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Agricultural Economics 23 (2000) 207–218

AGRICULTURAL
ECONOMICS

www.elsevier.com/locate/agecon

Agroindustrialization of the global agrifood economy: bridging development economics and agribusiness research

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Abstract

This paper examines the agroindustrialization process from two supposedly disparate views: development economics and agribusiness research. The evolution of conceptual and methodological approaches emanating from these fields is explored and general observations are made concerning farm economic interdependence, institutional and organizational change, differing scopes of interest, the causes of agroindustrialization, orientation, and the choice of microanalytic tools, terminology, and unit of analysis. Despite an impressive list of hurdles, disincentives, and disconnects, complementarities between the two fields are identified. The paper concludes by exploring the potential of bridging development economics and agribusiness research to inform the future agroindustrialization research agenda. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Agroindustrialization; Development economics; Agribusiness

1. Introduction

The global food and fiber system is in a process of radical transformation. Numerous scholars and public policy makers have entitled this transformation “the agroindustrialization process”. What is agroindustrialization? A perusal of social science literature addressing the industrialization of the agricultural and food system suggests the term invites a broad and heterogeneous set of definitions. Notwithstanding the lack of scholarly unanimity as to common reference, there is a general consensus that agroindustrialization is a process leading to a distinctive economic and social system exhibiting three dynamic characteristics. We initiate our discussion by adapting the Reardon and Barrett (2000) definition of agroindustrialization: “(a) The growth of agroprocessing, distribution, and farm input provisions off-farm; (b) institutional and organizational change in the relation between agrifood firms

and farms such as a marked increase in vertical coordination; (c) concomitant changes in the farm sector, such as the changes in product composition, technology, and sector and market structures”.

Agroindustrialization, whether analyzed in developing or developed economies, is generally regarded as ushering in periods of individual and collective stress, discontinuous change, and economic disorder. Evans and Stephens (1988), Stiglitz (1988), and Barry (1995) discuss in detail the positive, negative, and neutral implications of this oft-maligned agent or process of social and economic change. This paper does not attempt to review or evaluate this agroindustrialization literature — instead it attempts to review the evolution of two applied fields of economics in their attempt to inform the process of agroindustrialization.

Complex economic and social phenomena such as agroindustrialization are usefully informed from several perspectives. Unfortunately, because of space limitations, we address but two related fields — the contribution of development economics and the

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insights emerging from the field of agribusiness research. In the first two sections, we map the evolution of conceptual and methodological approaches emanating from these fields and proffered by scholars addressing industrialization of agriculture phenomena. Then, observations are shared as to the possibilities certain approaches might complement or bridge gapping lacunas of indifference and misunderstanding that have traditionally separated these two seemingly unrelated fields of inquiry. In the closing section, we attempt to demonstrate the promise of bridging these two complementary fields.

2. Development economics informing agroindustrialization

Development economics is a broad field of inquiry.¹ Its main research question — why are some countries poorer than others? — is complex and multifaceted. Because development economics encompasses such a vast set of fields and subfields it is necessary to make choices in writing a brief review. Hence, we concentrate on a specific subset of the development literature that explicitly informs the industrialization of agriculture. We narrow the scope of our survey based on the Reardon–Barrett definition of agroindustrialization, which invites a microanalytic approach. The distinguishing feature of the microanalytic approach to development is that institutions are explicitly endogenized, particularly the process of institutional change and the choice and design of institutional arrangements (Williamson, 1996a).

The microanalytic approach to development contends that institutions matter. Institutions are tantamount to economic development because they affect production and transaction costs (North, 1990). According to Hoff et al. (1993), in the presence of transaction costs and information constraints, institutions influence the efficiency and distribution of resource allocation. From the empirical perspective, Adelman and Morris (1997) observe that institutions matter greatly in explaining how fast nations grow and how widely growth's benefits are shared. Development economics offers hospitable territory for institutional

analysis because transaction costs, market failures and missing markets are the rule rather than the exception in developing countries (Bardhan, 1989a).

Pre Coase institutionalists and marxists alike share the common criticism that the neoclassical model fails to take institutions into account. Their approaches emphasize institutional impediments to development, but the persistence of inefficient institutions is left unexplained or attributed to peasant irrationality. Subsequent advances in economic theory suggest institutions are susceptible to analysis. Institutions are introduced into mainstream economics by relaxing the restrictive assumptions of the frictionless neoclassical model. More recently, two non-Walrasian schools of thought have emerged offering formal endogenous theories of institutions (Bardhan, 1989a): the new institutional economics and the information theoretic school.

The new institutional economics focuses on the historical process of institutional change (North, 1990), the economics of property rights (Demsetz, 1967) and the transaction cost economics theory of the firm (Williamson, 1985). Building upon Coase's (1937, 1960) insight that exchange is costly, new institutional economists seek to understand the interplay between institutional factors and market and non-market exchange under positive transaction costs.² A complementary perspective evolves from the theory of imperfect information having roots in the work of Akerlof (1980).³ The economics of rural organization analyzes market and non-market institutional arrangements within the rural sector of developing countries (Stiglitz, 1988; Bardhan, 1989b; Hoff et al., 1993). The emergence and structure of contracts are explained in terms of information incompleteness, moral hazard, and missing markets.

