Researching Needed Structural Adjustments of the Agricultures of Industrialized Asian Pacific Rim Countries*

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Professor Ōtsuki’s 1932 article addressed important problems of resource fixity raised by Japan’s then-expanding control over off-shore agricultural resources. The threat then to home island farmers was similar to that of present-day trade liberalization for Asian Pacific Rim countries. This paper explores the usefulness for analyzing institutional changes needed for Asian Pacific Rim agricultures of developments since Ōtsuki’s work in resource fixity (alternatively investment/disinvestment) theory, advances in computer technology, development of systems science techniques and of potential developments in the public choice/transaction cost approach (PC/TC). Combining advances in asset fixity theory with the PC/TC approach has great promise.

I. Introduction

This paper first draws on both the history of economic thought and quantitative experiences of agricultural economists to gain insights into

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how to investigate and overcome the investment and institutional rigidities that now constrain structural adjustments of the agricultures of Asian Pacific Rim countries. It then uses South Korea (S. Korea) as an example to illustrate how theoretical advances and improved techniques can be used in studying agricultural adjustment problems.

The insightful 1932 work of Masao Ōtsuki will be updated with (1) developments in asset fixity (alternatively, investment/disinvestment) theory since World War II mainly in the United States of America, (2) ideas from Wisconsin institutional economists that relate to the German historical economics drawn on by Ōtsuki, (3) the General Systems Science Approach (GSSA) recently used in S. Korea, Nigeria, the International Institute of Applied Systems analysis, and elsewhere in investigating agricultural sector performances and policy proposals with an eye towards their improvement and, lastly, (4) the so-called public choice/transaction cost (PC/TC) approach to the study of institutional change.

II. Ōtsuki’s 1932 Article in the Contexts of Pacific Rim Asian Agricultures, Then and Now

A translation by Y.C. Lee of Masao Ōtsuki’s 1932 article was used for writing this paper. Ōtsuki wrote at a time when Japanese farmers faced serious competition from farmers outside of the Japanese home islands but within Japan’s “Great East Area Coprosperity Sphere.” In 1932 Japan had long controlled Taiwanese and Korean agriculture and after the “Mukden incident” in 1931 (World Book Encyclopedia, pp. 3986 and 5325) was occupying the extensive agricultural resources of Manchuria. Over the centuries, Japanese farmers and Japanese society had made major investments to transform virgin land first into farming and then into irrigated paddies. In 1932, Japanese labor was more expensive than Taiwanese, Korean, and Manchurian labor. Consequently, farmers in the Japanese homeland faced severe competition from those in Japanese controlled exterior areas in a manner similar, but far from identical, to that faced by farmers in today’s Asian Pacific Rim countries now confronted with the institutional changes required by the completion of the Uruguay round of the General Agreement on Tariffs and Trade (GATT) that places them in more direct competition with the efficient feed stuff and livestock producers of North and South America and Oceania.

Ōtsuki used the concepts of acquisition costs (P_A's) and salvage values (P_s) in addressing the 1932 problem. He related both pecuniary
and nonmonetary marginal value products (MVPs) to the \( P_A \)'s and \( P_s \)'s of Japan's agricultural resources. He used opportunity costs correctly and did not confuse stock with flow values. Still further, he distinguished properly between macro and micro situations. As he wrote before Hicks (1939), he did not distinguish between pareto and overall optimality.

Ôtsuki's study led him to conclude that it was "necessary to have a policy of deterring the rate of change in rice production from Japan to Korea and Manchuria and to narrow the gap between the rice production areas (being) abandoned and the area which is (being) converted to produce intensive crops." This gap involves the difference between the salvage value and acquisition cost of paddy land. Ôtsuki was directly concerned with the possibility of having to pay high \( P_A \)'s in the future to restore paddies allowed to degenerate with MVPs below \( P_s \)'s. He concluded that "the most efficient way to slow down the shift of rice production from Japan to Korea and Manchuria (was) to control the net price in such a way as to set the rice price near production costs in Japan because the main reason why net production [was] shifting from Japan to Manchuria [was] that the [then] present rice price [was] decided by production [costs] in Manchuria ... [that] cannot cover ... production costs in Japan." He further stated that at that "time the rice price should not be set at a level to cover the production costs of a large part of [Japan's] rice area because we need to induce the conversion of a part of the rice areas to more intensive use," which clearly recognizes that the MVP of land in rice production is part of the opportunity cost of land for more intensive uses. Ôtsuki stated that "two different means to control rice price[s] in the [then] current system [were]: (1) prohibition of free trade, government monopolization of the rice trade and (2) the setting of rice prices near the cost of production in Japan." He stated that the second policy [was then] generally adopted "and that it could also be used to control the quantity of rice imported from Korea and Manchuria which [were then] recognized as part of [Japan's] national economy." He further stated that this policy for rice was "necessary from the point of view of maintaining the prosperity of agriculture in interior Japan and thus [should] help achieve the goal of stabilizing [Japan's] national economy as a whole.

One cannot help but be struck by the similarities between Ôtsuki's conclusions and the arguments of those now opposing liberalization of world trade in agricultural products whether in the Asian Pacific Rim or in Europe.
Japan, S. Korea, and Taiwan, like the Japan of the 1930s, now worry that the recent GATT changes will increase offshore competition not only for rice but for intensive livestock and fruit products as well. All three of these areas are now industrialized with increasing wage rates and favorable trade balances. All have managed their agricultural trade and prices according to Ōtsuki's recommendation but now face increased GATT mandated pressure from the international community and their own consumers to liberalize their trade policies. Domestic farm product prices are protected and domestic production of agricultural products is subsidized in the Asian Pacific Rim countries. The United States, Canada, and the Oceanic countries also protect their domestic farm product prices and maintain incomes of farmers but less than Asia's industrialized Pacific Rim and European countries.

Ōtsuki's assessment stressed fixed investments to convert virgin land into farming and dry farm land into paddy. Nowadays the competition faced by Asian farmers is from highly developed land, equipment, fertilizers, pesticides, herbicides, labor saving or replacement capital, and highly skilled laborers, many of which can become as fixed as the Asian investments for transforming virgin to dry farm land and dry farm land to paddy, that concerned Ōtsuki.

In the modern world of the 1990s, major Asian Pacific Rim agricultural institutions have become fixed in ways that constrain structural adjustment of agriculture to current world conditions as required by GATT changes. Ōtsuki proposed institutional changes but did not examine the economics of deciding to dismantle or even establish the institutions he proposed. In 1993, the economics of dismantling and/or establishing new agricultural institutions is fundamental for analysis of structural adjustments. Decisions concerning the institutional changes necessary for structural adjustment, however, involve far more than economics. Political science, sociology, anthropology, and geography, as well as economics are involved, as are disciplines and academic specialties dealing with technical change, human capital formation, and resource bases, both natural and man-made.

