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The Role of Social Capital in the Industrialization of the Food System

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Selfishness of preferences alone will not support the coordination necessary for the industrialization of the food system. Social capital relationships of mutual sympathy (caring) yield socio-emotional goods that are important in the more personal business world of evolving incomplete contracts and alliances involving input suppliers, processors, and labor. Relationships are also critical when consumers are buying image as well as physical products. Management and policy alternatives constitute investment in social capital that can affect opportunism, risk, loyalty, and trust.

Key Words: contracts, food system, industrialization, loyalty, opportunism, risk, social capital, socio-emotional goods, trust

The industrialization process in agriculture, including consolidation and vertical coordination within the food system, strongly relies on relationships among the transacting parties. This emphasis on relationships calls for an enriched conceptual framework for economic analysis that goes well beyond neoclassical economics. It also goes beyond organizational economics, or the new institutional economics, which is based heavily on selfish preferences, incentives, information, and transaction costs, and is manifested in principal-agent relationships, transaction costs economics, property rights, and incomplete contracting.

The economics of relationships extends into the domain of trust and social capital (Fukuyama, 1995). Our premise is that this enrichment must be an inherent part of the analytical framework used to analyze the economic implications of the industrialization of agriculture. While assuming selfish pref-

erences independent of others may simplify our models, the evidence supports the conclusion that relationships matter. Indeed, relationships matter to the extent that we seek to build and maintain them, sometimes at significant sacrifices of financial and material goods.

The reason relationships matter and produce nontraditional economic behavior is simple. Relationships of mutual sympathy yield highly valued socio-emotional goods. To continue to receive these valued goods, we invest in relationships. Moreover, the industrialization of agriculture is not likely to be completely understood without including in the analysis the production and consumption of socio-emotional goods and investments in sympathetic relationships.

The Problem Setting

The industrialization of agriculture today is marked by new modes of coordination of people and activities. For much of its history, agriculture was organized by auction markets. The main signal to coordinate activity was price, and the parties to the transaction need not be known to each other. This was the context for Adam Smith's celebrated notion that parties did not have to care for each other to be

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guided by the invisible hand. The commodity spoke for itself and buyer beware.

Farmers produced and brought the commodity to a place where other sellers and buyers assembled, and prices adjusted to clear the market. If the market did not clear at a price that covered the cost of production, producers took this into account in production plans for the next period and hoped the same mistake would not be repeated. Unfortunately, the same mistake was often repeated because agriculture was marked by endless cycles of under- and over-supply, and boom and bust as a function of weather and the aggregate guesses of all producers. It is not just that the future is uncertain for a firm; the future does not exist until other firms and consumers act.

The auction market concept in agriculture is quickly being displaced as the exemplar for agriculture. Increasingly, contracts between farmers and processors specify price, cultural practices, and product characteristics. The parties to the transaction are known to each other. The processor is also changing and growing in size and number of functions. Transactions previously coordinated by market prices are now coordinated by orders to people who are employees or by provisions in contracts and not independent contractors. The integrator typically does not negotiate, but offers the same contract to all producers. But, its application may involve interpretation between an individual producer and the integrator's agent-monitor. So whether between or within firms, the human relationships are more personal than in auction markets. There is more talk.

Contracts have their limits and are inescapably incomplete. This is true of the employment contract, the contract for the delivery of goods, and financial contracts. If the employer knew exactly what the employee was to do, there would be little advantage to decentralization. Labor grievance procedures illustrate the contract cannot be fully specified. It is an ongoing evolutionary relationship, as is the delivery of goods by an outside supplier of inputs.

In an uncertain and changing world, the contract is necessarily incomplete and specifics have to be worked out over time in a continuing relationship. In fact, most businesses do not attempt to enforce the letter of a contract even if it ostensibly covers the matter at issue. One reason is that contracts are costly to enforce. Another reason is that a literal interpretation which works a great hardship on one of the parties would destroy the ongoing rela-

tionship. Willing and enthusiastic participation of employees and suppliers is essential to modern business. Begrudging participation leads to poor quality.

