

Spontaneous Order of Relation Exchange as the Integral System of Analytics for the Study of Public Administration

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Abstract

Organization theory is the study of interface between human behavior and organization. The fundamental problem arises from the assumption of individual rationality because if we start the analysis from individuals and conducts the analysis in the rationality dimension, we cannot but end up with piecewise approaches which provide partial explanations. The introduction of sympathy-consent dimension remedies this puzzle because the sympathy-consent dimension is of more comprehensive analytical dimension which contains rationality dimension as the extreme case of the sympathy-consent dimension. By the introduction of sympathy-consent dimension, the open/indeterminate system is able to be presented, which allows the operation of the SORX (spontaneous order of relation exchange) approach in the study of interface between human behavior and organization. The SORX holds good on the activities in the organization as well as in the market. By the merit of the integral system of analytics, the institution as well as entrepreneurship becomes integrated to the analytics in the study of organization. Due to the operation of SORX model, the private abuse of public authority can be prevented by the use of institution. Also, the entrepreneurship is possibly applied to the analytical territory of public-service studies and serves to explain how to improve the performance of public servants.

Key words : Public administration, Hierarchy, Relation exchange,
Sympathy-consent dimension, SORX model, Open/Indeterminate system.

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I . From Weberian Bureaucracy to Hawthorne Study

The study of public administration appeared from the practical need, which is not filled up by existing fields of disciplines such as economics or politics. In this sense, it shares the same points of question with business management. Both of fields have the same problem of practical need, which is not filled up by existing fields of disciplines such as economics and politics, and borrowed analytical logic from organization theory to explain the operational mechanism of the organization.

Despite the impact of Hawthorne study (Mayo 1949), which introduces human element to the scientific management (Taylor 1903), we cannot repudiate the fact that organization theory is more or less unable to break the bounds of study on the system of hierarchy. Neither Taylor's rational organization system approach nor Hawthorne study presented a theory that will replace the approach of study on the system of hierarchy, although they attempted to modify Weberian bureaucracy theory (Weber 1922) and to introduce the scientific management approach with the reflection of human/social elements.

What is the study of public administration? There exists a big gap between theory and policy implementation. Especially, the orthodox economic theory follows the optimization/equilibrium approach which gives rise to the closed/determinate system (Rhee 2013b). However, the real life is open/indeterminate system (Rhee 2013b). How to navigate this territory of open/indeterminate system to implement the public policy is unable to be addressed by the approaches of traditional economic theory.

Hence, it is not exaggerating to say that the study of public administration is utterly severed from the study of economics. Policy analysis is the study of how to select appropriate policies to attain policy goals. Economics may claim the merit for the contribution to set the policy goals in place such as heavy-chemical industrialization or the building of urban garbage collection-recycling system. However, economics is unable to provide any guidance in the stage to set the steps of selecting and implementing policies. The reason is obvious because the real life story of policy process is the open/indeterminate system, whereas orthodox

economics abides by with the closed/determinate system approach.

Two cases of public policy which may illustrate detailed stories (Appendices I, II) will be introduced to enhance the understanding of the significance of historical coincidence in the policy process. The understanding of the meaning of historical coincidence is essential to the understanding of the sympathy-consent dimension and open/indeterminate system. One of cases is about an anecdote of POSCO (Pohang Steel Corporation) construction. The other is the urban garbage collection/recycling system in Korea.

Section II will draw out the analytic point from two case stories of POSCO and urban garbage collection program in Korea (UGCPK), which reveals that the understanding of the role of public officer in the organization is required to address the problem of public administration. Appendices I and II will introduce the case stories of POSCO and urban garbage collection program in Korea (UGCPK) respectively. Section III will introduce the economics of relation exchange and sympathy-consent dimension. Appendix III will present a synoptic version of relation exchange economics. Section IV will present the SORX (spontaneous order of relation exchange) model as the integral approach to the study of public administration, which obviates the need for the separate approach of hierarchy study. Salient points of the SORX model, which highlights the distinction between traditional piecewise and integral approaches, will be illustrated in the table (Table 2). In section V, the problem of how the institution operates to resolve the problem of private abuse of public authority by public servants will be explained by means of the SORX model. Likewise, the problem of how to improve the civil-service performance of public servants by the encouragement of the entrepreneurship will be explained by the use of the SORX model. Section VI will conclude the paper.

II. Analytic Points of POSCO and UGCPK Cases

Doubtlessly, it is public officers who are main actors as the executor of public administration for civil service. The performance of their role is the determinant to the success of public services. The success factors are; firstly, how to attain the high-level job performance as civil servant; secondly, how to uphold the public nature of civil service; thirdly, how to prevent the possible corruption or embezzlement in the steps of public administration.

In this connection, the problem of public administration becomes that of organization management. How can we operate a public organization in such a way that will lead to the success of public administration? In this connection, a natural focus of attention turns to the role of public officers.

What is the relation between public officer and public administration? It is the territorial domain of organization theory. Here, government organization is the object of our concern. However, the essential logic goes in parallel with the case of private organization. That is, what is the relation between individual and organization? This question is important because the answer to it will illuminate on the answer to the question; how can we operate a public (or private) organization in such a way that will lead to the successful fulfillment of the duties of public (or organization) administration?