Like most economists of his time, Ōtsuki took it for granted that damages to be imposed on consumers by his institutional proposals would be more than offset by the benefits he reasoned would be conferred on Japan as a nation. As Hicks had not yet written his "Value and Capital" (1939), Ōtsuki did not consider questions about the interpersonal validity of welfare measures or the distinction
between pareto-better and non-pareto-better adjustments. Today, much of the conflict about structural adjustments of agricultural price support and trade institutions involves attempts to justify or deny the justice of imposing losses on some and conferring gains on others in non-pareto optimal manners. Alex McCalla (1993) reviews explanations of the conflict and concludes (p. 1109) that modern trade theory indicates that “nations are on a net basis made better off” by free trade – such statements require use of an interpersonally valid common denominator in “netting out” losses imposed on some and gains conferred to others. Instead of accepting the assertion that nations are on a net basis better off, this paper stresses complex procedures necessary for (1) achieving common denominators barely good enough for “purposes at hand” or (2) justifying the imposition of losses on groups whether those losses originate in that operation of free liberal markets or in producer-controlled governmental actions. This paper is more cautious than either Otuski or McCalla.

The above paragraphs indicate that research on the current trade liberalization and structural adjustment problems of Pacific Rim agricultures needs to:

(1) include Otuski’s analysis of fixed assets extended to consider possible dismantlement of present institutions and the possible establishment of different ones;

(2) address directly the interpersonal validity of welfare measures for assessing both the nonmonetary and monetary damages imposed on some and the benefits conferred on others by market adjustments to specific trade liberalization steps;

(3) be multidisciplinary and holistic as dictated by the natures of the different trade liberalization problems and issues being addressed.

In the following parts of this paper, three more needs will be added to the above three, namely, the needs to:

(4) delay use of maximization while analyzing problems and issue resolving until such processes establish the preconditions for maximization well enough for “limited purposes at hand” through (a) iteration or experimentation with alternative possible solutions to the problem or issue at hand, and, (b) interaction with persons concerned about and likely to be affected by the alternative solutions to specific liberalization problems and issues;
(5) recognize that the iterative interaction called for in (4) is a possible source and a means of acquiring knowledge of welfare possibly with usable degrees of interpersonal validity; and,

(6) be sufficiently flexible philosophically and holistic enough to address problems and issues involving justification for imposing uncompensated losses on some or for not compensating such losses imposed on them in order to confer benefits on others. This objective attention to both the normative and positive dimensions of such problems or issues.

When \( P_D / P_S \) differentials and imperfect knowledge are recognized in neoclassical economic theory, that theory indicates that exports non-pareto optimal losses will be imposed on some while gains are conferred on others. From this it follows that the consequences of institutional changes that give market forces greater control in an economy cannot be assumed to bring about an automatic increase in either the welfare of all concerned and even in the total welfare of those involved. Analysis recognizing acquisition cost/salvage value differentials and imperfections in knowledge are needed to help determine who will be damaged and benefitted, how, where, when, and in what ways, from such changes. In turn, this creates the need for (2) above. Such empirical work is essential in solving trad problems and in resolving trade issues. To recognize this is not as McCalla asserts "a time-worn economic cop-out" — instead, it is the logical consequence of recognizing what is wrong with "time-worn," inappropriate applications of "Econ 101" theory to trade problems and issues!

III. Conceptual and Empirical Progress Since 1932

Much conceptual progress has been made since 1932 that helps meet the six needs listed in the previous section of this paper.

Farm management (Johnson and Hardin 1955, p. 623) and supply response (Johnson 1956, pp. 74-93) work let Clark Edwards (1958) to formalize in rigorous mathematical form the theory Ōtsuki had used (unbeknownst to Edwards) in 1932 (Edwards 1959). Edwards explicitly avoided the stock/flow conversion difficulty Ōtsuki had informally in 1932, thereby calling that formidable theoretical difficulty to the attention of Francis Idachaba and Alan Baquet (1978, 1979), who formally addressed it. Baquet's work contributes substantially to the resolution of the user cost and stock/flow conversion difficulties that plagued J.M. Keynes, Arthur Lewis, and Georgescu-Roegen.
Otuski's theory was extended by Edwards and Johnson to endogenize the determination of length of run in supply response studies and to explain asymmetry of supply responses to price changes; both of which have been largely ignored in widely accepted international trade studies such as those referenced by McCalla (1993) in his fellow's address to the American Agricultural Economics Association. Johnson's and Edwards' theory explains the tendency of competitively organized, market-controlled economies to outproduce effective demand and impose non-pareto optimal losses on producers when knowledge is imperfect and $P_A > P_S$; this tendency was confirmed by extensive empirical research by several scholars that is reported in different chapters of *The Overproduction Trap* (OPT) (Johnson and Quance, eds., 1972).

Like Otuski's less formal theory, Edwards' and Baquet's formal mathematical treatment provided a better understanding of the roles played the opportunity costs, a development missed by Johnson and Pasour (1981) who incorrectly asserted (Johnson 1982) 22 years after Edwards published his article in the American Journal of Agricultural Economics that asset fixity theory analysis did not explain the roles opportunity costs play in resource allocation. Unfortunately, the Johnson/Pasour mistake appears to have interfered with general acceptance of asset fixity theory for doing policy studies (Petit forthcoming). Probably, the impact of the Johnson/Pasour mistake has been amplified by an unjustified belief on the part of free-market adherents, activists, and advocates that the market can do no wrong, i.e. they do not recognize that the actual consequences of free-market adjustments are often ex post non-pareto-optimal even if anticipated ex ante to be pareto-optimal. Modern day free-trade advocates typically ignore the acquisition cost/salvage value differentials and imperfect knowledge of the real world that impose losses on some and benefits on others whether or not trade policies and programs are changed. Investors, however, are made painfully aware of such gains and losses as are public decision makers who are impacted by political processes involving such investors whether on the Asian Pacific Rim or in North America and Europe (McCalla 1993).

While advances in asset fixity theory have greatly increased our ability to determine who has been or will be hurt and/or benefitted by policy changes, we still have difficulty in making interpersonally valid measures of welfare for use in determining the net gains or losses in welfare from non-pareto optimal policy changes now facing Pacific Rim agricultures.
Conceptually, the development of ability to measure welfare with interpersonal validity has probably been hampered by the dominance of logical positivism which holds, dogmatically, that no descriptive knowledge of the values of conditions, situations, things, and acts is possible (Johnson 1986, Chs. 4, 5, and 6). Offsetting this are the ideas of G.E. Moore (1959), C.I. Lewis (1955), pragmatic Wisconsin institutionalists, and members of the German school of historical economics. The institutionalists are interested in valuational processes in which problem solvers iteratively explore the values involved in solving problems in close interaction with concerned persons and groups (Samuels forthcoming).