This is not to say contracts have not evolved to provide incentives for better aligning the interests of farmer and processor—for example, in hog feeding (Hennessy and Lawrence, 1999). Contracts can provide for payment to the farmer based on feed efficiency (Martin, 1997). But still, no matter how detailed, evolving conflicts must be worked out. In that context, a threshold of trust based on a projection of past performances is helpful, but usually may not be enough to maintain long-term relationships.

The history of the adoption of technology to achieve high-quality frozen food illustrates the coordination problems of the modern food system. Clarence Birdseye invented a flash freezing technology which greatly improved the quality of frozen foods. Still, it took many years for the food system to adopt it. The processors had to adopt the technology, the retail stores had to install display freezers, and consumers had to adjust. It is similar to the problem today of moving to high-definition television and combining the cameras with the receivers. No supplier of a part of the system can make money unless all other parts of the system develop simultaneously. Short of one firm buying a lot of retail stores and the freezing plant, a considerable number of independent investments are necessary. If adoption time is to be shortened, it will require new ways for firms to develop a shared vision and have confidence their piece of the system will fit the rest.

Boulding (1973) noted the parties to a transaction seldom remain at the neutral point on the continuum from malevolence to benevolence. The parties either begin to like or dislike each other a little (or a lot, leading to breakdown). Trust based on reputation and respect is important, but sympathy and caring go further. Persons or firms might be tempted to skimp on performance if it could not be detected and not harm their reputation, but they might not do so if they care for the other party.

Sympathy makes it easier for the parties to work out the inevitable new tensions certain to develop over time. As production evolves to utilize more specific assets with risk concentrated on fewer parties, it is not cheap for either party to cease the relationship and find a substitute where the specialized pieces fit together as well as formerly (Williamson, 1985). If both parties are to be willing and enthusiastic participants, they need to work out

their mutual expectations over time. It will certainly help if they have sympathy for each other and /or at least no malevolence. Emotional goods are derived from sympathy, and add value and alter the flow and level of other physical activities.

Socio-Emotional Goods and Social Capital

Sympathy and socio-emotional goods will be essential in the further industrialization of agriculture because: (a) industrialization activities will involve the production and exchange of both material and socio-emotional goods; and (b) socio-emotional and material goods are most often commingled, preventing their separate analysis even though we report our business activities only in terms of material and financial units, as though these were the only things exchanged.

The study of the economics of relationships and socio-emotional goods requires an effective extension of the conventional framework of rational choice theory. This is accomplished by generalizing the set of goods considered to include socio-emotional goods and by including a new form of capital capable of producing socio-emotional goods, namely social capital.¹

Including Social Capital in Economics

For social capital to occupy a place in the pantheon of other capital forms, it must satisfy the following. First, it must have capital-like properties. Second, it must be measurable so that theorists and practitioners can deduce, test, and apply the concept. Third, there must be reliable ways to invest/disinvest in social capital so it can be altered. Fourth, it must be demonstrated that changes in social capital alter significantly the terms and levels of trade. And finally, it must lead to prescriptions which allow policy makers to employ it to solve important problems, including those relating to the industrialization of agriculture. If social capital is ignored in our analysis, our predictions will be biased and lead us to support false conclusions.

In what follows, the concept of social capital is characterized according to the five requirements described above.

Is Social Capital Really Capital?

What is social capital? Robison, Schmid, and Siles (forthcoming) define social capital as “*a person's or group's sympathy toward another person or group that may produce a potential benefit, advantage, and preferential treatment for another person or group beyond that expected in an exchange relationship.*”

Sympathy, affinity, and caring are used synonymously. There is substantial cross-cultural evidence to show individuals are not entirely self-centered (Henrich et al., 2001). There are, of course, other social capital definitions.² Perhaps one reason so many definitions of social capital have been proposed is that scientists have not taken the capital metaphor seriously. Any definition of social capital should define a concept with capital-like properties.

