ones to determine the extent of satisfaction of the results or/and need for improvement surrounding the observed outcomes. Criteria reflect multiple aspects of a situation, including efficiency, equity, legitimacy, accountability, fiscal equivalence, consistency with moral values of the community, and sorts of capacity (such as adaptability, resilience, sustainability) among others. This allows us to evaluate outcomes of activities from the diverse domains such as market, public and social domains. Actors' evaluation linking observed outcomes, depending upon information they are able to observe, will further accelerate feedback and learning process. The feedback, in turn, might have influence on any components of the

10) Given assumptions of Hardin for the storyline yielding the tragedy of the commons, remaking the story in terms of institutional framework with a situation arena under the underlying structural factors such as biophysical characteristics, community, "rules-in-use," allow us to clarify a mechanism to result in the outcome under assumptions as we outlined in chapter II section 2.2.1 The "tragedy of the commons" allegory of fishery situation by Hardin makes assumptions about the biophysical characteristics (depletable), community (independent, self-interested rational actors), and "rules-in-use" (every sherman for himself) that apply in the action arena of fishing for lobsters. It also assumes the only actors in the action arena, that is, independent shermen only. Thus, the collective action problem posed by the "tragedy of the commons" is the only type of social dilemma involved in the situation. Under those assumptions, the outcome that ensues is scarcity, depletion, and, eventually collapses.

IAD framework under consideration

III. Mapping Organizations in Action Arena of the IAD framework

This section attempts to relate issues between the commons and the social economy domains in which the similar solutions are challenged for social problems in the action arena within a framework at figure II-1. Learning from an IAD framework, we focus on attributes of the institutions including both organizational entities and rules discussed above section II. Assuming variety of institutional arrangements such as the market and the state as well as the social economy, we map organizations as actors onto incentive space and try to measure the degree of positions in terms of actor's behavior. Through mapping organizations in reality into incentive space, we might extract the "revealed rules-in-use" that, in turn, provide information about patterns of governance. By using Asian cases, we get advantage of a framework approach to analyze an action situation of social economy in Asian contexts, although results from these studies are preliminary. We expect some findings provide us clues of "rule-in-use" for the future research on studying structural elements of action arenas in the IAD framework.

3.1 Governing Social Economy Organizations and the Commons

Recent research regarding social economy and organizations emphasize collective action theory which focus on pay-off function. However, in order to have policy implications, it is necessary for us to pay more attention on the role of interaction among actors in order to solve "social dilemma" that have not been solved by the conventional types of *institutional arrangements* represented by "the market" and "the state/government." This is a perspective beyond the dichotomy to complex dynamic economy. The view implies that we need a novel perspective and need to theorize not only rules/principles of *competition* but also those of *cooperation* in consideration of theory, practice and policy, Park(2015). This view is also consistent with one of IAD framework approach in that cooperation is the decisive organizing principle of human society¹¹⁾.

11) Through five mechanisms for the evolution of cooperation by Nowak(2006), we can discuss that cooperation is needed for evolution to construct a new level of organization or community. Through the seminal research of

3.2 Mapping Organizations in Reality

This section explores the unexplored domain of the civic sector and social economy in the economic system at large and then attempts to open the possibility to link one situation of “social economy organizations(SEOs)” as actors to the attributes to another situation of the “Commons”. There is no one generally acceptable definition or concept of social economy domain (SED) and SEOs¹²⁾. In order to fill in these gaps, we adopt a framework approach and set up a criteria of incentives and draw common attributes of SEOs which make up the components of a full spectrum economy with which the theories are compatible, based on the accumulated results of the previous studies such as cases and field works. Based on historical episodes and recent practices from the contemporary East Asia region, we are able to discuss issues in both practice and policy, while we propose theoretical ones as a research agenda. In order to make up the lack of comparative study for both evolution of social economy and the emergence of social economy organizations within the Asian region as a whole, we then pay attention to categorizing properties of organizations for Asian regions to clarify similarities and hetero-properties among the regions. Though it is yet an early stage of re-search concerning novel institutional mechanisms, in particular forms of social economy which share with characteristics with the commons, it is worth noting it as a contribution of our study to the *incentive parameters space* in the model with *trade-off* between value creation and value appropriation in this article. The space reflects some of structural aspects of institutions including organizations and rules as in the IAD framework. The value creation is close to valuation of institutional arrangement based on the commons, while the value appropriation tends to put with more weight to the market arrangement. The perspective represented by the structure of the space as in Figure III-1 is useful for researcher to explain actions of social economy organizations under the situations