Observation of public and private problem-solving and issue-resolving experiences and efforts indicates that iterative interactive processes (as a prelude to and sometimes as a substitute for formal optimization) are crucial and necessary. This appears especially true when addressing the problems and issues involved in adjusting Asia’s Pacific Rim agricultures to the GATT mandates and to the reality of present world agriculture and the present international situation. The next main section of this paper describes improvements in empirical approaches for engaging in such iterative interactions in analyzing trade problems and issues.

During the sixty years since Ôtsuki wrote his paper, there have been substantial developments and improvements in econometrics and programming that facilitate the use of the asset fixity theory developed by Ôtsuki and his successors. Both of these techniques are widely used in analyzing trade problems. Michel Petit used asset fixity theory in an econometric model (Petit 1964, 1965) with good results. Linear programming models can be readily adapted to utilize asset fixity theory, so long as the rates at which services are extracted from durables are left fixed (Lard 1963, Young 1965).

Practical international trade problems and issues are typically multidisciplinary. They usually involve political science, geography, biological and physical science technology, human development, and the like, in ways unmanageable with econometric and programming models specialized on economics. Models that are more general, more holistic, and more multidisciplinary than most econometric and linear program models are needed to utilize theories, facts, and techniques from all of the disciplines relevant for a particular practical problem or issue at hand. Despite this, economists often use specialized economic models that assume perfect knowledge and acquisition costs equal to salvage values in analyzing holistic multidisciplinary trade problems.
and issues and then complain when their results are not accepted by government administrators, legislators, and industry leaders who are aware of (1) the omitted disciplinary dimensions of the practical problems and issues they face and (2) the losses resulting from imperfect knowledge and salvage price/acquisition cost differentials. Similarly, they use terms such as "ever elusive [holy] grail" in writing about trade liberalization (McCalla 1993).

The use of scenarios and general systems simulations in addressing problems and issues in an iterative/interactive multidisciplinary manner unconstrained by specific techniques and philosophic orientations will be further discussed in the next part of this section. This approach is sometimes referred to as a general systems simulation approach (or analysis)(GSSA). Also to be discussed is what is sometimes called the transactions cost approach to public choices that is referred to here as the public choice/transactions cost (PC/TC) approach. A Novel Prize was awarded to one of its creators, James Buchanan (with Tullock, 1962). Other contributors (three of whom have also received Novel Prizes) include Gordon Tullock (Buchanan and Tullock 1962), Oliver Williamson (1985), Herbert Simon (1978), Ronald Coase (1988), Douglass North (1987), Dan Bromley (1989), Warren Samuels (1992), George Stigler (1975), and Vincent and Elinor Ostrom (Vincent Ostrom 1987, Vincent Ostrom et al. 1988) from law, business administration, history, and anthropology as well as economics. The approach has been used successfully by such agricultural economists as Bromley (1989), James Shaffer (1987), John Staat (1991, pp. 98-104), Petri Olilla (1989), myself (Johnson 1987; Johnson and Okigbo 1989); Konrad Hagedorn (forthcoming); and Rausser (1982). The main report of the Social Science Agricultural Agenda Project (SSAAP)(Johnson et al., eds., 1991) finds that the approach has great potential for studying policy and program choices. The approach has even greater promise if asset fixity is incorporated in it and used to help appraise proposals to create new institutions or to dismantle existing ones. The SSAAP report indicates that the interrelationship of institutions in their three interdependent manifestations — rules of the games, organizations, and facilities — should be included in further development of the PC/TC approach for use in studying policy choices concerning the institutions that control the agricultures of Asia’s Pacific Rim (Johnson et al., 1991, pp. II-8-12 and III-52-54, including cross-references).

Conceptual and empirical progress are intimately related because (1) concepts guide empirical work and (2) empirical work tests theoretical concepts and suggests needed modifications in them. An important
empirical advances since 1932 for use in addressing the adjustment
problems of Asian Pacific Rim agriculture is the computerization of
scenario analyses and the evolution of scenario analysis into the general
systems simulation approach (GSSA). That approach was used in the
Korean Agricultural Sector Study (KSSA) (Rossmiller et al. 1972;
Rossmiller ed. 1978). It was also successfully used earlier in Nigeria
(Johnson et al. 1971). A fairly recent Iowa State University book enti-
titled Systems Economics: Concepts, Modes and Multidisciplinary
Perspectives by Fox and Miles (1987a) is an excellent general reference.
The GSSA approach at its best lets the domain of the problem or issue
being addressed determine the mix of disciplinary theories and specific
techniques used in a model. GSSA is an approach not a technique — it
is not specialized on economics. Optimization components and com-
ponents presuming optimizing behavior can be used if appropriate, but
are not inherent or central to the GSSA approach (Johnson 1987).
Such flexibility lets the approach be used iteratively and interactively
to help establish the preconditions for optimization. Given the efficien-
cy of modern computers, it is cheap to use GSSA models to experiment
with and iteratively explore the consequences of policy and program
alternatives. It is also feasible to involve decision makers and people
affected by their decisions in both the design of such models and in
creating the policy and program alternatives to be explored with them.
Such iteration and interaction as part of the process of solving prob-
lems and resolving issues provides analysts and decision makers the
time and a way of establishing the preconditions for whatever op-
timization they eventually find it advantageous to use in choosing
among the alternatives developed and considered. The process some-
times involves reaching agreements on decision rules including how
political, market, police, military, and other kinds of power are to be
used in making decisions. Even more importantly, iterative inter-
actions keep the evaluative process open (Renborg, 1976; Samuels
forthcoming) thus permitting increases in the interpersonal validity of
welfare (value) knowledge. In turn, this helps in reaching decisions the
consequences of which inevitably harm some while benefitting others.
Iterative interaction between investigators, on the one hand, and deci-
sion makers and affected persons and groups, on the other, becomes a
source of normative information interpersonally valid enough to be
used to help solve problems involved in adjusting Pacific Rim Asian
agricultures to the results of GATT’s Uruguay round of negotiations.

In the previous section on conceptual progress, the public choice/
transactions cost (PC/TC) approach was introduced. This highly
respected (but nonetheless still primitive) approach can be incor-
porated into GSSA models to address problems of changing the institutions that control the agricultures of Asian Pacific Rim countries. Institutions, like other assets, are subject to fixity. As previously noted, institutions exist in three interdependent forms: (1) rules of the game, (2) organizations, and (3) physical facilities (including staffs). The asset fixity theory developed by Ōtsuki in 1932 and refined by others in recent years can be used when combining the GSSA and PC/TC approaches to estimate the consequences of adjusting investments in the institutions controlling Asia's Pacific Rim agricultures. In effect Ōtsuki's approach to the study of investments in agricultural production can be extended to cover possible dismantlement of existing institutions and establishment of new institutional controls of Asian Pacific Rim agricultures.