What are social capital's capital-like properties? Capital is a commodity capable of producing other goods and services. Capital represents foregone consumption made in favor of future benefits. Capital can be used to transform inputs to outputs including other forms of capital, to supply services without losing its identity, and to complement and/or substitute for other forms of capital. Capital is also capable of decay and maintenance and some aspects can be alienated.

Social capital as defined here has all of the above properties. Producers and marketers frequently solve vexing material problems by calling on their friends for assistance extracting services from their social capital to create other capital forms. One's circle of friends changes over time. Yet, there is a remarkable stability in our networks of persons with whom we enjoy symmetric levels of sympathy. However, these relationships require regular investments of socio-emotional goods, i.e., inputs of capital to make capital.

Sympathy-affinity has the capital-like character of being subject to investment, while changing a moral code or norm is difficult. Social capital can substitute for a variety of other capital forms including financial and human capital. Social capital's ability to internalize externalities among social capital-rich networks reduces transaction costs and increases the opportunity for mutually beneficial agreements. Finally, one can use his or her social capital to benefit others, such as when one recommends a friend for a job. What distinguishes social capital from other forms of

¹ Some economists, including Arrow (1999) and Solow (1999), believe social capital is not an appropriate extension of rational choice theory. We disagree.

² For a recent summary, see Woolcock (1998).

capital is that it exists in relationships, not in physical capital goods.

What are the goods produced by social capital?

Social capital represents an important capital source because it can be used to produce important socio-emotional goods. Maslow (1962) and others popularized the idea that we have socio-emotional needs as well as physical needs. Socio-emotional goods which satisfy important emotional needs include meaningful work assignments and expressions serving to validate one's usefulness and importance; experiences of caring that demonstrate one's well-being is internalized by important others; and information flows communicating encouragement, support, and acceptance. Customers want sellers to care and go beyond the letter of the law or contract. One important characteristic of socio-emotional goods is that they must be obtained from others, including one's ideal self, at least until one has reached the stage in life when one's ideal self has solidified.

Our need for socio-emotional goods provides an important incentive for investing in and maintaining one's social capital or the social capital of the firm. Our need for socio-emotional goods also changes the meaning of work, consumption, and customer satisfaction. Although under-emphasized in economics, work is a consumption good. It is valued in itself. While economics pays most attention to the leisure/work tradeoff, job satisfaction—a socio-emotional good—is becoming increasingly important in industrial agriculture. Firms must recognize that payments to employees and suppliers include financial incentives and socio-emotional goods. Firms must also recognize that customers seek to purchase from the agricultural industrial process socio-emotional as well as physical goods and services.

Consider the following. Any firm concerned only with paying attention to hourly wages and hours will have high turnover and a begrudging work force. The same can be said for suppliers. Suppliers who are ill-treated will look for ways to cheat and skimp on quality even with the cleverest incentive contract. Their energy and creativity will go into cheating the "enemy" rather than into doing a good job. Providing workers and suppliers socio-emotional goods which often cost little when measured by financial expenditures can lead to their increased attentiveness to the well-being of the firm.

Food consumers are increasingly consuming an image embedded with socio-emotional goods as much as a physical product. They care how the

good was produced, how the animals and workers were treated. Remember the international trade dispute with Mexico over dolphin-safe tuna? Consumers respond to sellers and producers of goods who treat them with respect and dignity.

As people become richer, they can spend more on context and image. Producers of genetically modified organisms (GMOs) are learning this lesson the hard way. Many people, especially in Europe, do not trust the assertion of industry or government that GMOs are safe. They do not believe industry cares about their welfare. Are consumers regarded just as mouths with wallets? Universities once seen as impartial sources of information are increasingly seen as in the employ of large corporations.