In the case story of POSCO project (Appendix I), Mr. OWC's entrepreneurship¹⁾ was a critical step which excavated the connection point to the source of project financing and discovered Japanese steel maker as the plant constructor who is equipped with plant-construction technology. How can we perceive the role of Mr. OWC in the government in connection with POSCO project? Did Mr. OWC follow the hierarchical command from the superior officer of the government organization? Is it possible to interpret Mr. OWC's role as entrepreneurship in public administration?

1) Mr. OWC denotes Oh, Won Chull. The story of POSCO is copied from his book *Korean Model of Economic Development: An Engineering Approach*, Vol. I-VII (Oh, Won Chull 1995). The claims of the book were those of Mr. Oh, Won Chull's.

In the case story of urban garbage collection program in Korea (UGCPK) (Appendix II), the entrepreneurial performances of public servants matter critically to the successful administration of civil services. Do such public servants fulfill their duties by following the hierarchical order? How can we understand the relation between city government and public servants? The answer to the question is the key point in the pursuit of answer to the question of the successful administration of civil services or the question of the successful administration of organization.

Regardless of the differences in cases, the common focal point of public administration is two folded. One is how to encourage the entrepreneurship of public officer in implementing public policy. The other is how to prevent the behavioral actions of public officer from seeking private interests.

The analytic point of public administration necessarily encounters the problem of interface between human behavior and organization. Human behavior is the actions of private decision-making of bureaucrats who are in the office of public administration. The motivation for the actions of private decision-making of bureaucrats should be reasonably assumed to stem from the propensity of self-love. Organization indicates the office of public administration, which puts in place public policy as organizational mandate. The analytical point of public administration is how to establish the analytical architecture which may address the problem of the possible conflict between the private motivation of bureaucrats for self-love and their fiduciary duty to fulfill the obligation of public-service mandates.

Table 1 discloses the story. In case of POSCO construction, Mr. OWC's visit to Mr. GT's office (Appendix I) to find investors from Japan was the story of former problem, that is, the encouragement of entrepreneurship performance²⁾. The latter story is about the oversight on the private abuse of public authority power and embezzlement. In case of the UGCPK public administration (Appendix II), the former story is about efficient operation of VRGD (volume-rate garbage disposal) and RWP (recyclable waste processing) public administration. The latter problem is the same.

2) Mr. GT denotes Mr. GoTo of Appendix I.

<Table 1> Analytic Point of POSCO and UGCPK Cases (see Appendices I, II)

	POSCO construction	UGCPK
Job performance of a bureaucrat to fulfill the duty of organizational mandate	Entrepreneurship point: Mr. OWC's visit to Mr. GT's office to find investors from Japan	Entrepreneurship point: efficient operation of VRGD and RWP in the open/indeterminate system
Private motivation for the welfare-seeking of a bureaucrat	Oversight on the private abuse of public authority power and embezzlement	Oversight on the private abuse of public authority power and embezzlement
Analytic point	The interface between human behavior of a bureaucrat and organizational mandate	The interface between human behavior of a bureaucrat and organizational mandate

How to discourage the private abuse of public administration on the one hand and encourage the entrepreneurship of public officer in public administration on the other hand is the gist point of the problem in public administration. Any approach for the solution to this problem has to encounter the interface question between human behavior of a bureaucrat and organizational mandate. Although the problem may be identified as such, the analytical explication, which encompasses both individual decision-making and organizational behavior in one embrace, has hardly been successful in the academics including both economics and public policy analysis. It is at this conjuncture that Coase (1937) raised the choice question between market and organization. In either of cases, the question has to come across the interface problem between individual decision making and organization.

III. Relation Exchange and Sympathy-Consent Dimension

When Coase (1937) raised the question on the theory of firm, it was the question on the analytical horizon of economics. Coase's question later developed to the question of 'market or organization' (Williamson 1975; Milgrom and Roberts

1992). The growing divergence of view between transaction cost approach and property right approach seems to indicate that the root core of the problem starts from much deeper ground (Klein et al 1978). New institutional economics attempted to understand institution with the analytical structure of economics. However, their attempts attained only a half of the way to success. The doorway to the understanding institution is open only from inside. The outside door to institution is not open yet in economics.

The field of public administration starts from practical need; how to manage the operation of public organization to implement public policy effectively? Due to the failure of new institutional economics (Coase 1960) to locate the analytical structure which will lead to the understanding of institution (Rhee 2013e), no integral analytics that will lead us to the understanding of the field of public administration is rendered in place yet³). Naturally, the patch-ups, which were borrowed from political science, sociology, economics and management science, were provided as makeshift remedies whenever there are needs for the logic by which to explain differing conditions of change. In particular, the overarching analytics which penetrate the activities in the market and activities in the organization all together is lacking in the study of public administration just as in the study of economics.