IV. Opportunities to Contribute to the Adjustment of Pacific Rim Agricultures

On the western Pacific Rim, the agricultures of Japan, S. Korea, and Taiwan are highly protected from world competition, particularly with respect to rice, livestock, and fruit production. Japanese protectionism is difficult to pin down because much of it is effected through government/industry arrangements not easily classified as either tariffs or import quotas. Japanese consumers have paid unnecessarily high prices for food. Japan's trading partners through GATT have now required that Japan ease its protective practices for both farm and nonfarm products.

Decisions about such adjustments for Japanese, S. Korean, and Taiwanese agriculture, as in Ōtsuki's time, require recognition of (1) acquisition cost/salvage price differentials for institutions as well as for investments and disinvestments in agricultural production, (2) imperfect knowledge, and (3) the importance of nonpecuniary costs and benefits. Such recognition makes it clear that elimination of trade barriers is not automatically for the "good of all concerned." The "law of comparative advantage" cannot be invoked to reach automatically the conclusion that trade should always be liberalized; reciprocally, the existence of imperfect knowledge and acquisition cost/salvage value differentials does not automatically support contrary conclusions. Neoclassical theory used in analysis that recognize these realities indicates that we need to know who and what groups will be hurt and/or benefitted, and how, where, when, and in what way. Investigations that are iterative and interactive with concerned persons and are nor-
mative as well as positivistic are needed to improve such knowledge. Careful, greatly improved, objective investigations are needed to generate the required value-free and value knowledge.

Presently, high rice prices keep Japanese agricultural resources in extensive rice production while she purchases intensively produced flowers, aquacultural products, oriental agricultural specialties, and vegetables from Taiwan. Some of these intensive products could be produced with resources Japan now uses to produce rice at costs above import prices for rice. Thus, the losses for Japanese farmers, adjusting out of rice may not be as high as feared. This, of course, indicates a need for solid farm management and agricultural marketing research on Japan’s agricultural adjustment problems and for the use of such research in models used to determine the consequences of alternative adjustments.

Japanese pay much higher prices than necessary for rice, livestock products, fruits, and some vegetables. Studies of the incidence of these prices on different income groups, age categories, urban versus rural people, and the like are needed along with similar studies for tariffs, quotas, and other import restrictions.

A reason often given in Japan for subsidizing rice production is the need to preserve open green space. This raises several questions for research including: Is rice production the best “open green” use for land in an industrialized urban area? Might the land be better used for parks, athletic fields, or children’s playgrounds? Also, rice paddies in Japanese hills and mountain valleys are often small and unproductive. Would some of these be better used if the valley streams were restored and the areas made into parks and recreation areas? Serious ecological questions exist about the use of mountain and hill valleys and streams for irrigated rice paddies in a highly populated, wealthy country such as Japan that is exerting great pressure on its land and natural recreational resources.

The possibility of retaliation from trading partners and the consequences of such retaliation on Japanese consumers and industrial workers and, through them, Japanese farmers, must be also taken into account in making decisions not to liberalize trade on agricultural and other products.

Even without retaliation, the heavy dependence of Japan, S. Korea, and Taiwan industries on North American and European markets is dangerous for them and for the world of which they are an important major part. Cheaper labor and external capital and tech-
nical assistance make mainland Chinese and Latin Americans' industrial products increasingly competitive in North American and European markets. The recently enacted North American Free Trade Agreement increases the competitive position of Mexican versus Japanese industrial products in U.S. and Canadian markets. Japan, S. Korea, and Taiwan run major trade surpluses with their trading partners. These deficits are particularly large with the United States of America whose own fiscal deficits have long "primed the pumps" of these same three countries. The elimination of the U.S. fiscal deficit would have serious implications for these countries. Since World War II, the integration of the world's financial markets has made it impossible to confine the pump-priming effects of a trading country's fiscal deficits to its own economy. The fiscal deficits of the U.S. government have long permitted countries such as Japan, Taiwan, S. Korea, and several in Europe to run long-term trade surpluses with the United States because the dollars acquired from trade surpluses did not have to be used to buy commodities from the United States or third countries so long as U.S. government bonds (to finance the fiscal deficits) were available to the world's exporters and investments in U.S. real estate by those exporters were permitted. Political efforts to eliminate the fiscal deficit, to force trading concessions, and even to restrict real estate and other investments by foreigners do exist in the United States. Even if such efforts come to nothing, U.S. price levels will continue to increase and the value of the dollar will likely continue to fall relative to the Yen, both of which will be detrimental for industrial exports to the United States.

Probably full, appropriate, objective investigation of Japan's structural adjustment problems will indicate that in general she should liberalize her trade policies and practices not only for agricultural products but for industrial ones as well — however, the answer to this empirical question is not provided from the usual forms of neoclassical economic theory. Much difficult empirical work is needed. Such work should draw on recent conceptual advances, improved techniques, and improved computational facilities.

It should be stressed here that scientists and researchers of any country are never alone when addressing such tough complex research responsibilities. The agricultural adjustment problems of such Pacific Rim countries as S. Korea and Japan and the Province of Taiwan are so similar that agricultural sector models for them would necessarily have many common components. This indicates that advantages are likely to come from collaboration among researchers in these countries. Further, inasmuch as the United States, Canada, and Australia
have substantial interests in all three of these Asian Pacific Rim countries, the collaborative effort could advantageously include personnel and research agencies in those countries.

There are also historical experiential reasons for looking to S. Korea as a place to start in investigating the problems and issues of the long-term structural maladjustment of Asian Pacific Rim agricultures that have been given immediate priority by the trade liberalization recently mandated by the Uruguay round of GATT.

V. Analyses of Structural Adjustment Problems of South Korean Agriculture — Past and Current

Over twenty years ago, personnel from Michigan State University (MSU) used S. Korean and USAID resources to cooperate with personnel from the Korean Ministry of Agriculture and Forestry (MAF), S. Korea’s Agricultural Economics Research Institute (AERI) and other S. Korean institutions to build the Korean Agricultural Sector Study (KASS) model.¹

There is now some interest in redoing the KASS model to address the problems and issues of modern-day S. Korean agriculture, especially those involving trade liberalization. Today’s problems and issues differ greatly from those faced when the KASS model was built in the 1970s. Lee, Sang Mu; Director General of Agricultural Structural Policy Bureau; Korean Ministry of Agriculture, Forestry, and Fisheries; has discussed with the author of this paper the need to recall some of the lessons learned in the 1970s and to explore some of the opportunities that have emerged as a result of advances in both concepts and techniques that have been made in various disciplines since the early 1970s.