The concept of goodwill and loyalty will become even more important with industrial agriculture. Any firm will make mistakes from time to time and will depend on consumer loyalty to give it time to make changes (Hirschman, 1970). Simply arguing that what you are doing provides cheap food will not impress the contemporary consumer.

Investing/Disinvesting in Social Capital

Social capital is created when the following two conditions exist: (a) there is an exchange of both socio-emotional and perhaps material goods and material goods; and (b) the exchange creates a surplus in which the combined cost of emotional and material goods and services provided is less than the combined value of emotional and material goods received. If the exchange only involves material goods and services as typically portrayed in economic models, then material capital, but not social capital, is created.

One of the important issues in the social capital literature is identifying specific ways to invest in social capital. For example, agribusiness researchers may find convincing evidence to show social capital facilitates employee and customer goodwill. But this knowledge may not be useful unless business (these same experts) can actually invest/disinvest in social capital. We suggest several ways to invest in social capital.

- Identify shared kernels. Socio-emotional goods are often exchanged when individuals identify shared kernels. Initial conversations between strangers often begin by exploring areas when shared kernels might exist. Same for the business lunch. This search looks for joint acquaintances, or shared experiences such as having visited the

same place, attended the same school, or read the same book. This search might also look for shared political, cultural, and religious views. Sometimes this search for shared kernels is facilitated by creating opportunities to visually identify shared traits. One's gender, age, and dress often communicate one's kernels. Or, merely attending a group meeting where members share certain traits allows one to identify others with traits similar to one's own, e.g., attending a church service while on vacation or traveling. Identifying a shared kernel is a means of validating and reinforcing one's own kernel and that of others.

- Offer ownership. Managers, leaders, and decision makers in public and private organizations with resources may extend socio-emotional and tangible goods to their workers, associates, and other stakeholders by providing them opportunities and responsibility to manage and make decisions related to the use of their resource. Managers who share responsibility communicate validation messages to those empowered that they are capable and responsible and respected.
- Recognize worthy efforts. All successful organizations establish methods for validating approved efforts. Sometimes these efforts are recognized by material rewards such as pay increases. Sometimes these efforts are recognized with formal awards, improved office space, or access to reserved parking or the executive dining room. Sometimes these efforts are acknowledged by informal validation that may include a personal message of recognition.
- Create shared kernels. Sometimes sympathetic relationships are created. For example, individuals may participate in a company team with a shared objective. Their shared experience becomes a shared kernel leading to relationships of affinity/sympathy and social capital. Sometimes this method of building social capital is referred to as team building. Teams may be organized around athletic contests, community investments, political objectives, support for schools, opposition to externalities, etc.
- Give gifts. Perhaps the most popular method of building social capital is giving gifts. However, for this method to be successful, there must be no strings attached and the gift must be personalized and perceived as something extra if it is to produce a socio-emotional good in the eyes of the recipient. For example, a gift from the corporation delivered according to some formula does not have the same emotional goods attached as a gift from a husband to his wife remembering their special day. Similarly, flowers from the company fail to convey emotional goods of caring and support in the same way as flowers sent by individual members of the company. The business lunch and the corporate box at the stadium are common gifts, as are premiums given to customers.
- Create institutions and organizations. Institutions are rules for ordering human relationships. Organizations are systems of relationships for coordinating individual actions according to some decision rules accepted by the members. Little can be done cooperatively without institutions. Ownership of opportunities is antecedent to the market. Each new relationship requires that partners in the relationship agree on institutions to order their exchanges. An ability to create and sustain these institutions communicates shared values and norms and desires to maintain the relationship. A person has rights when others acknowledge the person as a subject, not an object. This acknowledgment is a kind of socio-emotional good which reflects a stock of social capital and can add to that stock. These are emotional goods and may lead to increased social capital. The right to form a farmer co-op is an acknowledgment by society that farmers deserve help and should be exempt from anti-trust law. Urban voters may be motivated by some sympathy for farmers and, depending on the feedback from farmers, the stock of social capital held by urbanites for farmers may grow or deteriorate.
- Communicate socio-emotional goods as well as tangible rewards. It is a strange phenomenon that goods with such potentially high returns are so infrequently provided. The cost of socio-emotional goods is often very small, at least as measured in units of physical goods. These socio-emotional goods often are nothing more than a greeting, a thank you note, a congratulatory note, or a note of sympathy. However, organizations demonstrated to function well are those whose members regularly, and almost without being reminded to do so, directly exchange socio-emotional goods.