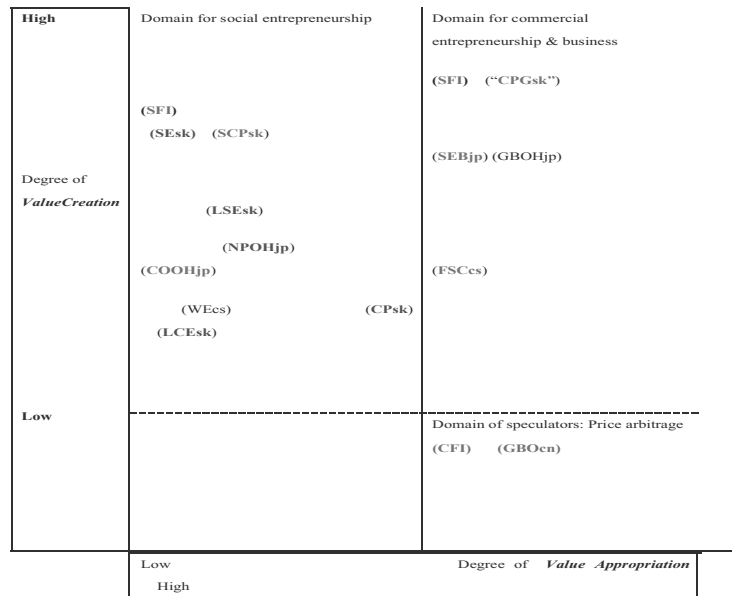
Ostrom(1990, 2010) explain *polycentric governance* (governing Commons). The *design principles*, or *rules* in a broad sense *including both rules-in-use and rules-informal* that are core factors that affect the probability of long-term survival of an institution (or organizations and rules) developed by users of a resource in specifics, or/and direct stake-holders of the commons in general.

12) Previous studies have tried mapping criteria of SED and SEO: Defourny and Develtere(1999), EU(2012), Kim and Miura(2014), and Defourny and Kim(2011). The efforts have contributed help integrated various factors in a simple framework. However, those methods are in the lack of compatibility with theoretical perspectives with which all types of organizations are interacting each other for activities and transactions across domains in the architecture of economy at large. See Park(2015, 3.2).

where both market and government failures may simultaneously may arise.

As the preliminary findings from the Figure III-1 representing the position of SEOs, we argue that SED and SEOs in the East Asian economy at large are in the process of expanding and repositioning stages by combining such hetero-factors as external, internal and policy-oriented factors. It is not necessary to be consistent with properties¹³⁾ of SEOs. Distribution of SEOs are in the *early stage of evolution* and at the *divergent pattern* which is consistent with the area of the upper-right corresponding the hybrid pattern in Figure III-1. The *distribution of SEOs in the incentive space* in our study indicates that there is an increasing tendency for SEOs to *shift toward on boundary over the dual values* of both value creation and value appropriation. Our result differs from Lee et al.(2014) and Defoury and Kim (2011) in that we have integrated SEOs into a simple but more compatible incentive space.

Figure III-1. Architecture of the Contemporary Economies: *Mapping* Evolution of Institutional Actors *onto* Domains of Economic System



Method: Based documents of field studies, the major SEOs as institutional actors (players) are mapping onto East Asian Domains of Economic System under the incentive structure.

13) The properties and the associated principles of social economy organization (SEOs) are summarized at the paper that adopts EMES approach proposed by Defourny and Nyssens(2010).

Note for codes for narrow domain where organizations are recognized as institutional or are certified in the legal frame: legal status as institutional actors and for broad domain as implicit actors including Korea: co-operative(CPsk), local community enterprise(LCEsk), social enterprise(SEsk), self-sufficiency enterprise (LSEsk), social co-operative (SCPsk), general co-operative(SPGsk). Japan: NPOhojin(NPOHjp), co-operative organization(COOHjp), general business organization (GBOHjp), self-employed business (SEBjp). China: non profit enterprise (NPEcn), farmers' specialized co-operatives (FSCcs), welfare enterprise (WEcs), general business enterprise organization (GBOcs). Kim and Miura(2013) Social financial entrepreneurship (SFE), social institution of financial SEO(SIFSEO), commercial financial entrepreneurship (CFE), commercial institution of financial business(CIFB). Source: Park(2016)

Positioning SEOs in the Economy at large: These findings are tentative because the results are based the partial set of attributes affecting the structure of action arena where organizations as actors do their decision making for their own through interacting with others. Thus, the resulting aggregate actions are outcomes described in the framework approach adopted in this article.

