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# The economics of empiricism and relation exchange

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## **Abstracts:**

Orthodox economics is built on the assumption of the premise that any economic instance can be consistently measured in the value-cost index. Upon the measurement of values and costs, the optimization-equilibrium algorithm builds the analytical architecture of the orthodox economics. It is the closed/determinate system because every instance of the economy is recognized as the outcome of the optimization-equilibrium algorithm. However, the behavioral actions of individuals take place in the state of nature, that is, particular personal conditions without the screening of the state of nature through the veil of ignorance. The historical coincidence and path dependence give rise to particular personal conditions, which are unable to be sorted out by the optimization-equilibrium algorithm of the orthodox economics. Human life abides in the realm of the empiricism, not of the rationalism (Hume 1937, 1948). It is the open/indeterminate system. The scientific method of inductive reasoning works in the open/indeterminate system, whereas deductive reasoning holds in the closed/determinate system. The sympathy-consent process is the method of epistemology which leads to the action of relation exchange, which is deemed the most primitive works of our daily life. The paper vindicates the fundamentality of relation exchange vis-a-vis value exchange of the orthodox economics. The sympathy-consent process is path dependent, which leads to the path dependence of relation exchange. The prominent finding of the research is that the price determination becomes path dependent in the sympathy-consent dimension. It is denoted as inductive price.

**Keywords:** relation exchange, sympathy-consent process, open/indeterminate system, inductive reasoning, particular personal conditions, empiricism

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## **I Introduction**

Despite the splendor of the analytical architecture of orthodox economics, the gap between theory and practice remains extant. Akerlof's lemon market failure is the typical example (Akerlof 1970). R. Coase's choice question (Coase 1937) is one of fundamental question, which remains unanswered despite the concept of transaction cost. When Simon raised the issue of bounded rationality and organizational behavior (Simon 1996a), they were most serious criticism to the orthodox economics.

Property rights school differentiates themselves from transaction cost school by recognizing the territory, e.g. residual claiming rights (Grossman and Hart 1986), which is unable to be

captured even by successive contracting out. Even transaction cost school acknowledges the existence of the territory as such, e.g. asset specificity (Williamson 1975, 1985). What is common among the questions, although each of them was raised from different analytical angles, is the acknowledgement on the existence of the territory which remains unexplained in the analytics of the orthodox economics.

Economists are accustomed to the analytics which recognize the state of economy as the outcome of optimization-equilibrium algorithm, the tenet of which sets out from the premise that every instance can be consistently measured in the value-cost unit. The tradition of such transcendental change as unfolded in the adoption of the premise may be tracked down from the social contract theory (Bentham 1780, J.S. Mill 1863, Rawls 1971) which requires the screening of the state of nature through the veil of ignorance to instate the original position.

However, the real life, e.g. the activity of exchange, abides in the state of nature which consists in the particular personal conditions. Impression, image and emotion set the base ground for the making of particular personal conditions (Locke 1689, Hume 1739). It is particular personal conditions, not the original position deployed by the value-cost measure, that determine the action of exchange. Vindicating examples are plenty just as the usual activities of daily life are: trust relation, friendship, marketing, institution as instrument to rein-in on opportunistic behavior, credit rating and so on.

These two distinctive approaches represent two different philosophical tenets. The former approach, which follows the optimization-equilibrium algorithm that is upheld by the premise that every instance can be consistently measured in the value-cost unit, represents the tradition of (value-cost) rationalism. The orthodox economics belongs to this approach. The latter approach, which attempts to explain the actions of exchange with the particular personal conditions as the state of nature, represents the tradition of the empiricism. This paper attempts to lay groundwork for the building of analytical architecture to launch the economics of the empiricism. Most of studies of new institutional economics attempt to explain the economic instances of particular personal conditions (phenomena of the latter) as the ‘*post hoc* theorizing’ (Green & Shapiro 1994), i.e. with the approaches of the former.

Although some trace of the empiricism abides in the thoughts of Austrian school (Hayek 1982), there has been no integral approach which embraces two different tenets of economics in the overarching architecture of the analytics. This research highlights the relation exchange as the vindication for the action in the state of nature.<sup>1</sup> The reference is made to Hume’s works

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<sup>1</sup> Relational exchange (Richardson 1972, Goldberg 1980, Dore 1983) already recognized the operation of such force in the market activity. However, relational exchange is distinguished from relation exchange by the difference of analytical dimension. In the former, the relationship is the exogenous force which operates in the market activities of the orthodox economics. In the latter,

(Hume 1739) to lay the analytical ground. In the integrated analytics, the former approach of the orthodox economics is explained as the outcome of transcendental change of the latter approach of the empiricism. The presumption for the transcendental change is the premise of the consistency in the measurement of value-cost index across the coincidental instances of particular personal conditions.

Section II explains the particular personal conditions as the state of nature. They are interpreted in Hume's taxonomy. Section III compares the open/indeterminate system of empiricism economics with the closed/determinate system of orthodox economics. Inductive reasoning is illustrated as the analytical logic of the open/indeterminate system. Deductive reasoning is illustrated as the analytical logic of the closed/determinate system. In section IV, the sympathy-consent process is introduced as the interactive process at the interface of particular personal conditions of different individuals in order to explain the action of relation exchange. The fundamentality of relation exchange *vis-a-vis* value exchange is vindicated in section V. In the sympathy-consent dimension, the price becomes path dependent. It is denoted as inductive price. Section VI concludes the paper.

## II Particular personal conditions and Hume's taxonomy

### (1) How is the exchange determined?

Akerlof (1970) raised the question of market failure due to the lack of trust by the examples such as used car market and health insurance for the seniors. Are such cases the exceptions to the normal operation of the market in general? To help enhance our understanding of the problem, the following story of Starbucks coffeehouse is placed in order.

**Case Starbucks Coffee:** The price of Café Americano of tall size at Starbucks coffee house is about KRW 3900. Suppose a street peddler uses a plain cup, which does not carry any print of commercial logo, to sell the same quality of coffee at a price of KRW 2000 per cup. Perhaps, customers will be reluctant to purchase from the street peddler. The reason is because they don't trust the street peddler. If the peddler reduces the price to KRW 1000 per cup, customers will become more suspicious and reluctant.

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the relationship is the power of origin which gives rise to the exchange in the realm of the empiricism. I owe to Professor Geoffrey M. Hodgson for the reference to the literature on relational exchange.

What this case-example means to indicate is that price is not the sole determiner of exchange transaction.<sup>2</sup> Trust or brand power (trust on brand name) may have power to determine the transaction. All the problems, including Akerlof's lemon market, indicate the point that the price or cost is not the sole determinant of transaction. If we call the trust or brand power as particular (personal) conditions, what this example reveals is that particular personal conditions, which are nothing but the state of nature, matter in the determination of exchange transaction.