Sympathy–Consent Dimension

What is the problem? The fundamental problem is the general assumption of rationality which is usually taken for granted as sine qua non of the studies in social sciences. Human intelligence falls short of the capacity required to uphold the rationality in decision making (Simon 1956, Kahneman and Tversky 1979). Bounded rationality is the flip-side problem of imperfect property rights (Rhee 2014c). The assumption of bounded rationality indicates the shortfall of human

3) The problems of Coase (1937) and Coase (1960) are different in query point. The former is the problem of market and organization. The latter's query leads to the problem of the understanding of institution. However, the analytics, which are required for the understanding of both problems, share the steps in approach. Both of analytics require the sympathy-consent dimension (Rhee 2012b) as the groundwork of analytical architecture.

intelligence from the capacity enough to uphold the rationality of decision making. What the bounded-rationality really means to indicate is the impossibility of value/cost determination uniquely in measure units. Coincidence matters in the process of value/cost determination. Imperfect property rights are the twin sibling of bounded rationality.

In the model setting of orthodox economics, *ceteris paribus* assumption is put in place to hold the condition of perfect property rights in effect. The state of economy is determined as the outcome of optimization and solution of equilibrium. The condition of perfect property rights renders the economic system closed and determinate by the dictation of the optimization-equilibrium algorithm (Rhee 2013c, 2014c). This is the economy, the shadow image of which is projected to the dimension of rationality (Rhee 2014a).

However, in real life, the economy belongs to the open/indeterminate system. Coincidence matters in real life. Path dependence is a different name of coincidence. The prime attribute of the life in the open/indeterminate system is uncertainty. The life becomes vulnerable to opportunistic behavior. It is the world of empiricism (Hume 1739). In the world of empiricism, the decision making of human beings cannot be guided by deductive reasoning. When the path of life is affected by historical coincidence, the deductive reasoning method becomes a sterile approach. Inductive reasoning is the method we can rely on for the decision-making⁴⁾. It is the world of sympathy-consent dimension, which contrasts with rationality dimension (Rhee 2013b, 2014c).

Relation Exchange

Exchange is a *propensity in human nature* (Smith 1776)⁵⁾. Human beings know

4) *The sun rose from the East yesterday. It rose from the East today. So, it will rise from the East tomorrow.* It is the inductive reasoning, which is the only effective fact-finding method in the world of empiricism.

5) *It [the division of labor] is the necessary, though very slow and gradual, consequence of a certain propensity in human nature which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another,* Adam Smith (1776); book I, chapter 2, p. 14, 2000 Modern Library Paperback Edition.

by instinct that he/she can draw benefits out from the actions of exchange. In the sympathy-consent dimension where human intelligence is confined to the bounded rationality and where property rights remain imperfect, the only available mode of exchange to human beings is relation exchange (Rhee 2012b). The exchange transaction, which is what human beings desire to attain, relies on personal relationship, for instance, trust relationship. Value exchange holds only to the exceptional conditions. It is the sympathy-consent-free condition (Rhee 2012b, 2014c), which is equivalent to the invariableness condition in Hume (1739). It is quite parallel with *ceteris paribus* condition in orthodox economics.

Market sets off only to the extent that the establishment of property rights are progressed. Since property rights are imperfect, value exchange alone cannot attain transaction. Value exchange accomplishes transaction in combination with relation exchange. In other words, relation exchange is more fundamental action than value exchange (Rhee 2012b). The sympathy-consent dimension put forward the extended horizon to the analytics of economics, which can encompass the activities in the market and the activities in the organization together.

To avoid an unnecessary distraction, Appendix III is set apart for the introduction of relation exchange economics. A minimum setup of the model is provided: necessary definitions and assumptions, core propositions and essential concepts necessary for this research such as open/indeterminate system, business model and spontaneous order of relation exchange. A complete theoretical model is presented in Rhee (2012b, 2014c).

Institution in the Sympathy–Consent Dimension

Just as ‘to truck, barter, and exchange one thing for another’ is a propensity in human nature, relation exchange is the fundamental behavior in human nature. It is the fundamental behavior not only to the businessmen in the market, but also to the public officers in public organization. Corollary FRX in the appendix III paraphrases the argument for the legitimacy of the fundamental human behavior. Business model, as is defined as Definition BM in the appendix III, consists in the actions of relation exchange and entrepreneurship as well as in the actions of

value exchange. Not only behavior of businessmen in the market, but also those of public officers in public organization are able to be depicted by the business models.

What if a public officer seeks private interests in public organization? Will the public officers seek public interests if any other than the business-model approach is put in place? The obvious answer to this question is no. It is unrealistic to assume that any individual, either public servant or not, seek public interests only in whatsoever occasion.

Then, why economics have failed to provide the analytics to the study of public administration or organization theory until now? It is because the current analytical structure of economics can sustain the system of value exchange only. We need an extended dimension of analytics, which, though directly linked to the analytic dimensions of orthodox economics, is able to explain the behavioral actions of relation exchange. That is the sympathy-consent dimension. The sympathy-consent process is the behavioral action in the sympathy-consent dimension. Now, institutions become linked to the behavioral actions of exchange transaction.

That public utility is the [sole] origin of justice, and that reflections on the beneficial consequences of this virtue are the [sole] foundation of its merit... It must, therefore, be the source of a considerable part of the merit ascribed to humanity, benevolence, friendship, public spirit, and other social virtues of that stamp; as it is the SOLE source of the moral approbation paid to fidelity, justice, veracity, integrity, and those other estimable and useful qualities and principles. It is entirely agreeable to the rules of philosophy, and of common reason... This indeed is NEWTON's chief rule of philosophizing (Hume 1777: Section III, Of Justice)⁶.