Models of sharecropping examining the nature and design of contractual arrangements in developing countries illustrate the applicability of both schools of thought (Stiglitz, 1974; Eswaran and Kotwal, 1985; Allen and Lueck, 1996). These seemingly alternative models explain mechanisms of contracting from

¹ For a recent review of development theories, refer to Waelbroeck (1998).

² For a comprehensive account of new institutional economics research, refer to Furubotn and Richter (1998).

³ The imperfect information theory is closely related to new institutional economics because the definition of transaction costs encompasses information costs.

complementary perspectives: the ex ante contract design approach of imperfect information models and the ex post governance structure explication of transaction cost economics. Augmenting our microanalytical understanding, Fafchamps (1996) integrates ex ante and ex post considerations in his analysis of credible contract enforcement mechanisms in Ghana.

A second microanalytical approach in the development economics literature directly related to agroindustrialization is the organization of marketing channels. In contrast to the sharecropping literature the unit of analysis in market channel studies is not contractual arrangements per se, but the many feasible forms to effect exchange under conditions of information asymmetries and enforcement problems, which in turn invite horizontal and vertical approaches to market organization.⁴ For example, Barrett (1997) applies post-Bainian industrial organization horizontal concepts, including mobility barriers, in his study of grain and food marketing channels in Madagascar following market deregulation and liberalization. On the other hand, in the extensive literature dealing with the vertical organization of market channels, Staal et al. (1997) provide case study evidence of how transaction costs influence commercialization and processing of dairy products in Kenya and Ethiopia. Additionally, Glover (1990) and Key and Runsten (1999) analyze contract farming and outgrower schemes emerging in developing countries.

A non-microanalytic approach in the development economics tradition informing the industrialization of agriculture is the intersectoral linkages literature. This field focuses on linkages between farm and non-farm sectors in a rural setting building on the backward and forward production linkages concept attributed to Hirschman (1958)⁵ and consumption linkages proposed by Mellor (1976).⁶ The early intersectoral

linkages literature is concerned with measuring the magnitude of production and consumption linkages by means of static multipliers based on national input–output tables (Haggblade et al., 1989; Delgado et al., 1994). This empirically oriented literature also examines the economic extent and structural characteristics of nonagricultural enterprises in rural economies revealing increased economic activity and heterogeneity of firm size in the non-farm sector. Despite limited time series evidence, a rural structural transformation is documented involving producer specialization and consumer demand diversification into non-farm goods and services (Haggblade et al., 1989).

Machethe et al. (1997) build on this literature proposing a research agenda dealing with how to spur linkages between farm and non-farm sectors. The authors identify a set of determinants of investment and capacity utilization affecting the establishment of linkages, among them, transaction costs. Because high transaction costs may constrain linkages institutional and organizational innovations are needed to support the growing interdependence in rural economies brought about by agroindustrialization. Escobal et al. (2000) present an analysis of endogenous institutional innovations in Peru, such as outgrower contracts and stringent quality and safety standards, to support export of nontraditional crops. In doing so, the intersectoral linkages literature appears to initiate a move toward the microeconomic analysis of agroindustrialization related phenomena.

3. Agribusiness research informing agroindustrialization

The concept and definition of agribusiness — “the sum total of all operations involved in the production and distribution of food and fiber” — refer to the post-WWII phenomenon of increasing “unified functions” and “interdependency” between the agricultural production sector and the pre- and post-farmgate business world (Davis, 1956). Subsequently, agribusiness research evolved along two parallel levels of analysis: the study of coordination between vertical and horizontal participants within the food chain, known as agribusiness economics, and the study of decision-making within the alternative food chain governance structures, known as agribusiness

⁴ Subsector analysis dealing with horizontal and vertical market organization may offer a basis for an integration of the literature. Despite its development in the US, it has fruitful applications in developing countries (Harrison et al., 1974).

⁵ Hirschman was concerned with the complementary effects of investment, i.e., positive external economies generated by public and private investments leading to self-enforcing industrialization. The concept that investment begets more investment receives a formal treatment in Krugman (1995).

⁶ Consumption or expenditure linkages refer to the notion that increases in farm income foster investments in the non-farm sector.