(2) Simon's query to the value-cost measure approach

The following is the re-quotation from Jones (1999; 300) about Simon's tale on his undergraduate experiences at the University of Chicago: *My economics training showed me how to budget rationally. Simply compare the marginal utility of a proposed expenditure with its marginal cost, and approve it only if the utility exceeds the cost. However, what I saw in Milwaukee didn't seem to be an application of this rule. I saw a lot of bargaining, of reference back to last year's budget, and incremental changes in it. If the word "marginal" was ever spoken, I missed it. Moreover, which participants would support which items was quite predictable... I could see a clear connection between people's positions on budget matters and the values and beliefs that prevailed in their sub-organizations. I brought back to my friends and teachers in economics two gifts, which ultimately called "organizational identification" and "bounded rationality" (Simon 1999). In his autobiography, Simon noted the importance of these two notions for his later contributions to organization theory, economics, psychology, and computer science. I would not object to having my whole scientific output described as largely a gloss—a rather elaborate gloss, to be sure—[on these two ideas]" (Simon 1996a, 88).*<sup>3</sup>

What we learn from the tale is that the notion of bounded rationality was born to explain why the rational theory of marginal analysis often does not match the story of real life. The notion of bounded rationality pinpoints the problem of rationality assumption in the orthodox

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<sup>2</sup> Endless list of examples may be talked. Another case of Coke versus Pepsi illustrates the parallel story: Once upon a time, a blind test was given to customers to compare the tastes of Coke and Pepsi. The outcome was about 50:50 between two brands. However, the market sales reveal the composition of about 80:20 to Coke's favor. The brand power of Coke is already imprinted in the memory of customers.

<sup>3</sup> Italic letters are the quotations from Simon (1996a and 1999).

economics. Human beings intend to be rational, but are unable to attain it due to the shortfall in intelligence.

At the same time, organization theory was the twin sibling of bounded rationality. Organization theory pinpoints the problem of the marginal utility approach (or value-cost measure approach) of the orthodox economics. Particularly, organizational behavior is hardly explained by the value-cost measure approach only. As Simon (1999) said, “I could see a clear connection between people’s positions on budget matters and the values and beliefs that prevailed in their sub-organizations.”

Here again, the approach of particular personal conditions is compared with the approach of the value-cost measure. Simon underscores the legitimacy of the former approach in comparison with the latter approach.

Evidential support does not stop here. Similar query is hidden in the specificity issue which was raised by Williamson (1975, 1985) even if he is considered as an advocate of transaction cost approach which is nothing but the value-cost measure approach. Property rights school essentially pinpoints the same query to the value-cost measure approach. Modern property rights theory (Grossman & Hart 1986, Hart & Moore 1990, Hart & Moore 1999) is sort of *post-hoc theorizing* (Green & Shapiro 1994) of the problem of the value-cost measure approach by admitting the existence of residual control rights in the contracting.

### (3) Hume’s taxonomy

Lack of trust as the reason conducive to market failure (Akerlof 1970), loathsome image of street peddler which affects customer’s decision to purchase, organizational behavior which conflicts with marginal utility analysis (Simon 1999), bounded rationality (Simon 1957), specificity factor which is not possibly translated into cost factor (Williamson 1975, 1985), residual control rights which can be recognized by post-hoc theorizing (modern property rights theory); what is the common denominator of these findings? They are the case examples for which orthodox economics can hardly provide explanation with the value-cost measure as the instrument of rational reasoning.

What is the ultimate source of the problem? Human intelligence remains in a shortfall from the perfect rationality (bounded rationality). Hence, real life in the state of nature stays put in the particular personal conditions which are determined as the legacy of previous experiences such as impression and image. Particular personal conditions indicate the state of nature in the realm of the empiricism, which exists prior to the transcendental change that attempts to transform the state of nature into the units of the value-cost measure. In Hume’s terminology,

particular personal conditions are denoted as *matters of fact* (EHU 4.1.1/25)<sup>4</sup> The impression and image, which are acquired from the experiences, are the base ground thereof, which entails emotion, idea and so on.

**Definition PPC (particular personal conditions):** Particular personal conditions indicate the state of nature in the realm of the empiricism, which exists prior to the transcendental change that attempts to transform the state of nature into the units of the value-cost measure.

Exchange transactions of orthodox economics do not reflect the incidence of particular personal conditions because economic decisions as well as transactions take place by means of value-cost index units. The measure of value-cost index may be denoted as *relations of ideas* in Hume's terminology (EHU 4.1.1/25). The approach of the value-cost measure presumes the legitimacy of the value-cost measure from the beginning. The presumption means to indicate the assumption of the consistency of value-cost index measure across the coincidental instances of personal experiences. Is the presumption justifiable? In Hume's terminology, the presumption is denoted as *uniformity principle* (EHU 4.2.16/34). In other words, it is justified under the unlikely condition of uniformity principle. Simon (1983, p.7) also sided with the approach of particular personal conditions by saying "reason is wholly instrumental," where *reason* indicates the approach of the value-cost measure.

It is the tradition of social contract theory to abstract from particular personal conditions to create the original position at which the social contract theory sets out (Bentham 1780, Mill 1863). In social contract theory, the transcendental change from particular personal conditions to value-cost measure index is called as veil of ignorance. Also, the hypothetical state after the transcendental change is called as original position. Hence, there is the veil of ignorance between particular personal conditions and the original position. The well-known example is Rawls model on the theory of justice (1999). What is to be highlighted is that orthodox economics follows the tradition of social contract. Particular personal conditions are abstracted out and transcended into the value-cost measure.

The transcendental transformation from the particular personal conditions to the value-cost measure as original position is achieved merely by the presumption of its legitimacy from the outset, which in fact is groundless. We presume as if every economic decision can be made by means of the dictation according to the value-cost measure. It conflicts head-on against the

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<sup>4</sup> Hume (1748), *An enquiry concerning human understanding*, part seven, paragraph one, pages 1-25.

tradition of the empiricism (Hume 1739).

We live in the world of the particular personal conditions. In other words, the actual exchange decisions are carried out in the territory of the particular personal conditions. People hesitate to purchase coffee from the street peddler due to the lack of trust, although the price is much cheaper than at Starbucks coffeehouse. Such case of lemon-market failure was already unfolded by Akerlof (1970).

### III Closed/Determinate System versus Open/Indeterminate System

It is logical in orthodox economics to assume that optimization is the behavior of individuals as utilitarian. Analysis leads us to equilibrium as the instrument by which to understand the operation of economics system. This optimization-equilibrium algorithm is the power engine of the orthodox economics. It is not different even if the analysis of orthodox economics follows are the stochastic or game-theoretic approaches. In other words, the analytical architecture of the orthodox economics is confined by the optimization-equilibrium algorithm.

#### (1) Closed/Determinate System

The closed/determinate system is defined as the analytical system which is confined by the optimization-equilibrium algorithm.

**Definition CD System (closed/determinate system):** A closed/determinate system is the economic system, where every instance is sorted out as the outcome of rational reasoning.

The analytical system is considered as closed because its solution is confined by the optimization-equilibrium algorithm. It is considered as determinate because the analysis always checks-in to the equilibrium solution of the analysis. Although such confined analytical nature of orthodox economics has been recognized (Hodgson 1988), it is astonishing that the analytical anatomy on the nature of problem has not been probed (Rhee 2013b).

As is defined in Definition CD system, orthodox economics is a closed/determinate system. However, it is essential not to forget that there is an important premise before the operation of orthodox economics as closed/determinate system. That is the presumption of consistent measure of value-cost index for any instance. The following Definition Consistency VCM should be assumed as premise for the legitimate operation of orthodox economics as closed/determinate system.

**Definition Consistency VCM (the consistency of the value-cost measure):** Consistency VCM indicates the state of condition that the value-cost index of any instance is able to be consistently measured across any coincidental instance or interface of particular personal conditions.

Definition Consistency VCM is a very strict condition even though we have conducted all the economics analyses without paying much attention onto it. Orthodox economics may be considered as the value-cost rationalism approach upon the premise of consistent value-cost measure of any instance. The value-cost rationalism indicates the following of Cartesian rational reasoning a la Rene Descartes (1644) by means of value-cost index measure.