The salient merit of relation exchange is in its ability to include institution in the analytical reasoning. Institution is no more exogenous parameter in the analytics of reasoning. Public interests and utility are the sole source of institutions. What we have to underscore is that Hume's world of analytics sets off in the

6) David Hume (1777), *An Enquiry Concerning the Principles of Morals*, edited by J. B. Schneewind in 1983, Hackett Publishing Company. [] in the text denotes author's own italic letters.

sympathy-consent dimension, that is, the open/indeterminate system⁷⁾. Institution, such as *fidelity, justice, veracity, integrity, and those other estimable and useful qualities and principles*, operates to the actions of relation exchange. No ground for the operation of institution exists in the actions of value exchange. The territory for the actions of value exchange belongs to the rationality dimension where the closed/determinate system is determined by the optimization-equilibrium algorithm.

IV. Hierarchy versus Spontaneous Order

The question on the operational mechanism of the organization is nothing but the question on the relation between individuals and the community. In this connection, it is unavoidable to come across the question of Hayek, that is, the question of spontaneous order versus made-order. In fact, Hayek (1982) used this dichotomy to distinguish market approach from constructivist approach. Hayek considered market as the place where the spontaneous order of human behavior emerges and operates. He denounced the constructivist approach which attempts to explain the relation between individuals and community as made-order. Such constructivist (totalitarian or planning) approach dooms to fail.

There have been confusions when applying this logic to the discussion of organization. Such confusion was unavoidable because the typical made-order in Hayek seems to be organization. Since the territory of domain where spontaneous order operates is confined to market, the link between organization and spontaneous order became severed in Hayek. Hence, the question of how to explain the relation between constituting individuals and organization pops up.

Organization theory emerged to fill this vacuum. The system of hierarchy was

7) J. S. Mill (1863; Ch. 5 On the Connections Between Justice and Utility), also, seems to have had the sympathy-consent dimension in mind when he discussed the connection between justice and utility: "And the sentiment of justice appears to me to be, the animal desire to repel or retaliate a hurt or damage to oneself, or to those with whom one sympathizes, widened so as to include all persons, by the human capacity of enlarged sympathy, and the human conception of intelligent self-interest. From the latter elements, the feeling derives its morality; from the former, its peculiar impressiveness, and energy of self-assertion."

the answer to the question of how to explain the relation between constituting individuals and organization. The dichotomy of made-order and spontaneous order seems to be the critical step. However, a reinterpretation of Hayek seems to strike out totally different outcome. If spontaneous order is the order which comes out from human behavior, made-order is not natural order because it does not come from human behavior. Made-order is not appropriate semantic. Rather, man-made system is appropriate.

In other words, the natural order does not have to be confined by the concept of market. One example is the natural order which is revealed by a team play in team sports games like basketball, baseball, and soccer. The team play in such sports comes out from the plays, that is, behavioral actions, of individual players. These are the behavioral actions of relation exchange. In fact, the spontaneous order comes out from behavioral actions of relation exchange (Rhee 2012b, 2013b, 2013c).

This interpretation of Hayek's spontaneous order is different from the traditional interpretation because Hayek himself confined the territory of spontaneous action on the territorial domain of market actions (Hayek 1982).

Spontaneous Order of Relation Exchange

Now, we have established a new analytical model which is able to contain the behavioral action of public officer in the study of organizational behavior of a public institution. What is the gain of this approach? It becomes possible to understand the behavior of individuals in the organization as spontaneous action. Before the establishment of this approach, the actions of individuals were recognized by the logic which pertains to the operation of organization. The logic of hierarchical system was a typical example.

Hayek (1982) confined the territorial domain of spontaneous order to the market. It is unclear whether the concept of spontaneous order applies to the system of organization in Hayek. It is unlikely. His classification of made-order seems to be more akin to the system approach to the study of organization. The organization theories, which were developed by bureaucracy theory (Weber 1922), scientific

management approach (Taylorism; Taylor 1903, 1911), and human relations school (Mayo 1949), does not go beyond the boundary of hierarchy system approach.

However, the introduction of relation exchange through the establishment of sympathy-consent dimension makes it possible to figure out the real feature of spontaneous order. Spontaneous order should come from human behavior and cannot be restricted by categorical confinement of environmental condition such as market. Relation exchange is of behavioral action which includes not only the activities in the market but also encompasses the activities in the organization. In contrast with the approach of hierarchy study, the study of relation exchange is an integral approach to the study of organization. Here, the integral approach means to indicate that all the features of analytic question are able to be understood by the one and the same logic, that is, the spontaneous order which is built on the behavior of relation exchange and sympathy-consent dimension. It is the spontaneous order of relation exchange (SORX in acronym).

Table 2 compares two different approaches of organization study: hierarchy system (piecewise approach) versus spontaneous order of relation exchange (integral approach). The essential difference is the operation of spontaneous order. Spontaneous order stems from the behavioral actions of individuals. Hierarchical system is built on dictation-subordination system, which is not spontaneous behavior, but man-made system. In other words, the spontaneous behavior of individuals in an organization was unknown before in the literature. The excavation of spontaneous behavior of individuals in the study of organization is attained by the introduction of relation exchange approach.