- Resolve conflicts. Transactions often produce conflicts in values and in understanding what the facts are. Successfully resolving these conflicts communicates that the relationship (and social capital) is valued more than the object of the conflict. This statement conveyed through successful conflict resolution almost always results in increased social capital.

If there are ways to invest in social capital, it follows there are ways to disinvest. One of the important ways to destroy social capital is by creating activities in which the success of one party requires the failure of another. In financial markets, it has been demonstrated that increased competition erodes lender-borrower relationships, and reduces the capacity (i.e., flexibility) of relationship-based lenders to render short-term concessions in interest rates and credit availability to young borrowers or temporarily troubled borrowers, while making up the foregone short-term profits over the longer term.

Social capital can also be destroyed by exchanging negatively valued emotional goods, including expressions of disrespect and antipathy. Finally, social capital can be destroyed by opportunistic behavior, i.e., extracting services without reciprocity or maintenance.

Can Social Capital Be Measured?

If motive and preferences are to be considered as variable, researchers will be (*a*) conducting more surveys asking of motive (as well as observing choices), (*b*) constructing convincing observable proxies for the underlying motives (called "construct validity" in evaluation research), and (*c*) setting up experimental controls which can distinguish among motives. These measures are discussed in detail below.

Conducting More Surveys to Measure Motive

Surveys can measure the mix of motives prevalent in various settings (Schmid, forthcoming). People can be asked *why* they give preferential treatment. Researchers have always been suspicious of what people say, but it tells us more than the selfish assumptions we now use in our models. There is a certain arrogance in assuming people's motives. Bertrand and Mullainathan (2001) argue, "These doubts are, however, based on *a priori* skepticism rather than on evidence" (p. 67). In spite of cognitive difficulties, Bertrand and Mullainathan found

the addition of attitude variables predicted income better than only objective variables.

Economists have learned to utilize data from the biological sciences, and we can learn to understand motive from the psychologists. We must remind ourselves that the measurement of physical capital is also problematic, which is part of the problem of modeling aggregate production functions. We do not have perfect measures of the stock of capital when its composition and quality change over time, but we make do.

Constructing Observable Proxies for Underlying Motives

Observable proxies for the underlying motives can sometimes be found which are highly correlated with the influence of the underlying motive. For example, people can be asked if their reservation price for a used car would vary with the identity of the buyer. In Robison and Schmid (1989), the buyer categories were family member, friendly neighbor, stranger, and nasty neighbor. It seems plausible that in general this represents a continuum of sympathy and affinity, even if some family members hate each other.

Another example of the use of proxies for motives is found in farmland sales (Siles et al., 1999). Farm-land owners and operators located in Michigan, Illinois, and Nebraska on average reported they discount their minimum sell price by as much as 6% to friendly neighbors and 7% to friendly relatives. On the other hand, they add an 18% premium when the buyer is considered unfriendly. Premiums for unfriendly persons and discounts for friends and family members suggest levels of trade will be higher when emotional goods are included in the exchange. The inference is supported by the reported sales. Thirty-nine percent of the land sales were to friendly neighbors, 29% to relatives, 11% to legal entities, 7% to strangers, and only 2% to unfriendly neighbors.