Cartesian rational reasoning by means of value-cost index measure is nothing but deductive reasoning, which is the methodological instrument which rational-reasoning scientists adopt to track down truth from philosophical thinking.

**Definition DR (deductive reasoning):** With the assumption of some premises concerning the state of nature, deductive reasoning is the scientific method which relies on rational reasoning that is built on the given premises.

This premise of consistent measure of value-cost index is essential to the operation of orthodox economics because it is senseless to seek the optimization-equilibrium algorithm if the consistency of value-cost measure is not tenable. In fact, the premise seems reminded in orthodox economics when *ceteris paribus* assumption is noted. *Ceteris paribus* assumption is quite parallel to the premise of consistent measure of value-cost index because it really means to indicate the sustainment of consistent measure in value-cost index. However, is this premise a realistic assumption? If not, why it does not match the story of real life?

**Proposition CD System of OE (the closed/determinate system of the orthodox economics):** Upon the premise of Consistency VCM, the orthodox economics comes off as the closed/determinate system.

**Proof.** From Definition CD System, every instance is sorted out as the outcome of rational reasoning. In orthodox economics, the optimization-equilibrium algorithm which is built on

the consistent measure of value-cost index (Consistent VCM) becomes rational reasoning. Hence, orthodox economics constitutes the closed/determinate system (CD System).□

Now, we are ready to place the definition of value exchange in order.

**Definition VX (value exchange):** Value exchange indicates the exchange transaction in the closed/determinate system, which carries out by means of the price as exchange medium.

**Remark OE as VX-DR (orthodox economics as the system of value exchange which is able to be sorted out by deductive reasoning):** the orthodox economics is the system of value exchange which is able to be sorted out by deductive reasoning.

Once we assume the premise Consistency VCM, rational behavior sorts out the solution of every decision making as the outcome of optimization/equilibrium algorithm. That is, the orthodox economics is nothing but the analytical system of deductive reasoning. Under the presumption of Consistency VCM, orthodox economics becomes the system of value exchange. Once Premise Consistency VCM is assumed, every exchange transaction is sorted out as the outcome of optimization/equilibrium algorithm. Price is the endogenous variable as the determiner of the system of value exchange.

In connection with the premise Consistency VCM, Hume's remarks of so-called uniformity principle precisely pins down the root core of the problem; *the instance, of which we have had no experience, must resemble, those of which we have had experience and that the course of nature continues always uniformly the same.*<sup>5</sup> The premise of consistent measure of value-cost index really means to indicate the assumption of Hume's uniformity principle.<sup>6</sup> According to Hume (1739), Cartesian rational reasoning is legitimate only when the uniformity principle holds. In other words, only when the premise of consistent measure of value-cost index holds

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<sup>5</sup> Hume (1739), book 1, part III, section IV.

<sup>6</sup> Hume's Uniformity Principle is precisely same as premise Consistency VCM. The sympathy-consent-free (SCF), which will be introduced later in this paper, is parallel concept. Also, *ceteris paribus* of orthodox economics, constant (not zero) transaction cost of Coase (1960), and veil of ignorance of Rawls (1971) are all of parallel concept.

effective, the rational reasoning or deductive reasoning of orthodox economics becomes legitimate.

**Definition UP (uniformity principle):** Uniformity principle indicates the sustenance of condition for the making of instance, where the course of nature continues uniformly the same so that the consistency of value-cost measure remains sustained.

What is the occasion which repudiates *uniformity principle*? It is the possibility of coincidental instance.<sup>7</sup> The coincidental nature of instance repudiates the possibility of unalterable uniformity relation upon which Cartesian rational reasoning is built. The uniformity principle is the premise which buttresses the Cartesian deductive reasoning, but out of which Cartesian reasoning ceases to work and turns to Hume's inductive reasoning. Once the consistency of value-cost measure is not sustained, we cannot rely on the rational reasoning which operates by means of the value-cost measure. Aside from there, our decision has to be guided by the navigation according to the experiences. Now we are entering to the realm of empiricism.

## (2) Open/indeterminate system

Now going back to the problem of Uniformity Principle, what are the examples of coincidental instance that repudiate the principle? There are plenty. All the experiences are of coincidental instance because there is no inevitability in the occasion of experience. Relationship making is also of coincidental instance. We happen to build some trust relationship. There is no sure inevitability in the making of friends. We may have some taste for the preferred style of friends. But making friends (trust relation, affection relation,..) is essentially of coincidental instance.

What is the nature of coincidence? It means to indicate the repudiation of *uniformity principle*. It indicates the end to the certitude that a particular conjunction will stay constant. If the instance is the outcome of causality relation, *uniformity principle* means to indicate the unchanging efficacy of the causality effect. Hence, the situation belongs to the territory of deductive reasoning. It constitutes the closed/determinate system. In orthodox economics, the unalterable uniform relation is the optimization-equilibrium algorithm which operated on the consistent value-cost measure. If we accept to recognize the coincidental nature of relationship making, there is no way to sustain the consistency in the measure of value-cost index across all

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<sup>7</sup> Coincidence does not mean probability. If probability is possibly assumed, it indicates the implication of stochastic uniformity. It is not coincidence any more.

the instances of coincidence. In other words, Cartesian rational reasoning or deductive reasoning becomes illegitimate.

**Proposition from Coincidence to Untenable VC Measure (from coincidence to untenable consistency of value-cost index measure):** If any coincidental instance may appear to repudiate the uniformity principle, the consistency of value-cost index measure becomes untenable.

**Proof.** By definition, the coincidental nature of instance means to indicate the repudiation of the uniformity principle. The inability to sustain the uniformity principle indicates the inability to sustain the consistency of value-cost index measure.□

**Remark illegitimate RR (illegitimate Cartesian rational reasoning):** If the consistency of value-cost index measure is unable to be sustained, Cartesian rational reasoning is not justified.

By definition, coincidental instance is not allowed in the orthodox economics.<sup>8</sup> Orthodox economics rules out the possibility of the occurring of coincidental instance. Once the coincidental instance is recognized, the closed/determinate system is no more sustained.

However, real life does not tend to be confined by the closed/determinate system. Cases of coincidence are not limited only to experience and relationship making. Entrepreneurship is taken on coincidentally. There is no inevitability in the action of entrepreneurship. Innovation is another category of coincidental instance.

If the recognition of coincidental occurring of instance is allowed, the rational reasoning which is navigated by the consistent measure of value-cost index becomes no more justified. The inductive reasoning which is guided by the navigation according to experiences has to replace the role of rational reasoning. The analysis becomes no longer confined by the closed/determinate system, but becomes extended to the open/indeterminate system.

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<sup>8</sup> Stochastic or game approaches mean to indicate the probabilistic or game theoretic deductive reasoning. Hence, stochastic or game approaches of orthodox economics are not qualified to claim for the ability to comprehend the coincidental instance by its own analytical architecture.

**Definition IR (inductive reasoning):** With no assumption of any premise concerning the state of nature, inductive reasoning is the scientific method which has to rely on the experiences as the only source of information in a way to approach to the new knowledge about the state of nature.

**Definition OI System (open/indeterminate system):** An open/indeterminate system is the economic system, the particular instances of which are unable to be sorted out as determined by the rational behavior of individuals.

**Remark IR – OI System (inductive reasoning as a scientific method to approach to new knowledge to the state of nature in the open/indeterminate system):** In the open/indeterminate system, the inductive reasoning is an available scientific method by which to approach to new knowledge concerning the state of nature.