<Table 2> Piecewise Approach versus Integral Approach

	Piecewise approach : hierarchy system	Integral approach : SORX
Organizational behavior	Dictation-subordination	Relation exchange
Hierarchy	Hierarchical system	Spontaneous order
Multiple individuals	Individual rationality	Transcendental domain from individual rationality
Analytic dimension	Rationality dimension: Invariableness (Hume 1739) Sympathy-consent-free (Rhee 2014a)	Sympathy-consent dimension
Analytic system	Closed-determinate system: No coincidental factor allowed	Open-indeterminate system: Coincidental factor
Decision making	Deductive reasoning: Rationalism Optimization	Inductive reasoning: Empiricism (Hume 1739) Satisficing
Path dependence	Path independence	Path dependence
Market vs. organization	Piecewise approach	Integrated system approach
Institution	Exogenous: separated from analytics	Endogenous: integrated to analytics
Motivation for action	Unclear: From rent-seeking approach (public choice) To no-private-motivation (public-mindedness) assumption	Private motivation: Rent seeking Profit seeking
System structure	Man-made system	SORX
System control	Lines of command	Institution Entrepreneurship
Entrepreneur	No role in place	Leverage (institutions and other physical or intangible leverages) driver in the open/indeterminate system

Transcendental Domain from Individual Rationality

Most of social science starts with individual rationality. Decision making should be carried out by the individuals. However, the society consists of multiple individuals. Hence, phenomenal features in the society are necessarily of holistic nature. Typically, institution is of holistic phenomenon. This gap between individual rationality and holistic phenomena is hardly filled up. The problem essentially originates from the analytical dimension.

Individual rationality starts from individuals as decision-maker and necessarily built on rational choice approach. Even though bounded rationality is presumed in the model setting, the analytics cannot be separated from the analytics of the rationality dimension of individuals. Constrained optimization is one of such example.

Sympathy-consent dimension is the domain which is transcendental to rationality dimension. The two are not conflicting against each other. Sympathy-consent dimension is the extended dimension of rationality dimension. They are connected in by the sympathy-consent-free state as the linchpin⁸⁾. By means of the sympathy-consent dimension, the problem of the gap between individual rationality and holistic phenomena is resolved.

Sympathy-consent process is the behavioral action which belongs to the sympathy-consent dimension. Sympathy-consent process is grounded on the relation between multiple individuals, not on one individual. The conundrum of the gap between individual rationality and holistic phenomena is the problem which stems from the shortcoming of analytical architecture built only on the rationality dimension. The sympathy-consent dimension attains the establishment of transcendental domain which is liberated from the puzzle of individual rationality.

8) The sympathy-consent-free state is set in place by the condition that sympathy and consent are attained immediately without friction, which is equivalent to *invariableness* (Hume, 1739, p.202) condition sustained by *uniformity principle* (*ibid*, p.133).

V. Integral Approach to the Study of Public Administration

Institution Being Integrated to Analytics

Institution matters because it enforces its function among multiple individuals. Even if an individual makes up mind to establish an institution which operates only to oneself, such determination may unlikely be called as institution because there is no imperative which levies on oneself for the violation or encroachment against the institution. Hence, the individual rationality is not an adequate analytical structure where to recognize institution. Despite so much of the attempts which are conducted by the new institutional economics, the explanation of institution still remains not up to scratch. Example is the literature in law and economics. Still, transaction cost approach is at odds with property right approach.

In fact, an institution is the instrument which conducts its function in the sympathy-consent process. There is no way to track down the performance of such institutional function in the analytical dimension of individual rationality. The behavioral actions of relation exchange are built on the sympathy-consent dimension. Institution is the instrument which rules on the behavioral actions of relation exchange. Hence, institution becomes integrated to the analytics of economics in the sympathy- consent dimension.

Entrepreneurship and Business Model

The sympathy-consent dimension is of open/indeterminate system. It is not possible to seek determinate solution in the sympathy-consent process. So, we need institution. However, rationality dimension is the sympathy-consent-free state. In the rationality dimension, we seek optimal solution. It is closed/determinate system. In the open/indeterminate system, human beings may wish to seek optimal solution. However, due to the limited intelligence, all they can attain is the satisficing behavior like reliance on trust, brand image, political process and so on. The

behavioral actions of individuals engender the spontaneous order of relation exchange.

In the sympathy-consent dimension, there is no essential difference between market and organization. Regardless of the distinction, the behavioral actions of relation exchange function equally. The only attribute which distinguishes market is the establishment of property rights. Of course, due to the establishment of property rights, the exchange transaction becomes incomparably expedited in the market in comparison with the case of relation exchanges.

Because it is the open/indeterminate system, different behavioral actions give rise to different spontaneous orders of relation exchange. Precisely, it is the institution that determines the mode of behavioral actions or the mode of the spontaneous order of relation exchange. This thesis equally applies to public organization such as government, as it applies to private organization like business firm. Now, we are ready to deal with the problem of how to discourage the private abuse of public administration on the one hand and encourage the entrepreneurship of public officer in public administration on the other hand.

Institutions deal with the former problem of how to discourage the private abuse of public administration. Institutions include laws, regulation, ordinance, rule books, morality, and fiduciary duty of civil servants and so on. It may include even the patriotic spirit of public servants. Also, an ombudsman system may be considered in addition to the oversight by the national audit office.