In the 1970s, S. Korea’s computer facilities were meager compared to those of the U.S.A.; today, they are the equivalent. Then, S. Korean skills for working with computers were limited; now, such S. Korean skills are abundant. Today, S. Korea can provide its own computational facilities and personnel for work such as discussed below.

¹ Kim, Dong Hi; Kim, Sang Gee; and Kim, Young Sik were Korean authors of the first report. Park, Jin Hwan; Rhee, Duck Young; Yang, Yoon Sae; Kim, Yong Jin; Kim, Gong Min; Shim, Kyo Bo; Kim, Sung Hoon; and Kim, Ho Tak among many others played important roles. Among the many Korean students at MSU who contributed significantly were Lee, Jeung Han; and Lee, Seong Woo (Rossmiller et al. 1972).
The situation, however, is different with respect to the advances in concepts and theories to be used in building a model of S. Korea’s present-day agriculture; in this case, agricultural in all countries need help and to help each other.

Academicians in the U.S.A. and, I, suspect, most Pacific Rim countries have become so specialized on disciplines in recent years that it is now increasingly difficult for them to model the multidisciplinary dimensions of agricultural sectors or, more particularly, of practical multidisciplinary issues and problems. Applied work specialized in their own disciplines is about as far as many analysts want to go in the practical direction. Ironically, at the same time, our societies are more and more plagued with such multidisciplinary problems and issues as those involving international trade, environmental quality, food safety, sustainability, privatization, health care, biotechnology, drug abuse, racial inequality, energy availability, gender inequality, and the like, none of which yield fully to specialized disciplinary efforts whether by economists, molecular biologists, psychologists, atmospheric scientists, historians, chemists, anthropologists, physicists, political scientists, bacteriologists, or sociologists. The current trade liberalization and structural adjustment problems and issues of the Pacific Rim agricultures demand holistic, multidisciplinary analyses done iteratively and inactively. Unfortunately, academe, its administrators, and its researchers now attach so much prestige and significance to disciplinary accomplishments that it is difficult to get younger researchers to work on practical multidisciplinary problems and subjects. Though this difficulty hampered KASS work twenty years ago, it appears even more constraining today. In Research Methodology for Economists (Johnson 1986), Chapter 2, the case studies of Chapters 10 through 12, and Chapters 13 through 16 on research administration consider the tensions involving disciplinary and multidisciplinary problem-solving and subject-matter work done by economists. Today, S. Korea and the other Asian Pacific Rim countries need to treat practical, multidisciplinary problem-solving and issue-oriented research on their agricultural institutions as essential and as worthy of as much respect as accorded to disciplinary research.

Fortunately and probably in part because of the modern heavy emphasis on disciplines, multidisciplinary modelers of agricultural sectors are now fortunate to have disciplinary components with which to work that are superior to those used in the KASS model. And, thanks to independence from disciplinary dogma of persons such as those cited elsewhere in this paper, we have guidance to follow in using such advanced disciplinary components to build multidisciplinary models of
subject-matter and problem-solving domains. This opportunity to use disciplinary advances in practical multidisciplinary studies should not be missed. A fundamental complementarity or synergism exists between disciplinary and practical work which, if disregarded, imperils both disciplinary and practical progress. The need is for full exploitation of this complementarity.

What follows attempts to indicate how recent advances can be used to improve research on needed changes in the S. Korean agricultural institutions and programs in which S. Korea invests, disinvests, or accepts as fixed. The public choice/transaction cost approach promises to be the most important (for the work proposed here) conceptual advance since the KASS work of the early 1970s (Johnson et al., eds., 1991). This advance was made by political scientists, legalists, historians, and economists. Also as indicated above, other important advances have taken place in asset fixity (alternatively, investment/disinvestment) theory. These, too, should be exploited.

Twenty years ago, KASS workers did not distinguish carefully between subject-matter and problem-solving models. Actually, they built a fairly multidisciplinary subject-matter model of S. Korea’s agricultural sector. The model was a subject-matter model in the sense that it generated a multidisciplinary body of knowledge useful to a fairly well-defined set of practical problems faced by S. Korean agriculture. While the knowledge generated by the KASS model was useful in addressing a wide range of problems, it was incapable of solving any single problem! Ironically, the KASS study had been earlier “sold” by the author of this paper to the USAID/Seoul Director and the Deputy Prime Minister of S. Korea as problem-solving in nature. That honest mistake was later revealed when administrators in the MAF asked for assistance in using the KASS model to solve practical problems then being addressed in the MAF’s Planning Bureau. A special S. Korean Agricultural Planning Project (KAPP) was established to provide such assistance. KASS and KAPP administrators soon realized that the KASS model was actually a subject-matter model that generated a body of multidisciplinary knowledge useful in solving an important set of problems for agricultural decision makers in the S. Korean government but was incapable of solving even one specific practical problem by itself! It took much ad hoc work on the part of KAPP personnel to even partially integrate KASS model results into the Planning Bureau’s problem-solving work. For instance, the KASS model was extensively used by Johnson and Wittwer (1972) to address the very practical problem of whether USAID (Seoul) and the Republic of Korea government should make substantial additional investments in technical
research on rice, winter forage crops for the paddies in the northern part of S. Korea, barley, and soybeans. For this problem, the KASS model had to be supplemented with additional multidisciplinary information about gene pools, the kinds of technical research facilities needed, climatology, Korean tastes and preferences, manpower availability, and the like. The model also had to be modified to accommodate such information before this specific problem could be addressed. After considerable iterative interaction, a joint USAID/Republic of Korea decision was reached in favor of the investment. Another successful related problem-solving effort resulted in a "Grain Management Program Model" that was developed as a special accessory to the KASS model to address problems involving grain procurement (from both S. Korean farmers and abroad), grain storage, grain pricing, and grain releases to consumers (Gibson 1972). Again, the KASS subject-matter agricultural model was generally useful but had to be broadened and specifically adapted in an iterative, highly interactive process to address the grain management problems of S. Korea.

If another modernized agricultural sector model is to be built for S. Korea to address trade liberalization problems, it should be recognized from the start that it will be a subject-matter model. Subject matter models should be built to generate a body of multidisciplinary knowledge useful to a relatively well-defined set of decision makers (and affected persons and groups) facing a rather well-defined set of problems (Johnson 1986, pp. 12-14, and Chs. 11 and 12). Identification of the two sets (of decision makers and problems) helps model builders design a subject-matter model. The design of the 1972 KASS model suffered from failures to recognize its subject-matter nature and adequately identify the set of decision makers to use it and the set of problems it was to help solve. In retrospect, it is surprising that KASS was as useful as it was. This difficulty should be minimized if a new S. Korean model is built. Avoiding it requires that the anticipated users of the new model be involved in its design and that they help identify the problems and issues it will be used to help solve or resolve. It should be fully recognized that it is impossible to design a problem-solving model that will solve, by itself, a large number of practical problems. One understands this impossibility as soon as the great multidisciplinary diversity of problematic domains and the importance of processes in solving individual problems are recognized (Johnson 1987, pp. 85-109; Fox and Miles 1987b, pp. 180-194; Renborg 1976; Samuels forthcoming; Johnson forthcoming a; and Johnson forthcoming b).