**Expositor.** In the open/indeterminate system, no premise whatsoever is assumed about the knowledge concerning the state of nature. Deductive reasoning is not available method to approach to new knowledge. Experience is one ultimate source of information. Hence, new knowledge concerning the state of nature may be obtained from the information drawn out from the experiences. It is inductive reasoning.

Remark IR – OI System follows precisely the tradition of the empiricism (Hume 1739, 1748). In the open/indeterminate system, the individuals are unable to rely on the value-cost measure for their decision-making. The unavoidable coincidental instance of real life precludes the assumption of the premise on the consistent measure of value-cost index. The experiences are the only available navigator. The perception through sensual organ makes impressions and images. Ideas come as the copies from the impression (Hume 1739). It is the process of building information from experiences. Historical coincidence is the essential nature of the experience. Particular personal conditions are created as the legacy of historical coincidence. Hence, the path dependence holds as the essential attribute of the empiricism. Behind all the stories as such, the bounded rationality of human intelligence buttresses the empiricism as the bedrock (Simon 1983).

Human beings, the rationality of whom is bounded by limited intellectual capacity, cannot but live in the open/indeterminate system and have to rely on previous experiences for their

decision-making. They have to rely on inductive reasoning for their decision-making. Deductive reasoning is not the legitimate method of reasoning for their decision-making. Human life cannot be liberated from the incidence of coincidental occurring of instances in real life.

#### IV Sympathy-consent process and relation exchange

How does the empiricist epistemology work to explain the action of exchange? Our impressions are given from the perception which is essentially obtained from the experience. Emotion or image is the product of impression after the repetition of conjoining experiences. There are two different reasoning. One is deductive reasoning. The other is inductive reasoning. Deductive reasoning belongs to the closed/determinate system which is set in place by the premise of Consistency VCM.<sup>9</sup> However, in the open/indeterminate system, the inductive reasoning applies.<sup>10</sup> Since the open/indeterminate system is presumed now, the reasoning is inductive reasoning where the ideas are essentially the copy of impressions and the causation essentially starts from the repeated conjunction of experiences (Hume 1739). That is, all the analytical reasoning has to stem from the experiences.

However, experiences are necessarily coincidental in their occurring, although impressions and images are persisting afterwards. Your repeated experiences of purchasing from street peddler may leave you the memory of distrust on street peddler. Such unfavorable image influences your decision to purchase, say, coffee next time from a street peddler. Inductive reasoning works to make you hesitate. You prefer to pay more to purchase a possibly similar quality coffee at Starbucks coffee house.

##### (1) Division of labor and exchange

Before we move on to the discussion of sympathy-consent process as interface process at the interface of particular personal conditions of different individuals leading to the exchange transaction, let's ponder on the reason why human beings aspire to have exchange between and among them. The following excerpt from *The Wealth of Nations* is famous for its denotation

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<sup>9</sup> Deductive reasoning in the closed/determinate system is the parallel concept of *relations of ideas* in Hume (1739, 1748).

<sup>10</sup> Inductive reasoning of the open/indeterminate system is the parallel concept of *matters of fact* in Hume (1739, 1748).

which unfolds the insight that penetrates the philosophy of the book.

*The division of labour, from which so many advantages are derived, is not originally the effect of any human wisdom, which foresees and intends that general opulence to which it gives occasion. It 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.<sup>11</sup>*

A. Smith considered *truck, barter, and exchange* as *propensity of human nature*. Human beings seek the actions of exchange as the propensity of human nature. Why? Because they know they can draw out benefits from the actions of exchange.

Every exchange gives rise to the division of labor, *from which so many advantages are derived*. A. Smith introduced the tale of production in a pin factory to illustrate the power of the division of labor. The general opulence of post-industrial society may properly trace its fundamental source from the division of labor, which was empowered by the leverages like new technological inventions, which penetrated into every work of life and became interlocked to build the urbanization of the economy.

The upshot of the stories on the division of labor is that human beings have the propensity to exchange. What exchange? The exchange can be defined in two ways. One is the exchange in the closed/determinate system, which is the value exchange defined by Definition VX. In the closed/determinate system, the exchange takes place according to the navigation of deductive reasoning. Upon the assumption of appropriate premise, e.g. *ceteris paribus*, the optimization/equilibrium algorithm ensures the use of equilibrium price as instrument to put the value exchange in place.

The other is the exchange in the open/indeterminate system. It is the exchange which takes place by the occasion of interface between particular personal conditions. It is the exchange which takes place in the natural state with no filtering steps of enforcing *uniformity principle*, that is, assumption of any such premise that ensures the consistency of the value-cost measure. It is the state of nature and the open/indeterminate system where the exchange takes place according to the navigation of inductive reasoning (Remark IR – OI System).

It is particular personal conditions that compound at the interface among interested parties to give rise to the exchange as the kernel of common interest. It is the realm of the empiricism

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<sup>11</sup> A. Smith (1776), *The Wealth of Nations*, book 1, Chapter 2.

where the experience as the sole information source provides the navigation. In this open/indeterminate system, the exchange takes place while buyer's trust or suspicion on supplier's honesty still remains at large. Customers' impression or image on commodity can be influenced by supplier's efforts of marketing activity. Hence, early starter may preempt the market against later comer's marketing position from the beginning.

In this open/indeterminate system of particular personal conditions, it is not emotion-free or image-free equilibrium price but the feeling of trust, friendship, affection, envy, and brand image and so on that work to determine the decision of exchange.

## (2) Sympathy-consent process

Inductive reasoning navigates the decision to purchase. In the open/indeterminate system as the state of nature, inductive reasoning operates on the particular personal conditions in order to draw out the decision to exchange because human beings have propensity to exchange. Exchange carries out in the transaction between two or more persons. Each individual has his/her experiences and inductive reasoning. The action of exchange is reached through the process of interface between the inductive reasoning of individuals. It will be called sympathy.

In the world of the empiricism, there seems to be only one conduit through which the agreement can be drawn out from the experiences and inductive reasoning of different individuals. It is the sympathy. The sympathy seems the property essential to the empiricism. Both Hume (1751) and Smith (1759) made use of this concept to explain the process of drawing-out of the principles of moral sentiments from the experiences and inductive reasoning of different individuals. Hume wrote:

*We are certain, that sympathy is a very powerful principle in human nature. ... We find, that it has force sufficient to give us the strongest sentiments of approbation, when it operates alone, without the concurrence of any other principle; as in the cases of justice, allegiance, chastity, and good-manners.<sup>12</sup>*

*Here is displayed the force of many sympathies. Our moral sentiment is itself a feeling chiefly of that nature: And our regard to a character with others seems to arise only from a care of preserving a character with ourselves; and in order to attain this end, we find it necessary to*

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<sup>12</sup> Hume (1739), Book III, Part III, Sect. VI.

*prop our tottering judgment on the correspondent approbation of mankind.* <sup>13</sup>

This conduit may be extended to the all the channels by which to communicate among different experiences and inductive reasoning of different individuals to attain common interests. In this case, the functional operation of the sympathy is extended to the case of the propensity of human beings to exchange among different individuals. This propensity to exchange is by no means less tempting than their desire to draw out the principles of moral sentiments, I may say. Through the process of the sympathy among the individuals, the experiences and inductive reasoning of whom are all different each other, the attainment of exchange is explained in the open/indeterminate system.