IV. Discussion for New Commons

Concerning academic challenges for applying lessons from traditional commons to the new commons, it is worth adopting the approach from Ostrom(1990) and Ostrom, Gradner and Walker(1994) and applying the framework approach into borrows the knowledge and cultural environment by employing methods from Madison et.al(2010). Recognizing knowledge as a new commons, scholars argue that, given the use of both formal law and informal rule systems in commons governance, patterns of interactions are *inseparable* from the outcomes of commons systems. As one important distinction from the traditional commons, they point it out *how people interact with rules, resources, and each other*, in other words, *is itself an outcome* in a sense that it is inextricably linked with the form and content of the knowledge or informational output of the commons¹⁴⁾.

It is also worth noting a new way of looking at knowledge as a shared resource. It is important for scholars and policymakers to become to recognize it as a complex system that is a commons, meaning a resource shared by a group of people (that *segment of population* may be called as *a community* in a dimension) that is subject to social dilemmas.

Knowledge, in a broad definition, can be defined as a broad set of intellectual and cultural resources. It refers all types of understanding gained through experience or study, whether indigenous, scientific, scholarly, or otherwise nonacademic. For example, it includes all

14) As an example, they explain the open source software program, and the existence and operation of the relevant open source software license are constitutive of one another.

intelligible ideas, information, and data. It may also include creative works such as music and the visual and theatrical arts, conventional and contemporary. There are important differences between various forms of resources. Some scholars think that knowledge derives from information as information derives from data, while others distinguish it in an opposite way in that data being raw bit of information, information being organized data in context, and knowledge being the assimilation of the information and understanding of how to use it , (Hess and Ostrom 2007, 8). Furthermore, classic frameworks such as Polanyi (1958) views that acquiring and discovering knowledge is both a social process and a deeply personal process.

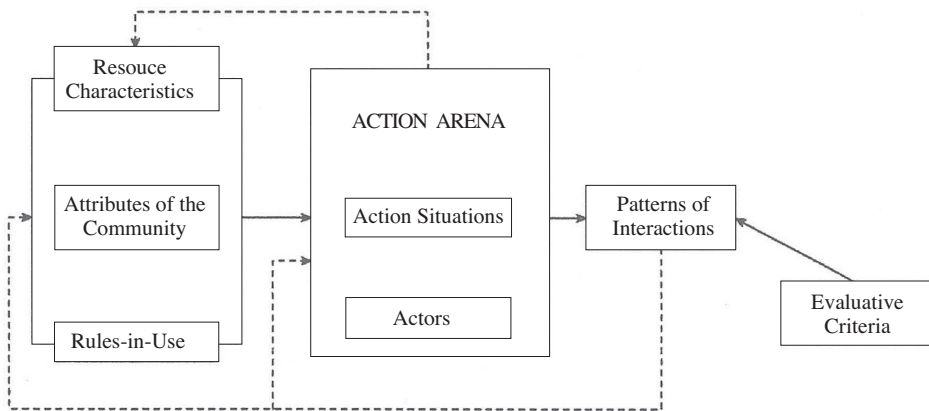
The new way of looking knowledge is “novel” because it allows us to view knowledge as dual and polemical: both commodity and a constitutive force of society. The complex nature of the knowledge resource comes from this dual functionality as an economic good and a human need. It is the place and the reason where and why scholars and policymakers employ an institutional framework approach to identify attributes within the coherent framework when addressing problems under dilemma situations. Given the background on the knowledge above¹⁵⁾, knowledge commons refers to the *institutionalized community governance* (or organization governance) of *sharing* and, in some case, creation of a wide range of *intellectual and cultural* resources. For research purpose, the notion is useful to capture and study a broad and inclusive scope of commons institutions and to examine governance of knowledge commons.

There are efforts to develop and apply a research framework to investigate the new common, knowledge commons on a systematic basis. In his section, we only introduce the relational aspects of a situation in terms of IAD framework where knowledge as a resource and its commons as institutional governance are involved. The attribute form knowledge resource as the “constructed” commons is reflected in Ostrom’s IAD framework by the collapse of the distinction between outcome and patterns of interaction that results from the intersection between the commons “action arena” and the underlying structural factors

15) Lessons from framework based on research works by Ostrom allow us to extend well beyond natural environmental resources. Recently academic efforts to apply Ostrom’s institutional approach to commons in the cultural environment or knowledge commons are Frischmann (2013) and Madison, Frischmann and Strandburg, MFS (2010) among others. The scholars in law and economics also have paid attention to the novel notion of shared resources and property arrangements.

such as community attributes, resource attributes, and rules-in-use. This is important implication in that recognizing and re-refining knowledge resource as commons have social dimension that is measured through interfaces among working components within the institutional framework, the commons action arena and the structural variables in the framework.