Multidisciplinarity makes it disadvantageous and dangerous to rely
chauvinistically on a single discipline such as economics, political science, ecology, or sociology to structure the proposed model. In most instances, a model balanced according to the actual importance of the individual disciplines in the domain of a problem or subject is regarded as unsatisfactory by the disciplinarians in each of the disciplines involved. This is probably about as it should be for a properly balanced model!

The earlier KASS experience indicated that perhaps the most generally useful structure to build into a sector model is the relevant part of the national accounts. National accounts generally generate many of the performance or criterion variables familiar to decision makers and concerned persons. National account components increase the acceptability of sector models to their potential users.

The KASS and other related experiences also indicate that the acceptability of a model for addressing a specific problem or issue results from passing four tests that tend to be applied by its users. Those tests can be stated in the form of four questions; the first two of which require negative answers for approval. One: Does the model omit kinds and sources of information known to be important for the problem or issue at hand? Two: Does the model omit logic and reasoning known to be relevant for the practical problem or issue at hand? Three: Does the model "work" when used to address the practical problem or issue at hand. Four: Is the model free of ambiguity; i.e., is it clear? Of course, all models are subject to all of these difficulties to some degree at least. Fortunately, users do not demand perfection but they do want, pragmatically, the imperfections to leave the research "good enough" for "purposes at hand." Students of research methodology will recognize the relation of the above four questions to the "tests of truth (falsity)" used by scientists, namely correspondence, coherence, workability, and clarity (Johnson 1986, pp. 43-51, 57-62, and 68-69).

The KASS and related experiences indicate that computerization contributes more to computational efficiency than to the conceptual structure of a model. The efficiency of computers, however, makes it feasible to build and use models that would be prohibitively expensive if done with paper, pencils, and calendars. On the basis of experience with U.S., Nigerian, and S. Korean wages and salaries at 1970-1975 levels, it can be judged that computerization reduced the cost of building a sector model at that time by about 90 percent and operating costs, once built, by a much larger percent, say 99.9.

Lee, Sang Mu's paper (forthcoming) on needed S. Korean agricultural reform is reviewed in the following paragraphs. After that
review, this paper indicates more specifically how advances in asset fixity theory can be combined with recent advances in what is termed, here, the public choice/transaction cost (PC/TC) approach for use in building a new multidisciplinary S. Korean agriculture subject-matter model to assist those engaged in structurally adjusting S. Korea’s agriculture to present day conditions. The PC/TC approach was developed by Nobel-Prize-winning contributions from James Buchanan (Buchanan and Tullock 1962), Ronald Coase (1988), Herbert Simon (1978), and George Stigler (1975), and by others such as Gordon Tullock (Buchanan and Tullock 1962), Warren Samuels (1992), Douglass North (1987), and Oliver Williamson (1985). As indicated earlier in this paper, recent developments in asset fixity theory suggest some very promising improvements to be made in the PC/TC approach which is, in many ways, surprisingly primitive. If such improvements are made in it, the PC/TC approach will, in my opinion, have very great usefulness in addressing the problems of institutional change now confronting the agricultures of S. Korea and other Pacific Rim countries.

Lee, Sang Mu presented a paper on Korea’s past, present, and future agricultural policies at a George Washington University conference on “Korea in Transition,” April 22-23, 1993. In contrast to the 1970s when the KASS study was done, Lee’s paper placed heavy stress on possible reunification of Korea. Also in contrast to the 1970s, Lee recognized that S. Korea now has an established place in world industrial markets that requires it to consider liberalizing its agricultural trade and price policies and programs. Lee’s paper was written before trade liberalizations were mandated by GATT.

Lee’s paper focuses substantially on needed institutional changes that would profoundly influences S. Korean agriculture. His paper reflects a commitment to trade liberalization — even for S. Korea’s highly protected agricultural sector products. He describes S. Korea’s dual price system for rice in detail along with the political pressures from S. Korea’s farmers to preserve that price system. S. Korea’s farmers “collect income or rent” generated by the two-price system. Lee paid little attention to governmental responsibility for establishing the two-price system. In the 1970s, S. Koreans worried more than they do now about food self-sufficiency because the “cold war” was then hot and North Korea was more threatening. Also, S. Korea’s foreign exchange balances were negative in the 1960s and 1970s and she depended on securing food grains through concessional sales of grains from the U.S.A. and other grain exporters. S. Korea used a dual price-support system, moral persuasion, technical assistance, and other
means to encourage her farmers to invest in grain production. Asset
fixedity theory and related empirical work confirm that imperfectly in-
formed farmers often overinvest in assets whose acquisition costs ex-
ceed their salvage value both with and without price support
(Ôtsuki 1932; Johnson and Quance, eds., 1972). The S. Korean
government bears responsibility only for those overinvestments in its
agriculture that were prompted by the high prices it established to gain
greater self-sufficiency. S. Korean farmers and “the market system”
are responsible for the additional overinvestments they mistakenly
made even for the high price-support levels. It seems likely that much
of the overinvestment S. Korea’s “rent-collecting” farmers are now
trying to protect is a result of actions taken by the S. Korean govern-
ment. This does not change the current need to restructure S. Korean
agricultural institutions but it does greatly change what is justified in
the way of compensatory assistance in adjusting S. Korean agriculture.
S. Korea’s present agricultural adjustment problems arose, in large
part, because her farmers responded to the needs of S. Korea in the
1970s and 1980s as expressed in governmental policies, programs, and
pronouncements. As a minimum, a new model must be capable of ex-
ploring the consequences of alternative institutional changes to help S.
Korean farmers adjust out of the present situation.

Ôtsuki (1932) wrote about the problems of preserving invest-
ments made by Japanese farmers prior to 1932 who were then
threatened by competition from farm production in Manchuria, then
newly occupied by Japan. He knew a great deal about asset fixedity in
agriculture and the importance of not wasting overcommitted
resources. Like Lee, he considered ways of assisting farmers and rural
areas in making adjustments to minimize losses on overcommitted
resources.