Does the agreement to make the exchange among multiple individuals come off by itself? Of course, the sympathy is the process through which to draw out the answer. However, exchange transaction may require the joint action of multiple individuals. The approbation would require the consent process among many buyers or among many sellers or among buyers and sellers depending on the situation of respective cases. It is the problem of public choice. This problem of public choice may be considered as an imbedded part of sympathy process. Or it may be spelled out separately to distinguish its identity, just as is the sympathy-consent process. It is well known that the consistency of decision making among multiple individuals is untenable (Arrow 1951, Duncan Black 1948a, 1948b, Buchanan and Tullock 1962, Mueller 2003).

**Definition SCP (sympathy-consent process):** it is the multi-party interface process leading to the exchange action among two or multiple parties in the open/indeterminate system where the inductive reasoning works on the particular personal conditions.

Since the sympathy-consent process belongs to the open/indeterminate system, its ensuing property unfolds that we cannot build any closed/determinate-system scheme of the sympathy-consent process in a way common to any exchange transaction. The sympathy-consent process may be approached by the experience only. Before placing the definition of relation exchange, it seems opportune to introduce the hypothetical sympathy-consent-free condition.

**Definition SCF (sympathy-consent-free condition):** the sympathy-consent-free condition

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<sup>13</sup> Hume (1751), P. 77.

indicates the hypothetical condition that the sympathy-consent process is attained immediately without incurring any cost.

The SCF condition indicates the immediate attainment of sympathy and consent without incurring any cost.<sup>14</sup> With the SCF condition, it is no more the realm of the empiricism, but the realization of the realm of the rationalism. It indicates the assumption of the premise Consistency VCM.

### (3) Relation exchange

We already cited A. Smith (1776) chapters on the division of labor to ponder on the propensity of human beings to exchange. Now, we are ready to present the definition of relation exchange.<sup>15</sup>

**Definition RX (relation exchange):** Relation exchange is the exchange transaction which is made from the sympathy-consent process in the open/indeterminate system that consists in particular personal conditions.

Here, the exchange indicates the exchange action as the outcome of the sympathy-consent process, which is prompted by the particular personal conditions. Particular personal conditions are built on the experiences where the impression leaves image and idea as the copy from the conjunction of impressions. Personal world of experiences are independent from each other

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<sup>14</sup> Sympathy-consent-free condition is equivalent with premise Consistency VCM, which is parallel to Uniformity Principle (Hume 1739), veil of ignorance (Rawls 1971), fixed transaction cost (Coase 1960), *ceteris paribus* assumption.

<sup>15</sup> Relational exchange (Richardson 1972, Goldberg 1980, Dore 1983) is distinguished from relation exchange by the difference of analytical dimension. In the former, the relationship is perceived in the value-cost rationality dimension. In the latter, it is perceived as the outcome of the sympathy-consent process. In the latter, it is the sympathy-consent process that attains the exchange transaction, i.e. relation exchange. Price is just a part of the sympathy-consent process, as will be revealed in section V.

among individuals. The sympathy is the conduit through which the interaction takes place between and among different personal world of experiences. Such interpersonal interaction is motivated in the utilitarian sense because every relation exchange gives rise to the division of labor among participants. Such relation exchange as trust exchange is the exchange action in the natural state as *matters of fact* (Hume 1739) or actions prompted by particular personal conditions. Such actions predate the rise of market and subsist nowadays as more fundamental force than the value-cost measure (Copy Principle: Hume 1739, 1748). Once we accept the empiricism, the proof of which will be provided by the fundamentality of relation exchange in section V, the exchange becomes recognized as the outcome of the sympathy-consent process, i.e. relation exchange. Relation exchange in the sympathy-consent dimension replaces the value exchange of the value-cost rationality dimension.

**Proposition PD of SCP (path dependence of sympathy-consent process):** the sympathy-consent process holds the attribute of path dependence.

**Proof.** It is essentially particular personal conditions that determine the sympathy-consent process in the open/indeterminate system. Inductive reasoning works on the particular personal conditions, which puts in place the interface among two or more individuals. Any such interface, which is a historical coincidence, makes the instance of experience, which makes legacy to particular personal conditions of related individuals.<sup>16</sup> This recursive process between particular personal conditions and experience unfolds path dependence because any action of the sympathy-consent process makes effect on the particular personal conditions. The efficacy of coincidence persists in the steps of inductive reasoning. Hence, the sympathy-consent process reveals path dependence.□

Any coincidental purchase (experience) of coffee from a street peddler will leave impression and image on the trustworthiness of the peddler, which makes effect on the particular personal

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<sup>16</sup> For instance, if a customer makes decision to purchase coffee from the street peddler, the decision as such is coincidental in the open/indeterminate system. But his/her particular personal conditions will be affected by the decision. He/she may find that the taste of the coffee from the street peddler is better than he/she expected so that his/her prejudice against the street peddler becomes corrected. Or the opposite outcome may also be a possibility. The coincidental purchase from street peddler is the experience which leaves the legacy of impression.

sentimental conditions on the creditworthiness of the street peddler. Such change in the particular personal sentimental conditions influences the decision making for the purchase of coffee next time. The effect of any coincidental incidence persists in the subsequent event of decision-making. What we should bear in mind is that in this world of empiricism, it is not price as sole determiner, but the sympathy-consent process that makes the decision to purchase coffee from the street peddler (or from Starbucks coffeehouse). Price is mere a partial component of sympathy-consent process.

**Proposition PD of RX (path dependence of relation exchange):** the relation exchange holds the attribute of path dependence.

**Proof.** Relation exchange is achieved through the sympathy-consent process. Since the sympathy-consent process reveals path dependence, so does the relation exchange. □

The instance of exchange transaction with the street peddler influences on the exchange transaction with the street peddler next time. The experience of any previous purchase influences on the purchase decision next time. Path dependence is the idiosyncratic property of the empiricism. In the world of empiricism, human beings have to rely on the information gained from experiences when they navigate their lives in the open/indeterminate system.

#### (4) Power of the empiricism

The restitution of empiricism analytics in economics, which is enabled by the introduction of sympathy-consent process and relation exchange, is an awful incident which opened the gateway to the understanding of analytical conundrums in economics (Table A). Most of all, institution has been the unanswered puzzle. Transaction cost approach in fact failed to pin down the identity of institution in the analytics of economics (Klein et al 1978). Borrowing Hume's terminology, transaction cost belongs to *relations of ideas* (deductive reasoning in the closed/determinate system), whereas institution belongs to *matters of facts* (inductive reasoning in the open/indeterminate system). Two different worlds are mutually exclusive. Property rights approach, including modern property rights school (Grossman & Hart 1986, Hart & Moore 1990, Hart & Moore 1999), also failed to provide the overarching analytical architecture in which institution is expounded.

**Table A: Coincidence occurring**

Sympathy-consent process (SCP) ⇒ relation exchange		
Institution as SCP facilitator	Organizational behavior (Rhee 2015)	Innovation as SCP leverage
1)Institution: law, morality, judicial precedents,.. 2)Standard: meter/kilogram, time, temperature, meridian,.. 3)Regulation: Basel III, speed limit, age limit,.. 4)Convention: property right, democracy, liberalism, fundamental human right, tripartite separation of power, parliament, judicial system, press, school,..	1)Relation exchange as organizational behavior 2)Entrepreneurship as SCP facilitator: organizational governance, business management, public entrepreneurship	1)Intellectual contrivance: language, alphabet, number, map,.. 2)Commercial contrivance (Rhee 2016a): money, fiat money, bank, bill of credit, accounting/auditing, limited liability, corporation, stock, bond, credit rating, payment settlement,.. 3)Science/technology: combustion engine, electricity, electronics, chemistry, physics, medicine, medical science, digital technology, mechanics,..