Setting Up Experimental Controls to Distinguish Among Motives

Selected products (outputs) can be persuasive indirect evidence of the existence of different motives in the presence of strong theory and experimental control. This approach supports the existence of social capital.

Theories mostly begin with a theoretical statement, "If *A*, then *B*." In this expression, *A* represents

those necessary and sufficient conditions required for the occurrence of B , which can be measured and observed. A strong theory is one in which few if any other conditions besides A could produce B . As a result, if B is observed, we are confident it was produced by A .

An example of a strong theory was Mendel's genetic theory that predicted 1/16th of the plants would be long-stemmed pea plants if a certain crossing occurred. Few if any other theories could have made such a prediction, and observing the predicted outcome supported the theory even though the genes producing the outcomes were not observed. For a social capital example, an anonymous gift is hard to explain with a selfish motive. The opportunity for self-advancement (selfish motive) is controlled by the context.

Both selfish and sympathetic motives are a product of the self. It adds little to say that some people have a selfish preference for giving. Assuming selfish motives and preferences to the exclusion of sympathetic motives limits our research and isolates us from other social sciences. We will never develop direct or indirect measures of social capital if our theory assumes it away.

Missing from most of neoclassical economics is a theory which includes social capital, and therefore these theories cannot be used to measure or test for it. We, along with other colleagues, have attempted to develop and test theories for predicting outcomes from variations in social capital that would be difficult to predict from other theories (Robison, Myers, and Siles, forthcoming). These efforts to measure social capital, directly and indirectly, will continue.

Does Social Capital Make a Difference? Can the Difference Be Measured?

Social capital and the exchange of socio-emotional goods not only alter market outcomes, but almost every other outcome involving personal exchanges. One approach begins by establishing a standard outcome, then altering the level of social capital involved in the exchange, and then measuring the difference in outcome. The procedure is similar to the method used to measure risk aversion as a pattern. Respondents are provided with a gamble and then asked for a certain outcome for which they would exchange the gamble and be just as well off as they were owning the gamble. The difference between the mean outcome and the certainty equivalent is called a risk premium and is generally

accepted as a measure of the respondent's risk aversion.

We adopt a similar strategy when measuring *social capital premiums*. We establish a minimum sell price in an arms-length relationship. Then we face the seller (buyer) with buyers (sellers) for whom he or she holds social capital (e.g., has affinity or sympathy for) as measured in the previous section of this paper, and find the new minimum sell price. The difference is the premium associated with the emotional goods produced by one's social capital held for others. Such methods have been used to measure the role of social capital in such diverse exchanges as the sale of used cars, probability of loan approval, tipping behavior, willingness to cooperate, customer retention, and minimum sell prices for land.³

Another example of social capital altering market outcomes is when food advertisers search for ways to attach socio-emotional goods to their messages to improve the sale of their products. Sometimes these methods of product sales involve well-known athletes and public personalities to promote their products. Consumption of these goods confers status.

Business relies on trust when contract is incomplete and costly to maintain (Wilson and Kennedy, 1999). Trust can simply be a projection from past experience. But this does not protect against opportunism when it cannot be detected and thus would not damage trust.

Kumar (1996) reports a deeper and more dependable trust is possible when the parties "believe that each is interested in the other's welfare and neither will act without first considering the action's impact on the other" (p. 95). From Kumar's study, surveys of suppliers and retailers indicate the deeper variety of trust results in less searching for alternative partners, more commitment to the supplier, more sales of the supplier's products, and better performance ratings. (See also Peterson, Robison, and Siles, 1999).

Reference has already been made above to the effect of social capital on farmland sales prices. For other examples, see Schmid and Robison (1995). It should be noted that social capital may be a necessary condition for preferential treatment, but if the treatment involves physical resources, it is contingent on the social capitalist having some physical capital to transfer.

³ See Robison and Schmid (1989); Siles, Robison, and Hanson (1994); Hanson, Robison, and Siles (1996); and Robison and Hanson (1995).