Lee’s paper implies that a new model should also be able to esti-
mate the consequences of policy and program adjustments such as (1)
changing land tenure laws to permit larger farms, (2) expanding and
improving the infrastructure that serves S. Korean agriculture, (3)
shifting support from rice to products with higher income demand
elasticities with emphasis on oriental tastes and preferences for vege-
tables, fruits, livestock products, aquaculture products, flowers, and
landscaping materials for both domestic use and export, (4) tech-
nological advances, (5) diversifying commercial and industrial in-
vestments away from S. Korea’s major cities into the countryside, (6)
successor programs to S. Korea’s New Community Movement
(Sae/Maul Undong) Program, and (7) agricultural research and out-
reach programs with balanced emphasis on human development,
resource (both natural and manmade) enhancement, institutional improvements, and technical advances. I would add that the model should also be capable of estimating the consequences of (1) removing nontariff and nonquota restrictions on imports into S. Korea, (2) reunification on Korean agriculture, and (3) the possible impacts on S. Korea of either reduced "priming" of S. Korea's economic pump by U.S. fiscal deficits or of much more U.S. inflation and/or further consequent drops in the value of the U.S. dollar.

There is a great need for knowledge on how proposed institutional changes would hurt and benefit different S. Korean groups when, where, and in what ways. Despite the excellence of Lee's paper, it does not contain enough detail to guide the construction of a new model to provide the knowledge outlined as needed above. Additional working papers and conferences on the above topics and many other as yet undetermined subjects would be needed. The authors of these working papers should include capable experts from many disciplines with knowledge and skills pertaining to the four driving forces for development, namely: institutional improvements, human development, enhancement of natural and manmade resources, and technological improvement (Johnson et al., eds., 1991, Part III, The Four Driving Forces..., pp. III-1-180). Working paper authors and conference invitees should also include leaders, decision makers, and potentially affected persons with firsthand knowledge of S. Korean rural people and the S. Korean users of farm products as well as knowledge about S. Korean farming and rural institutions.

The above stresses the importance of iteration in building models for studying adjustment problems. It also stresses the need for interaction with affected groups and persons. This iterative/interactive process should start during the production of working papers and the organization of conferences. It should continue during the design of a new model on through use of its outputs in efforts to solve specific problems and resolve issues (see Johnson 1986, pp. 160-172; Johnson and Rossmiller 1978, Ch. 2; Johnson 1987). The needed iteration involves experimentation with alternative model components and designs suggested by interaction with decision makers and affected persons who hold power either actual or supposed (Johnson 1986, pp. 18-19, 23-24, 230-233). Alternatives need to be tested for their relevance in close interaction with decision makers and the affected persons and groups who have power, either actual or imagined. Such iterative interaction will help focus the model on generation of results relevant to the problems faced by the decision makers and affected persons and groups represented by authors of the working papers and others with
whom project leaders should interact. The KASS experiences in the 1970s and other experiences since then teach an important lesson that investigators conducting problem-solving work must appreciate — namely, that such work must be conducted interactively with decision makers and potentially affected persons or groups holding power and having knowledge of both value and value-free knowledge to be considered in solving specific problems. This requires that problem-solving work be done in an interactive, iterative manner to obtain feedback of knowledge known to decision makers and affected persons (Samuels forthcoming, Renborg 1976).

Lee’s paper indicated that important institutional changes were ahead for S. Korean agriculture with or without GATT. These changes were not only in its price-support and trade institutions but also in its institutions that (1) create new technologies, (2) develop human skills (human capital), and (3) enhance natural (land) and manmade (capital) resources. Thus, it is appropriate to consider rather specifically what would be involved in using asset fixity theory and what is called here the public choice/transaction cost approach to institutional change in building a new S. Korean agricultural sector model.

VI. Asset Fixity Theory and Further Developments of the PC/TC Approach Needed for Use in a New Model of S. Korean Agriculture

It was indicated above that the PC/TC approach is primitive despite its prominence in recent Nobel Prize awards for economics. The approach needs further development in several respects if asset fixity theory is to be incorporated in it so that the two can be used to determine much better than we now do when institutions are fixed versus situations in which institutions can be advantageously dismantled, augmented, and/or replaced. We still have to learn much about how to carry out such analyses. Modeling the S. Korean agricultural sector in this period of institutional change would provide an excellent opportunity to move ahead on the needed developments stressed above.

Most modern day PC/TC analysts have not yet discovered that institutions are fixed when they generate returns worth more than the net obtainable from their dismantlement but institutional improvements yield returns worth less than their cost. Like quasi-rents on fixed production assets, positive rents on fixed institutions are collected with respect to net returns from dismantlement whereas negative rents are incurred with respect to establishment costs. Rents, like institutional costs, are both monetary and nonmonetary. Further the gains and
losses go to different people. Thus, the consequences of dismantling price-support and trade-constraining institutions are generally not as pareto-optimal as free-trade and free-market advocates presume them to be when they disregard imperfect knowledge and acquisition cost/salvage value differentials for institutional changes. This makes it imperative to do extensive iterative interactive analysis of proposals to dismantle trade constraints and eliminate price supports and to raise questions about how best and whether to compensate the losers. Estimates are needed about who will be hurt and benefitted, how, when, and where. Simulation models and/or analyses built around fixed asset (including institutions) theory as part of a PC/TC approach have great promise. Though such studies can advantageously be computerized, they need not be to be effective as evidenced by Shen's recent study of institutional changes in Poland and Czechoslovakia (Shen 1993, Johnson forthcoming c).

Appendix A of this paper is taken directly from a recent report on agricultural research agendas for the rural social sciences (Johnson et al., eds., 1991, pp. III-52-53). That appendix indicates what is required if the PC/TC approach is to be extended to use asset fixity theory in modeling institutional changes for S. Korean and other Pacific Rim agricultures. It provides for further development of the PC/TC approach in a manner that uses asset fixity theory to model iteratively and interactively the processes of deciding to change or not change the institutions that control S. Korean agriculture. The book from which Appendix A is taken also contains separate sections dealing with institutions that change technologies, develop human capacity, and which create and enhance natural and manmade capital. Most of the book was left uncopylefted to facilities its use anywhere in the world. Photo reprotuation (with or without translation) is encouraged. The book is a readily accessible resource.

VII. Some Closing Thoughts

The above proposal is compact and sketchy. Further, it pertains not to what has been done but to advanced, very complicated and difficult work that we still need to learn how to do. On the basis of my Asian Pacific Rim experiences and work with Asian colleagues and graduate students, there is clearly much S. Korean and Asian capacity to do the advanced work sketched out above. Articles by Ahn (1981, 1987) illustrate this capacity. There is now a major opportunity to contribute to the structural adjustment of S. Korean agriculture and S.
Korea that are the concern of the Agricultural Structural Policy Bureau of Korea's Ministry of Agriculture, Forestry, and Fisheries. Similar opportunities exist for Japan, the Province of Taiwan, and for the rest of China. The opportunity is one of breaking new ground both intellectually and in modeling, the two being highly interrelated.