The sympathy-consent process as coincidental incidence operates with institutions. In the open/indeterminate system, the sympathy-consent process may proceed to any direction, e.g. opportunistic behavior. Morality, convention, law and regulation, as institutions reining in the opportunistic behavior, facilitate the attainment of relation exchange. We should note that the sympathy-consent process is the determiner of exchange transaction and that relation exchange is the fundamental action of exchange in the analytics of empiricism economics, as will be unfolded in section V.

Organizational behavior has been another field of puzzle to the economist since the question was raised by Simon (1957; 1996a 88). However, if particular personal conditions are restituted with the recognition of sympathy-consent process as instrument, the organizational behavior of human beings is possibly understood as the actions of relation exchange with the compliance with appropriate institutions (Rhee 2015). Entrepreneurship has never been properly explained in the analytics of economics. Now, in the open/indeterminate system of the empiricism economics, we can explain how entrepreneurship functions in the analytics (Rhee 2009).

Human civilization has developed with the making of innovation. Examples are extensive; language, alphabet, number, temperature, meridian, combustion engine, digital technology, biology, medicine, science and so on. Another category of coincidental instance is institution; morality, convention, law, rule and regulation, standards and torts and so on. Also, the

contrivances of human intelligence are other category of coincidental occurring; money, fiat money, bank, bill of credit, accounting and auditing, limited liability, corporation, stock, bond, credit rating.. Now, the analytics of economics can possibly explain the role of such innovative devices in the decision making process of individuals.

## V The fundamentality of relation exchange

Now, we encounter the moment to clarify the most critical points. It is the relation among value exchange, relation exchange, and price. How the value exchange is compared with relation exchange? How to understand the price in the open/indeterminate system? What is the relation between price and relation exchange? These three questions are closely connected. To address the first question firstly seems to match the efficiency order.

### (1) Inductive price

Value exchange and relation exchange are distinguished by the openness of the system. Value exchange belongs to the closed/determinate system, as is defined in Definition VX. Hence, the premise should be assumed from the outset that the consistency should be sustained in the value-cost measure. Upon the assumption of the premise Consistency VCM, the natural state of the economy should be transcended to the system which is represented in the value-cost measure. It is the territory of orthodox economics.

On the other hand, relation exchange abides in the open/indeterminate system. Relation exchange arises from the decision makings which stem from the inductive reasoning built on the particular personal conditions, as is revealed by Definition SCP and Definition RX. It is the state of nature with no premise whatsoever being assumed. Value exchange and relation exchange abide in mutually exclusive domains. The distinction of domain is demarked by the adoption of the premise either Consistency VCM or *ceteris paribus* or SCF assumption or *uniformity principle* in Hume's terminology. Hence, value exchange abides in the hypothetical condition of the closed/determinate system, but does not exist in the open/indeterminate system.

Now, we have the second question. In the open/indeterminate system, we have price but we do not have value exchange. *Ceteris paribus* or the premise Consistency VCM is not assumed in the open/indeterminate system. Then, what is the difference between price in the closed/determinate system and price in the open/indeterminate system?

The price in the closed/determinate system is the same as the price in the orthodox economics. Price is not different from value exchange in the closed/determinate system. The market-clearing system  $D(p)=S(p)$  determines the equilibrium price as the outcome of optimal behavior. Since the consistent measure of value and cost is assumed as the premise, the arbitrage assures

the law of one price.

However, the open/indeterminate system is built on the particular personal conditions. The sympathy-consent process and inductive reasoning are the only mechanism we can rely on before we make decision. The making of price should rely on the same mechanism in the open/indeterminate system. Market-clearing mechanism  $D(p)=S(p)$  is not available. Demand may operate to raise market price. Supply may work to drop market price. However, there is no system to ensure the clearing of the market being achieved as equilibrium.

If it is not the equilibrium price, then what price is it? It is the price essentially determined by the particular personal conditions. It will be called as inductive price, which is distinguished from deductive price or equilibrium price in the closed/determinate system.

**Definition IP (inductive price):** Inductive price is the price which is sorted out by inductive method, which is navigated by experiences in the open/indeterminate system being built on particular personal conditions, from the exchange formats like offer/bid, auction, mark-up pricing, administered pricing.

**Definition DP (deductive price):** Deductive price is the equilibrium price in the closed/determinate system set in place by the premise Consistency VCM, which is determined by the market clearing system  $D(p)=S(p)$ .

The price of street peddler's coffee is affected by the peddler's trustworthiness. The trustworthiness is the open/indeterminate factor which is reliant on customers' impression and image of the street peddler. Such impression and image comes from the customers' experiences. What makes the story idiosyncratic in the open/indeterminate system is that the market clearing mechanism does not operate. For instance, if the street peddler lowers the price of his/her coffee to sell off the inventory, the lowering of price changes customer's particular personal conditions, that is, the trustworthiness of his/her coffee. Hence, it may confirm customer's suspicion and make the customer more reluctant. Market never clears up (Akerlof 1970). The determination of price may strand somewhere the impression and image of the street peddler is harboring. It could be bid price, offer price, some markup or price quotation of some other exchange format.

Demand and supply will have some influence on the determination of market price. However, it doesn't repudiate the fact that it is the sympathy-consent process, not the market clearing mechanism that determines the price because the fundamental base is the particular personal conditions as the state of nature, not the value-cost measure. In fact, demand and supply are a

partial step of the sympathy-consent process. Again, it could be bid price, offer price, some markup or price quotation of some other exchange format.

**Table B: Exchange formats**

<b>Analysis \ Exchange format</b>	<b>Offer/bid</b>	<b>Auction</b>	<b>Mark-up</b>	<b>Authority administered</b>	<b>Market-clearing: <math>D(p)=S(p)</math></b>
Exposition	Buyers offer price. Sellers bid price. Transaction attains whenever both match.	Auction sells to the highest bidder.	Seller posts price, which becomes the price to trade.	Public authority influences the determination of price.	Market clearing equilibrium
Case examples	Haggling; Security exchange (stock/bond,.);	Art works; Livestock; Fishery products;	Manufacturing products; Bank loan; CD (certificate of deposit);	Public utilities (electricity, tap water,..) public transportation; Standard rate in financial market (Call loan, Repo);	Not in real life but in textbook
Price	Inductive price	Inductive price	Inductive price	Inductive price	Deductive price
Analytical dimension/Empiricism vs. rationalism	Sympathy-consent process/empiricism	Sympathy-consent process/empiricism	Sympathy-consent process/empiricism	Sympathy-consent process/empiricism	Optimization-equilibrium algorithm/value-cost rationalism

The conceptual bifurcation of price into inductive and deductive price is not familiar to the economists who are tamed to the market clearing system of the orthodox economics. However, it is astonishing that the market clearing system  $D(p)=S(p)$  exists in the imagination of economists only, not in real life. Exchange formats which work in real life are either offer/bid

system, auction, mark-up or administered pricing (Table B). What else? They are different from the market clearing system (Hodgson 1988 section 8.3).

Haggling is a sort of offer/bid system. In most of security exchange, price is determined by the offer/bid system of exchange format. At every time of security exchange, price changes according to the match between offer and bid prices. It doesn't look reasonable to conceive such changes of price as the change of the equilibrium price. More reasonably, they seem like the changes of price as steps to accommodate according to the sympathy-consent process.