How can we find ways to encourage the entrepreneurship of public officer in public administration? The merit of SORX (spontaneous order of relation exchange) approach is that the problem to encourage entrepreneurship of public officer in public administration is not different from the same problem in private business firm. Since the salary/rank promotion is the incentive to public officers in the office, he/she will try best to introduce most desirable business model to attain better performance of their public service. It is not different from the players in the sports game like soccer, basketball and baseball. The team of players makes a beautiful play, which is no more than spontaneous order, when each player makes best performance in harmonious relation with other team players, which is the business model of each player, although the players have to abide by rules and obey the

order of referees on the other hand.

The difference of SORX approach between public administration and private business firm is simply distinguished by institutional leverages. Institutional leverages of public administration should take care of the oversight on the possible private abuse of public authority power; bureaucratic authoritarianism, red tape, rent-seeking, corruption, embezzlement, pork barrel and so on. Such simplification of analytic architecture could be attained due to the availability of integral analytic system which is built on the relation exchange and sympathy-consent dimension.

VI. Concluding Remarks

The study of public administration has been completely separated from the economics. Considering the fact that the field of public administration started from pragmatic need to implement public policy, the blame should properly be directed to the side of economics. The problem is the analytical power of economics. The analytics of economics has been put far apart from the reality of life. Once the analytical dimension is extended to the sympathy-consent dimension from the narrow domain of the rationality dimension, the open/indeterminate system is rendered eligible. In the open/indeterminate system, the behavioral action of relation exchange gives rise to the spontaneous order. The spontaneous order of relation exchange (SORX) approach puts in place the integral system of analytics, which allows the use of SORX model in the study of organization behavior.

Despite the impact of Hawthorne study, we cannot repudiate the fact that organization theory is more or less unable to break the boundary of study on the operating system of hierarchy. The organization theory is built on the analysis of hierarchy. However, there is no integral analytical system that explains the theory of hierarchy. Only piecemeal and patch-up approaches provided partial explanations.

Organization theory is the study of interface between human behavior and organization. The fundamental core of problem arises from the individual rationality

because if we start the analysis from individuals and conducts the analysis in the rationality dimension, we cannot but end up with piecemeal approaches which provide partial explanations. The introduction of sympathy-consent dimension remedies this puzzle because the sympathy-consent dimension is more comprehensive analytical dimension which contains rationality dimension as an extreme case.

By the introduction of sympathy-consent dimension, the open/indeterminate system is able to be established, which allows the legitimacy of the spontaneous order approach in the study of interface between human behavior and organization. It is the SORX (spontaneous order of relation exchange) model approach. By the merit of the integral system of analytics, the institution as well as entrepreneurship becomes integrated to the analytics in the study of organization, which is not possible in the piecewise approach to the study of organization. Due to the operation of SORX model, the private abuse of public authority can be prevented by the use of institution. Also, the entrepreneurship is possibly applied to the analytical territory of public service.

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<Appendix I> The Case of POSCO Construction

From the early 1960s, Korean government attempted to build an integrated steel-mill plant as a core part of industrialization program of Korean economy. In February of 1962, Mr. Choi, H. S. (CHS in short) director general in the Ministry of Industry and International Trade, who was in charge of the construction of integrated steel-mill plant, made an industrial tour to Kobe Integrated Steel-mill Plant of Japan to learn about their experiences (Oh 1995). After the on-site tour, CHS had a chat with the production manager of Kobe Steel-mill Plant (PM in short).

CHS: We intend to build an integrated steel-mill plant.

PM: What is the plant scale?

CHS: 300 thousand tons.

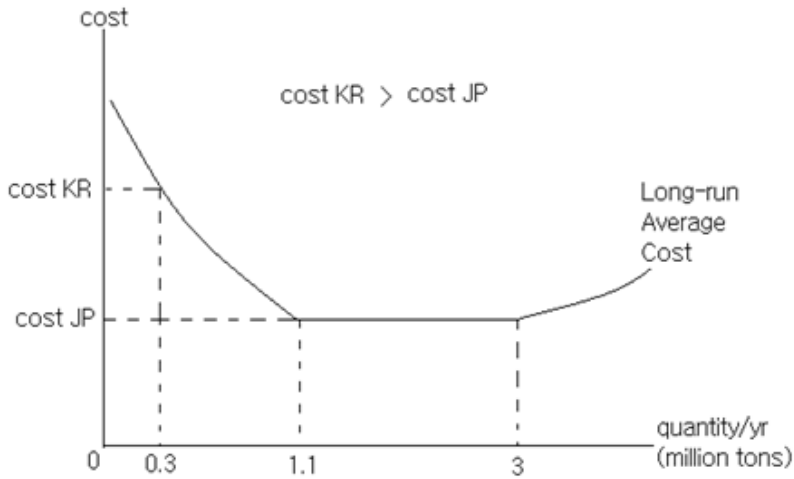
PM: Monthly?

CHS: No, yearly.

PM: My goodness, there is no such scale in the world. Recently, competitive scale size has risen up to three million tons. Kobe will increase the scale up to such level.