The problems of adjusting S. Korean, Japanese, and Taiwanese agriculture are part of a large, complicated, interrelated set of international problems. Much more is involved than just agrarist fundamentalism or free trade and comparative advantage conclusions from oversimplified forms of neoclassical economic theory. Ideally, the problems of adjusting the agricultures of Asia's Pacific Rim should be addressed by agricultural economists of these countries working with each other and with general economists and other disciplinarians. But that is not enough — this paper indicates that such work should be iterative and interactive with concerned decision makers, farmers, and consumers not only in S. Korean and other Pacific Rim countries but in many other parts of the world as well. There is a need for interactive work with researchers in S. Korea's, Japan's, and Taiwan's trading-partner countries. Reputable U.S., Canadian, Australian, New Zealand, and European scholars and researchers would likely join such efforts. An organization of former high level agricultural policy makers already exists. It is "The International Policy Council on Agriculture and Trade," 1916 P Street N.W., Washington, D.C., 20036. That organization might prove helpful in developing such cooperation.

In closing, it should be stressed that research such as outlined above will not always support or oppose specific trade liberalization proposals. Whether it does or does not will depend on the results of an iterative/interactive research process that uses theory and an empirical approach sufficiently flexible and objective to produce either kind of conclusion in analyzing the many specific problems and issues as they arise.

Appendix A

Models to use in studying needed structural adjustments in S. Korean agriculture need to

- Recognize that institutional change manifests itself in interdepen-

2 The following is from Johnson et al., eds. 1991, pp. III-52-53.
dent changes in:
■ "Rules of the game"
■ Organizations
■ Physical properties, facilities, staffs, and equipment of organizations

• Work on institutional changes (in all of the above manifestations) to examine:
  ■ Stock establishment costs for new institutions being considered for farming, agribusiness, rural societies, and consumers;
  ■ Stock dismantlement costs for farm, rural, and consumer institutions being considered for elimination or replacement;
  ■ Stock nonmonetary as well as monetary costs of and returns from institutions being considered for dismantlement and establishment; and
  ■ The incidence of such costs and returns.

• Recognize that establishment and dismantlement costs ... include the following:
  ■ Information
  ■ Negotiation
  ■ Enforcement costs

These are generally experienced as flow costs that must be converted to stock costs for valid comparisons with the stock costs of establishing and dismantling institutions.

• Distinguish between institutional changes made
  ■ for constructive purposes of providing services and goods, and
  ■ those made mainly to create income streams for noncontributing groups and individuals.

• Consider the potentially protected income (both monetary and nonmonetary) streams that may be generated in institutions originally set up for productive purposes. In this connection it is important to distinguish between
  ■ income streams that arise from maximizing positive quasi-rents arising from past mistakes in establishing institutions for productive constructive purposes or, what is mathematically the same thing, minimizing the negative quasi-rents (losses) of those same mistakes, and
  ■ income streams that do not minimize the losses of past mistakes in establishing constructive institutions but, instead, increase losses by maximizing rents collected by noncon-
Distinguish between
- operating (flow) transaction costs for a fixed or given institution in any of the three manifestations and
- the stock costs of dismantling old and establishing new institutions, again, in any of the three manifestations.

Anticipate that transaction costs conceptions are likely to be further developed to include:
- Total and average variable and fixed and their sum as well as marginal costs, the lists of fixed and variable and marginal costs depending endogenously on whether it is advantageous to dismantle or establish all or parts of all of any of the three institutional manifestations considered above; and
- Sharper distinctions between flow and stock costs and returns.

... determine monetary and nonmonetary worths of existing and replacement institutions.

Recognize that it is not advantageous to change an institution worth too much in place to justify its dismantlement and not enough to justify its expansion or replacement. Thus, an important agenda items is that of conceptualizing the nature of institutional fixity and/or variability in terms of establishment and dismantlement stock costs as they relate to the use values (again stock) of institutions in any of their three [interdependent] manifestations.

Recognize that administrators, employees, and those served by fixed institutions having constructive purposes often receive quasi-rents (opportunity costs or shadow prices) and that
- maximization of such rents figured with respect to establishment costs is
- tantamount to minimizing losses on the past mistake(s) that cause(s) the institution[(s)] to be worth less than what it cost to establish it[(them)].

Expect to find that some institutions were established for the sole purpose of creating and collecting rents (again, opportunity costs or shadow prices). Such institutions can be regarded as “mistake,” in which case maximization of rents with respect to dismantlement costs is of questionable value to society even if privately advantageous to the rent collector.

Expect that even institutions established for constructive purposes
will have components that were established to create rent-collecting opportunities for noncontributors rather than to produce institutional services.

- Do quantitative research on the "rents collected" by administrators, employees, and clientele of ... agricultural and rural institutions including rents not justifiable in terms of minimizing losses on earlier errors in organizing institutions for the constructive purposes of generating and disseminating services. This agenda item is related to what is known in the literature of agricultural economics as political economic resource transactions (PERTs), political economic seeking transfers (PESTs), and political economic preserving activities (PEPAs) [Rausser 1982]). High on the agenda is the need to relate these concepts more precisely to public choice/transaction cost [and asset fixity] theory.

- Recognize that public choice/transaction cost theory has potential for extending the applicability of
  - the "induced" institutional change and
  - the industrial organization approaches by
  - including the wide range of social, political, technical, and normative variables dealt with in less formalized studies of institutional change and
  - by rural scientists who advise and consult with those designing institutional changes, creating new, and administering existing agricultural institutional organizations and developing physical institutional facilities and properties and
  - by rural social scientists actually participating in the design and implementation of institutional changes and, in turn, administering new and modified institutions in all three of their manifestations.

- In extending the public choice/transaction cost approach as suggested in the above agenda items, give consideration to using general systems simulation models developed iteratively and interactively with institutional administrators and affected persons. Such models should be conceived as multidisciplinary, to be general enough philosophically to deal with both monetary and nonmonetary values (performance or criteria variables), to deal with alternative structures and states of institutional systems, and with premaximization and both maximization and other behavior, and eclectic with respect to techniques from different disciplines and philosophic orientations. In many instances, noncomputerized but iterative and interactive scenario analyses will likely to ade-
quate. In other instances, computerized, general, systems-simulation models built and run interactively and iteratively with concerned persons will be needed [and will be far more economical to construct and use].

- Encourage basic social scientists to extend and further develop the theories, measurements, and techniques of their respective disciplines in ways that improve the ability of multidisciplinary teams doing iterative/interactive, problem-solving and/or subject-matter modeling to deal better with social, political, power, psychological, demographic, structural, and related variables.

- Avoid neglect of problem-solving and subject-matter research in developing public choice/transaction cost analyses. Development can be expected to come faster and more effectively with fewer dead ends and omissions if "real world" problematic institutional changes [such as those now faced in S. Korea] are modeled and analyzed.

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