The story goes likewise with auction. Most of artworks, livestock, and fishery products are traded by the auction system of exchange format. Anyone who witnesses the scene of price quotation in the auction would agree that the determination of price may reasonably be conceived as steps to match the sympathy-consent process. It is different from the approach to consider the auction price as the outcome of equilibrium between demand and supply schedules.

The story becomes more compelling in cases of mark-up and administered pricing. The prices for most of manufacturing products are of mark-up pricing. The prices for most transaction of public utility, public transportation, and standard interest rates in the financial market are determined according to the format of administered pricing or price mark-up. Clearly, they are not the equilibrium price. Price is given by the service providers while demand accommodates to the price.

Can we suggest any case of real-life exchange transaction the price of which is determined by the market clearing system? Maybe not. Real life abides in the world of empiricism, not of value-cost rationalism.

## (2) The fundamentality of relation exchange

Economists are familiar with the rationality dimension where the consistent measure of values and costs are assumed and the optimization behavior leads to the equilibrium solution. It is the closed/determinate system which is built on the given premise. It is the world of deductive reasoning.

**Definition VCRD (value-cost rationality dimension):** It is the analytical dimension that operates in the closed/determinate system which is determined by the optimization-equilibrium algorithm as a method of deductive reasoning that works in the hypothetical realm confined by the premise Consistency VCM.

Now, we are ready to be introduced into new analytical dimension which belongs to the domain

of the empiricism. In contrast with the rationality dimension, the analytical system relies on the experiences rather than given premise. This analytical dimension is built on the particular personal conditions as the state of nature.<sup>17</sup> Hence, particular personal conditions like impression, emotion matter in the analysis. In the world of the empiricism, the experience is the sole source of information so that the inductive reasoning is the vehicle of scientific method to navigate the open/indeterminate system. It is the sympathy-consent dimension.

**Definition SCD (sympathy-consent dimension):** It is the analytical dimension which is set in place by the sympathy-consent process that is conducted according to the dictation of inductive reasoning which makes use of experiences as sole information source when navigating the domain of particular personal conditions as the natural state when making decision to exchange.

Sympathy-consent process is the process of coincidental instance. Hence, the sympathy-consent dimension is of open/indeterminate system. Rationality dimension is the extreme of the sympathy-consent dimension, the identity of which is distinguished by the premise Consistency VCM or SCF (sympathy-consent-free) condition.

**Proposition VCRD separately identified in SCD (the value-cost rationality dimension is separately identified in the sympathy consent dimension):** The VCRD (value-cost rationality dimension) is separately identified in the sympathy-consent dimension.

**Proof.** Firstly, Consistency VCM is a part of the SCD (sympathy-consent dimension) because SCF (sympathy-consent-free) condition is the extreme case (extreme part) of the SCD. Consistency VCM is one of SCF condition. Secondly, Consistency VCM is the closed/determinate system, which is set in place by the optimization-equilibrium algorithm of the orthodox economics. Hence, the VCRD (value-cost rationality dimension), which is built on the premise Consistency VCM, is possibly separated out from the SCD. The condition Consistency VCM repudiates the coincidental property of particular personal conditions. Therefore, the VCRD (value-cost rationality dimension) belongs to the SCD as the extreme instance, but is separately identified by the premise Consistency VCM or SCF condition or

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<sup>17</sup> Borrowing from Rawlsian terminology, any filtering is never attempted through the veil of ignorance (Rawls 1971).

*uniformity principle*. □

The SCF assumption is precisely the parallel concept of *uniformity principle* in Hume (1739), *ceteris paribus* assumption of the orthodox economics and fixed-transaction-cost assumption in case of Coase (1960).

What Proposition VCRD separately identified in SCD reveals is that the VCRD (value-cost rationality dimension) belong to the SCD (sympathy-consent dimension) as a subset. However, the VCRD (value-cost rationality dimension) can be separated out from the SCD (sympathy-consent dimension). We can define the sympathy-consent dimension which contains the VCRD as a subset.

The SCD (sympathy-consent dimension) is defined on the instances of particular personal conditions. The SCD (sympathy-consent dimension) is the open/indeterminate system which is built on the possible occurrence of coincidental instances in the particular personal conditions. Decision making for the attainment of exchange transaction follows the dictation of inductive reasoning in the open/indeterminate system. Relation exchange takes place as the outcome of the sympathy-consent process, which is coincidental instance at the interface among particular personal conditions. It is the world of empiricism economics.

In the course of these steps, the assumption of the premise Constancy VCM (sympathy-consent-free SCF condition or *uniformity principle*) transforms the rationality dimension into the VCRD (value-cost rationality dimension). Coincidence no longer occurs in the reasoning steps because the accurate calculus of values and costs becomes tractable. Relation exchange turns into value exchange. We follow the deductive reasoning of optimization-equilibrium analysis from the inductive reasoning of the sympathy-consent process. It becomes the orthodox economics, which is the closed/determinate system. In Hume's terminology, we can isolate out the case of *relations of ideas* from *matters of facts* by the use of *uniformity principle*.

Now, we are ready to address the theme of the fundamentality of relation exchange.

**Proposition FRX (the fundamentality of relation exchange):** the relation exchange is more fundamental than the value exchange.

**Proof.** With the assumption of the premise Consistency VCM, which is equivalent to the SCF condition, the relation exchange turns to the value exchange. However, once we begin with the SCF or premise Consistency VCM, the removal of the premise won't reconstitute the state of nature which is presented by the particular personal conditions. The coincidental instance and

path dependence of the SCP at the interface of particular personal conditions among different individuals precludes the possibility of reverse crossing from the value-cost measure to particular personal conditions with the state of nature getting intact. The relation exchange cannot be restituted from the value exchange. □

Proposition FRX is essentially equivalent to Hume's *copy principle*. Any ideas (value-cost measures) which will give rise to the decision to exchange are essentially the copy of impressions (particular personal conditions). Value exchange can sustain only by the premise Consistency VCM. It is a hypothetical artifact, not real-life entity.

In real life, the exchange takes place by the interactive working of particular personal conditions among individuals. Hence, the impression, emotion or image matters when determining the exchange transaction. If we begin with the value-cost rationality dimension, it is impossible to recover the state of nature as such from the hypothetical state of the original position or the value-cost conditions of the orthodox economics. Once we begin with the original position, if we borrow the concept from Rawls (1971), we cannot recover the state of nature by the reverse crossing of the veil of ignorance.

By dint of Proposition FRX, all the exchange transactions are conceived as the outcome of the sympathy-consent process regardless of whether the exchanges take place in the market or non-market condition. Trust exchanges are doubtlessly the outcome of the sympathy-consent process. The loan borrowing from the bank is also the outcome of the sympathy-consent process. Without credit records, it is impossible to make a loan from the bank, however high the interest rate is offered by the lender. When investing on the CP (commercial paper) of the Apple Computer, the confirming of the credit rating of the Apple Computer is the prerequisite condition. You pay more when purchasing same cherry from the grocery of famous department store than you buy from street vendor. They are all sympathy-consent process.

### (3) Path dependence of price

Previously in this section V, the price in the sympathy-consent dimension, i.e. inductive price is distinguished from deductive price in the rationality dimension. The inductive price in the sympathy-consent dimension is well featured by the path dependence of price.

**Corollary PD of price (path dependence of price):** In the sympathy-consent dimension, the price reveals path dependence.