The following figure illustrates a long-run average cost curve of steel production. Steel production is a typical case of the industry category which reveals the economy of scale as industrial attribute. The cost of production declines in accordance with the size of production scale up to the size of about a million tons. The cost begins to increase after three million tons. Around the production level of 300 thousand tons, the unit production cost is too high to be competitive against rival plants of other countries. The insufficiency of domestic demand was the unbeatable stumbling block to the project. So, the integrated steel-mill plant project had to be given up in the first five-years planning (1962-66).

Figure: Economies of Scale in POSCO Project



Although production plant was yet to build, the legal entity of Pohang Integrated Steel-mill Production (POSCO in short) as project promotion center launched in the April of 1968. The second five-years planning (1967-71) was seriously considering the inclusion of the POSCO project as key component of the planning. However, the main determinant to the project was the domestic demand for steel products as revealed in Figure: Economies of Scale in POSCO Project.

The forecasts of domestic demand for steel products differed among different forecasting institutes. In 1961, the domestic demand in Korea was 116 thousand tons in aggregate. A German forecasting institute (DKG) forecasts the 400 thousand tons of domestic demand for 1970. Another institute Blaw-Knox forecasted 280 thousand tons for the same year. A Japanese institute Overseas Tech Cooperation Group was most optimistic and forecasted 1.14 million tons for 1971. Economic Planning Board of Korea forecasted 700 thousand tons for 1971.

The prospect of project financing for the POSCO project was hopelessly dire. In March of 1967, KISA (Korea International Steel Associates), which is an international syndicate loan brokerage associates, failed to bear any fruit. In 1969,

the IECOK (International Economic Cooperation Organization of Korea) stranded. The United States, Germany, and IBRD all objected to the project.

It was about in such timing that Mr. Oh, WonChull (OWC in short) who was high-ranked officer in the Ministry of Industry and International Trade in Korea met with Mr. GoTo (GT in short) of the MITI (Ministry of International Trade and Industry) in Japan, who was in charge of Iron and Steel industry of the MITI. This is an unconfirmed story which was asserted in the book of Mr. Oh (1995). Who performed the key role of fulfillment in ways to host foreign investors is not important in the story of POSCO case example. What should be underscored in this story is the coincidental nature that happened to determine the decisive step in hosting foreign investors.

OWC: We have an unchanging desire to build POSCO plant. We don't doubt the ability of Japan's technology to build the plant. How about demonstrating your capacity by undertaking the project?

GT: Not impossible. But 600 thousand tons are a toy scale.

OWC: We don't insist it. We may raise it to one million tons level and will increase all supports to the according level.

OWC: Domestic financing will be provided as shareholders' capital to alleviate the interest payment burden. Japanese War Claim Fund may be used in this case. Then, it is another advantage that not much of interest burden will be levied unlike the case of foreign investments.

GT after some discussion with his subordinate colleagues: Let's do it. You report this meeting to your superior office. I will do to my superior.

Japan and her technology built the POSCO plant by the financing from Japanese War Claim Fund. Plant scale was raised from 600 thousand tons to 1.03 million tons. They used other additional funding from Japan EXIM bank, but with annual interest rate less than 3 percent. From the start, the POSCO project was not stressed by the interest payment burden.

POSCO plant construction was completed by 1973. It was the year of the first Oil Crisis. The price of oil was nearly quadrupled by 1974 to nearly \$12 per barrel.

It was a big fortune to the POSCO. The POSCO used the state of art technology when constructing plant, which was most energy efficient at that time. However, its rivals overseas were outdated in technology and were very energy-inefficient. Since steel-making industry is highly energy-intensive industry, the cost-efficiency of the POSCO became doubtlessly the outstanding source of competitiveness compared to its competitors overseas. The POSCO recorded a sizable profit from the first year of production launch.

<Appendix II> A Case of Urban Garbage Collection/Recycling Program in Korea

The case of urban garbage collection program in Korea (UGCPK) is introduced to enhance our understanding of the job performance which a civil servant in government organization is committed to execute as a duty of employment in public service.

The volume-rate garbage disposal (VRGD) system was introduced from January 1, 1995. A standard plastic garbage bag has to be used for the disposal of garbage, which can be purchased by the units of 5, 10, 20, 30 liters. Food garbage is disposed in plastic garbage bag in 2 and 5 liter units. Separately from the VRGD system, a recyclable waste processing (RWP) system is put in operation autonomously in every different local governments.

Standard plastic garbage bags are sold in commercial super markets. The fees, paid by city residents, are used for the financing for the operation of the UGCPK. The collection system of garbage and food wastes starts from household units. The residents of local community should follow the stipulations of related ordinances of local government when they dispose.

Recycling waste processing (RWP) system operates autonomously in each individual local government. According to the stipulations of related ordinances of local government, recycling wastes are classified into different categories from the

phase of household or apartment; plastic, metal, vinyl, paper, bottle/glass, clothes, burials and so on. Classified recycling wastes are picked up by private traders who are specializing in recycling business.

The kernel problems in such UGCPK and RWP systems are two-folds. One is how to operate a cost-efficient, residents'-welfare-enhancing, environment-friendly system. The other is how to prevent the private abuse of public authority power by public officers such as possible behavior of corruption or embezzlement in the steps of UGCPK public administration of local government.