Figure IV-1 A Framework for Analyzing New Commons: Knowledge Commons



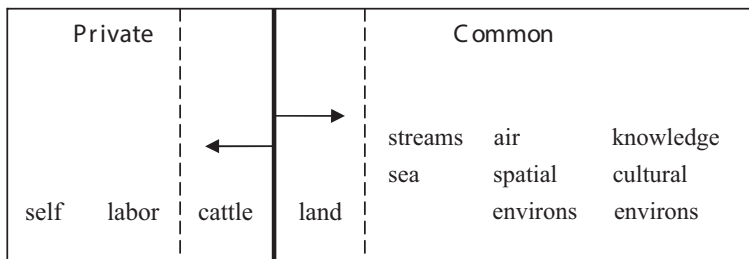
Source: adopted from Madison et. al. (2010, 682)

It is useful for us to re-examine the relationship between the use/allocation of the resource and spectrum of property ownership when we consider the knowledge resource and institutional governance. Here we discuss two issues that contribute to develop the institutional framework for economic activities in the new common environments: one is the *linkage* between *mixing property* and *economic activity*, the other is the notion of *contingency* in *spectrum of the shared resource as the common* shown in figure IV-2.

The linkage between mixing property and economic activity: The first discussion will extend notion of “mixing property” that the spectrum of property regimes surrounding resources in question as combining private, common, and public traits deeply related to each other, (Cole, 2008). Many property regimes as institutional arrangement in various contexts can be viewed as combining private, common, and public traits. We call it as *a tri-layered regime* in this study. We argue that a tri-layered regime corresponds to a *tri-layered economy* with the three domains of such economic activities as market economy, public economy and social economy. The linkage helps us clarify the overlapping domains

or interaction between heterogeneous domains of activities over the mixing form of property and resources in both theoretical and empirical aspects. *The notion of contingency in spectrum of the shared resource as the common:* The second discussion is to introduce the concept of contingency into the existing model by redefining the dual model of commons drama with two poles and thus making the scale problem be more specific (or measurable) in term of both application and theory. We need to clarify these in the sense that they explicitly seek to balance private, common, and public interests as having more or less equal weight, so that they can be seen as genuine *trilateral or tri-layered property regimes*.

Figure IV-2 Resources and Mixed Ownership: Spectrum and Scale



Source: The revised diagram adopted from Fennell(2009, 7). Note: The diagram shows how a given resource system might divide the individually and commonly owned (or controlled, governed) elements.

In the cultural environment such as information and knowledge commons, it is necessary for scholars to have to recognize the heterogeneous aspect of the new commons and have to develop the novel notion to extend scope and scale in continuous way, rather simple discrete way. As we see the diagram at the figure IV-2, the cope of boundaries in the spectrum of property resources is flexible and dynamic. The action arena needs a mechanism to transform from economic activity domain to the property regimes, that is, resource ownership domain. Scopes of knowledge resource commons are *contingent on* the underlying structural factors. In other words, it is determined by not only the attributes of resource but also attributes of community(or governance mechanism where the participatory segment of population are involved) as described at figure IV-1.

Concluding Remark

The conventional economics had been built upon the dichotomy of market-state/government. The big unanswered question is how far the things that economists have learnt about

traditional commons apply to the “new commons”. The economics of diverse-activity-domains including the new commons is still in its infancy. It is too soon to be confident about its hypotheses. But it may yet prove a useful way of thinking about social problems and alternative solutions, such as managing the new type of infrastructure, the new type of knowledge as intellectual property or the new scale of problem and dilemma, on which policymakers need all the help they consider new type of governance and institutional arrangement. As we learned lessons from a framework approach, the scope and scale of the commons as resource are contingent on the structural factors and actions so that we need more effort to specify situations under which actors (or participants, community members at both online and offline) searching the solutions for social problems or commons dilemmas.

As preliminary results, we summarize major points as follows. Regarding a framework approach, First, the framework approach allows us to identify the major types of structural variables that should be used to analyze all types of settings relevant for the framework adapted in question by presenting to some extent in all institutional arrangements, though value of variables may differ according to different institutional arrangement. Second, An IAD framework is a multi-tier conceptual map which divides the investigation of such variables into blocks or groups. It is an useful approach for understanding of the new commons as the *constructed* common resources in cultural environments, though it had initially been developed by Ostrom(1997) and other disciplines-oriented researchers for *natural* common-pool resources. Third, as issues regarding actors in the action arena within the framework approach, the economic theories in the mainstream economics is not yet able to explain existence of actors in social economy domain such as SEOs properly, remaining them besides the presence of the market and state failures. The gap could be fulfilled through adopting and building the institutional framework in order to reflect real world situation.