**Proof.** In the sympathy-consent dimension, the exchange is essentially relation exchange which is determined by particular personal conditions. Impression and image or emotion may affect the determination of exchange. The market clearing mechanism does not exist in the open/indeterminate system. Price itself is conceived as a piece of experience, which gives rise to new impression and image. New impression and image works to the sympathy-consent process, which makes change to the state of relation exchange between customer and product. In other words, price is a partial of the sympathy-consent process. Since the sympathy-consent process is path dependent (Proposition PD of SCP and Proposition PD of RX), the price determination is path dependent.□

Price is not the only determiner of exchange in the sympathy-consent dimension unlike the case as in the market-clearing mechanism of the orthodox economics. It is conceived as a piece of experience, which stokes to the sympathy-consent process. The price determination is open and indeterminate.

The path dependence of price sounds quite unfamiliar to the economists who are tamed by the closed/determinate system of the orthodox economics. The path dependence of price doesn't indicate to deny the power of demand and supply.<sup>18</sup> The power of the demand and supply becomes merely a leverage power working to the sympathy-consent process, not the sole determiner, in the sympathy-consent dimension. The instances as such frequently run across in real life. The lowering of the offer price of coffee by the street peddler may confirm customer's suspicion and instigate his/her reluctance to purchase. Also, we sometimes encounter the news report that a raise of price worked to upgrade the image of the commodity and created customer demand.

In the world of the empiricism, the price is merely a piece of experience rather than market clearing engine. Price works as an effective leverage instrument by which to expedite and extend the scope of exchange in the sympathy-consent dimension. The explanation seems consistent with the logic by which to explain the historical development of capitalism.

The sympathy-consent dimension has been the hidden dimension, which is unknown to the economics. The finding of the sympathy-consent dimension seems to enhance the analytical power of economics immensely. Unresolved questions in economics seem to encounter entirely new phase on way to the solution. Simon's query of bounded rationality and theory of organization will be addressed anew with the apparatus of the empiricism economics. Akerlof's

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<sup>18</sup> Demand and supply don't mean to indicate demand function and supply function. The latter (demand-supply functions) are the concept of the closed/determinate system.

lemon market puzzle will be reinterpreted through the use of the sympathy-consent process. Coase theorem of transaction cost will be reinterpreted in the sympathy-consent dimension.

Keynesian insight in macro-management at the event of depression will be reinterpreted by the empiricism economics. Law and economics will encounter the new phase which requires entirely new approach. Most of all, economics have gained new analytical dimension through which the role of institution is to be recognized. Now, economics is no longer the isolated island separated from other social sciences and humanity by the discovery of the sympathy-consent dimension.

## VI. Concluding Remarks

There are two different perspectives by which we see the human life. One is the tradition of the empiricism. The other is the tradition of the rationalism. The empiricism begins with the state of nature. The rationalism begins with the assumption of premise, i.e. *uniformity principle*, and abides only on the extended logic from the premise. Orthodox economics follows the tradition of the latter. Here, the premise is the sustainment of the premise Consistency VCM. If any economic instance can be measured in the value-cost index consistently, in other words, if the *uniformity principle* holds, the logic of the orthodox economics follows. The logic is the deductive reasoning which is built upon the assumed premise.

It is unrealistic to adopt the premise. The empiricism does not assume any such premise. It begins with particular personal conditions as the state of nature, which include the impression, image, and emotion as the outcome of experiences. In the world of the empiricism, the experience is the only source of information as to the state of nature. We can make progress only from the inference which is built on the information we gain from the experiences. It is the inductive reasoning.

Which approach is appropriate as the scientific method to study the economics becomes imminent question. The question seems to bear pragmatic sense as well as philosophical meaning. The question boils down to the problem of how the exchange transaction takes place in real life. Does it take place in the natural state or in the hypothetical condition which is deployed by the presumption of *uniformity principle*? Or do the impression, image and emotion have efficacy on the customer's decision making to purchase the product? Hume's answer to the last question is yes.

All the ideas are the copy from the impression. If any reasoning of ideas is used for the decision making to exchange, eventual information source of ideas has to come from experience and impression. It is why the business firm extends desperately to the efforts of marketing and advertisement. Such marketing efforts leave impression to customers. Which marketing efforts, what impression, to which customer; it is the matter of coincidence. However,

historical coincidence makes path dependence. The historical coincidence and path dependence give rise to particular personal conditions. It is these particular personal conditions that uphold the inductive reasoning as the instrument to make decisions to exchange. Any attempt to explain the decision to exchange by the optimization-equilibrium algorithm has to presume the premise Consistency VCM as *sine qua non*.

Can we build the consistent measure of the value-cost index across all the different decision paths of impression, image, and emotion, the rise of which is given by marketing efforts,? The orthodox economics is built on the affirmative answer to the question. However, the tradition of the empiricism raises objection to it. The impression, image, and emotion, which are the coincidental outcome of experience, make the efficacy on the decision making afterwards. The path dependence of the decision path, which is determined by the coincidental instances of experience, conflicts head-on with the sustainment of the premise Consistency VCM or *uniformity principle*.

The finding of the sympathy-consent process as the interactive step at the interface of particular personal conditions of different individuals marks the significance of erecting milestone in the way inroads to the recognition of relation exchange. Thus, the epistemology of Hume's empiricism lays the foundation upon which to build the new analytical architecture. Now, the understanding of human action is able to be perceived from their experiences, not by rational reasoning. The analytical scope becomes extended to the relation exchange as real-life activity off from traditional exchange in the market. The sympathy-consent process builds up to the sympathy-consent dimension as the analytical dimension of the empiricism, which contrasts with the rationality dimension of the orthodox economics.

The sympathy-consent dimension represents the particular personal conditions as the state of nature so that it constitutes the open/indeterminate system as opposed to the closed/determinate system of the orthodox economics. Since the experience is the sole source of human understanding in the open/indeterminate system, we have to rely on the inductive reasoning as the epistemic logic of the empiricism. Now, we have the analytical architecture to recognize the sympathy-consent process and relation exchange. It is distinguished with the deductive reasoning as the logic of the closed/determinate system or the orthodox economics.

In the analytical architecture of the empiricism, the institution becomes recognized as the instrument to rein-in on the opportunistic behavior of relation exchange actions. the analytics of relation exchange allows a new perspective to the understanding of organizational behavior. Also, the open/indeterminate system allows the role performance of entrepreneurship and innovation.

The sympathy-consent-free (SCF in short) state is the hypothetical state where the sympathy and consent are assumed to be resolved immediately with no cost incurred. The SCF state is the linchpin which connects the sympathy-consent dimension to the rationality dimension,

which vindicates that the analysis in the sympathy-consent dimension extends the analysis of economics to the world of the empiricism rather than the attempt to replace the traditional economics. Now, we have the integrated system of economics which contains not merely the rationality dimension but also the world of the empiricism.

The path dependence of price (inductive price) perhaps epitomizes the changes which are distinctively different in the sympathy-consent dimension. The market clearing mechanism is not the effective force in the sympathy-consent dimension. Price is a partial step of the sympathy-consent process, not the determiner of exchange. It is inductive price compared with deductive price of orthodox economics, although it doesn't sound familiar to the economists who are tamed by the market-clearing mechanism. Price determination is rendered open and indeterminate as being witnessed in the exchange formats such as offer/bid system, auction, mark-up pricing and administered pricing. The price as a partial step of the sympathy-consent process becomes path dependent in the sympathy-consent dimension.

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