Management and Policy Alternatives Involving Social Capital

The current characterization of the “industrialization of agriculture” largely refers to different varieties of coordination and increases in consolidation in the food system. Consolidation pertains to merger and size issues both within and across the stages of the food system. Changing coordination refers to the increasing displacement of open, spot markets between the stages of the food system by a variety of institutions ranging over market contracts, contract production, and vertical integration, and called by a host of names (e.g., alliances, joint ventures, consortia, networks, franchising, etc.).

Dairy production, seed, commercial fruits and vegetables, turkeys, eggs, and broilers have long experienced some form of vertical coordination. For pork, consolidation and contract production has grown rapidly to probably approach 40–50% of total production, in some form or other. Greater coordination is occurring in crop production as well.

Some Latin American cities are witnessing a revolution in food retailing (Reardon and Berdegué, 2000). The traditional farmer markets in cities are losing out to chain stores. These stores are making contracts with farmers to provide high-quality fruits and vegetables not typically found in community markets. The chains are requiring the highest standards of sanitation be followed—a demand for heavy investment most small-scale farmers cannot meet. This stipulation is reminiscent of the sanitation requirements in Grade A milk production that drove U.S. small farmers out of the business.

However, making a contract (or even if the chain owns the processing plant and the workers are employees) does not ensure the sanitation rules are followed. The employee fills out the form stating hands were washed, but monitoring is another thing. One only needs to note that theft by employees is greater in retailing than theft by customers. Unhappy employees and contractees performing begrudging work will be opportunistic. While the chains’ fruits may look nice, and they may displace small owner-operator and co-op farmers, there is still no guarantee the produce is free of pesticides and contamination if not easily detected.

The former cooperative of small farmers may have had a lot of social capital among its members. Yet this will not protect them from competition by the integrating chains if they do not have the capital to respond. But that does not suggest social capital is irrelevant; it just takes different forms. No matter

how industrial, a food system still contains face-to-face transactions between employer and employee, food processor marketing representative and store buyer, and between the store and its customers. Social capital is a factor in all of these transactions.

Consolidation and coordination are not necessarily new developments. Mighell, Jones, and Briemyer were historic leaders in identifying and analyzing these structural issues. In recent times, however, renewed emphasis has been given to coordination and consolidation, with some major changes in motivation and direction for the organization of the agricultural sector.

Higher levels of coordination are motivated by the combined effects of several factors: (a) changes in consumer preferences related to the cost, safety, convenience, and nutritional attributes of food and fiber products; (b) needs for better coordination than was provided by spot markets and conventional pricing for transmitting information about these preferences through the stages of the food system; (c) avoidance of opportunistic hold-up problems in transactions involving highly specific assets; (d) reductions in and reallocations of risks, with some risks being reduced by consolidation and coordination, and others (especially contractual performance) increasing in importance; (e) efficiency and size economies that help to drive the performance of entities throughout the food system; and (f) technological change to better tailor production to changes in consumer preferences and to enhance productivity (e.g., genetic, health, measurement systems, packaging and transport, etc.).

The irony is that such coordination developments tend to involve movements away from the pure spot market-driven concepts of economic competition, with replacement by the various contractual arrangements which depend heavily on the integrity of the transaction parties, building of trust, creation of effective incentive systems, sharing of information, monitoring and enforcement arrangements, and other factors.

Some have argued development depends on moving away from relationship-dependent outcomes. But in an environment where fewer and fewer firms are absorbing increasingly high levels of risk, it may be that increasing dependence on social capital is an appropriate response to risk. In this regard, one of the authors recalls an interview with a rice producer and miller in Ecuador who declared expansion of his enterprise was limited because he lacked relatives to include in the business.