Regarding the study provides *an institutional storyline* about how to link the commons and the social economy in terms of actors in conjunction with governance mechanism. First, in the architecture of the economic system, *a tri-layered socio-macro economy* in this article, each type of economic actor performs a specific institutional role that explains and justifies their existence as a distinct institution in the economy and society in question. The three central actors in the full spectrum economy are *governments in public domain* and *corporation (business organization)* in market domain as an institutional arrangement

based on establishment of private property ownership, and *social entrepreneurs (SEOs)* in social economy domain as an institutional arrangement with governance mechanism over the commons in question. Second, the distribution of SEOs in East Asia seems to be in the *early stage of evolution* but the structure of SEDs shows the *divergent pattern* corresponding the hybrid pattern, indicating that there is an increasing tendency for SEOs to *shift toward on boundary over the dual values* of both value creation and value appropriation.

Regarding challenges of this article, there are two contributions in the discussion regarding the new common such as governing knowledge commons. As first contribution for extending traditional commons, the study extends notion of “mixing property” that the spectrum of property regimes surrounding resources in question as combining private, common, and public traits. We argue that *a tri-layered regime* corresponds to *a tri-layered economy with the three domains* of such economic activities as market economy, public economy and social economy. The linkage helps us clarify the *overlapping domains* or interaction between heterogeneous domains of activities over the mixing form of property and resources in both theoretical and empirical aspects. Recognizing the heterogeneous aspect of the new commons, scope and scale is flexible and dynamic because boundaries in the spectrum of property resources are changing in continuous way, rather simple discrete way. Second contribution is to introduce the concept of contingency into the existing model by redefining the dual model of commons drama with two poles and thus making the scale problem be more specific (or measurable) in term of both application and theory. We need to clarify these in the sense that they explicitly seek to balance private, common, and public interests as having more or less equal weight, so that they can be seen as genuine trilateral or tri-layered property regimes.

In summary, facing new needs and social dilemma in conjunction with the sustainable development for maturing society, scholars of various disciplines including social science need the interaction in a cooperative and constructive way to develop a theoretical framework for prescription toward the divers situations in reality. Adopting and applying IAD framework approach is a start one step toward building the novel one. For example, it is necessary for government in the public domain and SEOs in the social economy domain to work together in order to develop policies to enhance the financial sustainability of the sector, rather introducing independently from others. This is because there is no one simple

mechanism that can serve as a panacea to sustainability problem, given an inter-connected and unbalanced evolution of financial aspects between market domain and non-market one. The research agenda for the future is to re-visit those properties and principles in terms of policy issues within institutional framework in order to have a deeper theoretical and policy implications for the full-spectrum macro-economy.

The institutions that humans devise to regulate the use of natural common-pool resources must somehow try to cope with governance and incentive problems. They struggle with how to ensure contributions to the mechanisms used to maintain both the resource and the institution itself. There seems wide room for us to identify “new commons” in the cultural environment or to claim as commons things not always seen that way. The recent study of the Commons are extending the concept of the commons from traditional natural resources toward things such as medicine, knowledge accumulation, cultural outcomes and goods and what are usually seen as local public goods and global public goods, like the cities and cultural capital and heritage sites among others.

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共有資源から新コモンズの持つ経済社会のマッピングとガバナンス IAD制度分析発展フレーム・ワーク

朴 哲洙

要 約

本論文は、社会的なジレンマに直面し、自発的に参加する人々のグループや組織により共有・利用される多様な資源ストックと生み出される財・サービスに関する新しい観点と分析方法を導入することを意図している。従来の市場領域・政府領域の二分法を越える多様な制度調整を含む経済社会問題分析のためのフレームワークを設定する。オストロームらが開拓したアプローチの採用により、社会的経済領域内の組織および経済活動領域におけるガバナンスと構造の理解を深めるとともに、文化的な環境における新コモンズとして知識コモンズの構築と制度調整を究明するプラットフォームを提供すると主張する。

Keywords: 社会的ジレンマ, 制度分析発展フレームワーク・ IAD framework, 共有資源, 新コモンズ, ガバナンス, 政策過程, 市場・国家二分法, 三領域マクロ経済社会体制, 社会的企業組織.
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