<Appendix III>

1. Assumptions and Definitions:

Assumption ISL (individualistic self-love): Individuals seek self-love, i.e. self-interest.

Assumption BR (bounded rationality): Human cognizance capacity is restrained by physical limit. Hence, their decision-making rationality is bounded.

Definition SF (satisficing): Satisficing is defined as the actions of the sympathy-consent process which seeks self-love under conditions of bounded-rationality.

Assumption RX (relation exchange as reality): Relation exchange is assumed to exist as the reality of human life.

Definition SCP (sympathy-consent process): The sympathy-consent process is defined as the process of drawing out sympathy and consent among the parties concerned in order to fulfill relation exchange.

Definition RX (relation exchange): Relation exchange is defined as the exchange by the use of relationship via the sympathy-consent process as the mediatory step.

Definition VX (value exchange): Value exchange is defined as exchange in the market, with price used as the medium of exchange.

Definition LVG (leverage): Leverage indicates institutional or physical stress conditions which will influence on the behavioral actions of relation exchange.

Definition IPR (imperfect property right): In the sympathy-consent dimension, imperfect property rights are defined as indicating the state where the values-costs of property rights cannot be calculated consistently across the change of paths of the sympathy-consent process.

2. Fundamentality of Relation Exchange:

Corollary FRX (Fundamentality of Relation Exchange): with Assumption IPR (imperfect property rights) and Assumption BR (bounded rationality), relation exchange is a more fundamental behavior than value exchange.

Corollary FRX discloses the fundamentality of relation exchange compared to value exchange (Rhee 2012b). Without the functioning of relation exchange, the value exchange alone, which is precisely the analytics of orthodox economics, cannot explain the need for the institution in the system operation of economics. In other words, the institution functions to affect the operation of relation exchange.

From Rhee (2012b, 2012d), we understand that the leverages, either institutional or physical, affect the shaping of behavioral actions of relation exchange. Business model is the actions to seek self-interests (self-love) by making use of the actions of relation in given leverage conditions.

Institutional leverages include morality, law, property rights, standards, rule of law, code of conducts for civil service, fiduciary duty of civil servants or private employees, legal tender, bill of credit, institutions in bank and finance, business knowhow, liberal democracy, political party system, tripartite separation of power and so on. Physical leverages include capital, technology, business facilities, productive plants, SOC's and so on.

3. Open/Indeterminate System:

Definition CD System (closed/determinate system): a closed/determinate system is an economic system that consists of determinate states.

Definition OI System (open/indeterminate system): an economic system which is built on indeterminate states is defined as open/indeterminate system.

Proposition OI System of SCD (open/indeterminate system of sympathy-consent dimension): an economic system which is built on the actions of the sympathy-consent process is an open/indeterminate system.

The sympathy-consent process is path dependent (Assumption PDSCP). Path-dependent processes give rise to indeterminate states. Hence, the sympathy-consent dimension constitutes an open/indeterminate system.

4. Business Model:

Definition BM (business model): business model is the entrepreneurial action in the open/indeterminate system to seek self-interests (self-love).

From the assumption of bounded rationality (Assumption BR) and definition of imperfect property right (Definition IPR), an employee in an organization may be properly considered as individual in the open/indeterminate system. The institutional and physical constraints which hold the attributes of the organizational properties may function through the conditions of leverages (Definition LVG). For instance, the fiduciary duty of public officers may be imbedded into this model as ethical code of conduct for civil service which influences on the behavioral actions (relation exchange) of public officers in public organization.

국문초록

행정학은 어떻게 경제학에 연결되는가?

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조직이론은 개인과 조직 간의 상호관계(interface) 문제를 다룬다. 전통적 접근방법은 개인의 합리적 의사결정(rationality)과 방법론적 개인주의(methodological individualism)에서 출발하고 있다. 그 결과 개인과 조직을 연결하는 통로가 단절되어 부분적이고 단편적 설명에 머무르게 된다. 공감-동의 차원(sympathy-consent dimension)은 다수 개인간의 문제에 대한 의사결정에 있어서 경험론적 접근방법을 도입함으로써 공감-동의 과정을 통한 접근방법을 가능하게 한다. 예컨대, 신뢰를 통한 의사결정이다. 이것이 관계교환(relation exchange) 행동이다. 관계교환 행동은 가치교환보다 본질적 행동이며 따라서 '관계교환 자생적 질서'(SORX: spontaneous order of relation exchange)를 만들게 된다. 관계교환 자생적 질서는 시장행동에서만 아니라, 조직행동에도 똑같이 적용되는 질서이다. 즉, 관계교환 자생적 질서의 접근방법을 통해서 조직이론에 통합적 접근이 가능하게 된다. 시장에서 활동하는 사업가뿐만 아니라 정부의 관료에게도 동일한 관계교환 자생적 질서의 행동이 나타나는 것이다. 우리는 제도를 통해서 관계교환 자생적 질서를 통제할 수 있고, 따라서 정부관료의 사익을 위한 정부권한의 잘못된 사용을 통제할 수 있다. 또한 사업심(entrepreneurship)을 고취함으로써 정부관료의 공공서비스 행정 개선을 도모할 수 있다.

주제어(key words): 행정학, 조직이론, 관계교환, 공감-동의 차원,
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