As the industrialization of agriculture proceeds, relationships will become more important. Relationships of trust and sympathy will provide the confidence to engage in complicated transactions, sometimes on the basis of a phone call or a handshake. Relationships of sympathy and trust will substitute for enforcement procedures that would slow the process of exchange and raise the cost of doing business. Relationships of sympathy and trust will also internalize the external consequences of one's choices, and thus decisions can come closer to benefitting all members of the social capital-connected network. Relationships of sympathy and trust will also serve to identify who is included in important industrialization activities.

On the other hand, absent relationships of sympathy and trust, the industrialization process is stymied. We boycott sugar from Cuba, oil from Iraq, clothing produced under oppressive working conditions, and sometimes show contempt for those wearing animal fur coats—not because it is in our material interest to do so, but because of the negative emotional goods such economic consumption activities would require.

Social capital can be used for good or ill, as is true for most varieties of capital. Sympathetic relationships that internalize the well-being of others produce beneficial consequences such as reduced transaction costs and opportunistic behavior. But these same sympathetic relationships among network members may lead to exclusions and discrimination against others. Europe's sympathy for its former colonies results in discrimination against bananas from Latin America. Laws that restrict nepotism, demand arms-length relationships and legal proceedings, anonymity, and other institutions are vivid reminders of the down side possibility of social capital. As relationships become more important in agriculture, we may also need to consider if existing safeguards for consumers and competitors are adequate.

Eating Alone

Food has historically been the focus of sociability. One shows social capital for others and invests in its further development by giving food to family and friends. The shared kernel of eating together seems to be deteriorating. Robert Putnam (2000) coined the clever metaphor of "bowling alone" to illustrate the trend in social interaction. Once we bowled in leagues and now more people bowl as individuals. The same is happening with food. Members of families who once ate together now catch a bite and

run off to their favorite activity. There is a prevalence of restaurants with television and loud music, relieving people from the intimacy of having to talk to each other.

Status is a socio-emotional good (Frank, 1987). Food is losing its place as a status good. Some food products constitute conspicuous consumption and convey to one's guests that you are of high status or that you regard them highly. We can serve an expensive foreign beer to impress our guests, but milk cannot impress. Agricultural products are losing out, and even the milk moustache on famous people seems inadequate to stem the tide. We have explained the income and price inelasticity of food products by the limited size of the stomach, but there is no physical limit to the demand for prestige and the giving of regard. Eating alone is a loss for social capital in general and the economics of the food system in particular.

Summary and Conclusions

Agricultural economists' contributions to understanding and predicting outcomes of the industrialization process will be improved if we include in our observations and calculations a newly recognized resource, social capital. Including social capital in our efforts to explain the industrialization of agriculture does not mean we ignore all that has been learned under the selfishness of preference models. Indeed, there are a significant number of settings where the selfishness of preference model still operates. But we do need to recognize that much of what goes on in the industrialization process involves social capital and emotional goods.

Our past should make it easier to face the future with a paradigm incorporating the importance of relationships. Agricultural economists have recognized that relationships matter. Our early and close associations with our sister social sciences, especially rural sociology, recognized that relationships mattered. It was assumed our close association with those who studied relationships, even combining them in the same department, would shed light on how economics is performed. We accepted the need for regular reminders to account for the importance of relationships in or outside of lonely crowds.

Agricultural economists have been reminded of the importance of relationships by the writings of the venerable Adam Smith. He emphasized not only the selfish motivation of the baker, but also that economic progress depends on our shared feelings of sympathy which internalize externalities and lead

us to form and keep rules designed to order our relationships. In his treatise, *The Theory of Moral Sentiments*, Smith wrote:

How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it.

The industrialization of agriculture is a process that will require new models to analyze and understand the new ways of doing business. The auction models of the past may be less relevant than a model incorporating personal interactions and the exchange of emotional as well as physical goods and services. What we expect to be learned from models which include an expanded set of goods is that social capital is an essential resource for maintaining willing participation over time and realizing human potential. This means the parties need to invest in creating and maintaining affinity, just as in any asset. It can't be taken for granted.

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