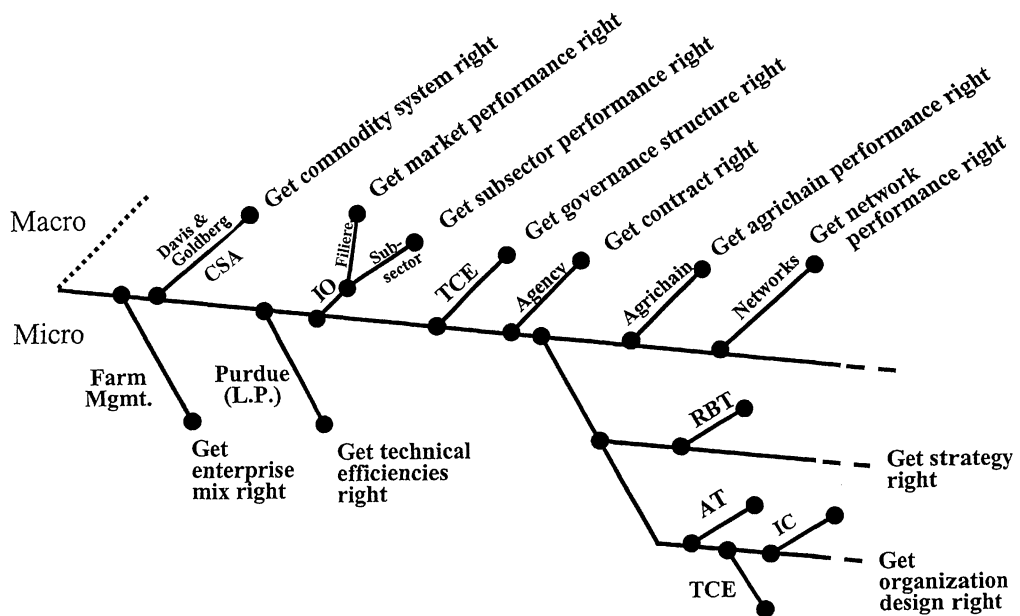


Fig. 1. The evolution of agribusiness research.

management. In the Williamsonian influenced Fig. 1, branches emanating upward from the main trunk represent the evolution of the study of agribusiness economics, while branches egressing downward represent the evolution of agribusiness management.⁷ The origins of this parallel level of inquiry can be traced to the early 1900s convergence of plant and animal scientists, accounting and budget oriented farm management specialists, and market oriented economists. This fusing of academic disciplines spread to the rest of the world and was comfortably integrated by the 1950s.

3.1. Agribusiness economics

By the mid-1950s, utilizing Leontieff's input–output intersectoral dependence model, Davis and Goldberg (1957) document a pattern of increasing specialization within the agrifood system. Furthermore, their findings suggest value adding economic activities at the pre- and post-farmgate levels were increasing, while decreasing at the farm production level. From these findings, researchers moved toward describing

and identifying interfirm coordination arrangements within individual commodity systems (Goldberg, 1968). The first explicitly labeled work under the rubric of “agribusiness” was the commodity systems approach (CSA). “Getting commodity systems right” focused attention on coordination and harmony, particularly in vertical agrifood system relationships. CSA proponents argued through durable exchange arrangements tightly coordinated systems would lower per unit costs, increase system and participant profits, increase responsiveness to market demand, and in many cases increase output. The groundwork provided by the CSA, recognizing the process of industrialization of agriculture in developed economies, was now in place.

After the business school origination of the CSA, a more theoretical yet complementary approach to agrifood system coordination emerged rooted in applied microeconomics and the workings of agricultural marketing researchers (Marion, 1986). Economists in many countries utilizing the Bainsian industrial organization model (IO) concentrated their work on two major issues: a market structure approach to agrifood system and agricultural industrialization. Evolving simultaneously, the French “*filière*” concept and the American “subsector” approach incorporated

⁷ Refer to Williamson (1996a) for a schematic evolution of development economics.

a more dynamic paradigm than the static, horizontally oriented, structure–conduct–performance approach of traditional industrial organization. “Getting market performance right” was the policy objective of researchers applying the *filière* and subsector approaches. Correcting for vertical market constraints, market failures, and coordination frictions motivated these schools to expand industrial organization models toward more integrative analysis of supply and demand conditions, price–institutional management relationships, and government–market interfaces. These schools of research emphasized a more dynamic research process and broadened the set of dependent variables to encompass not only efficiency but also equity measures as the question — who will control agriculture? — frequently surfaced (Shaffer, 1973). As interest in agroindustrialization grew, this verticalized market structure approach garnered increasing attention among international agricultural development specialists as an applicable public policy oriented diagnostic research methodology (Boomgard et al., 1991). Sauvee (1998) reviewed a European extension of the *filière* approach known as convention theory. In this school quality uncertainty plays the central role in structuring interfirm coordination.

As the vertical coordinating characteristics of global agroindustrialization increased, demand for more specific, contract evaluation analytical techniques emerged. Initially, agribusiness and agricultural marketing researchers turned their attention to the Coasian–Williamsonian transaction cost economics paradigm (TCE). This “get governance structures right” approach to vertical systems introduced to the agribusiness researcher a set of tools and concepts by which the increasing relationship-specific investment nature of industrialization could be addressed. As agroindustrialization permeated the vast majority of agribusiness system regimes an increasing number of transactions were carried out in non-market, non-hierarchical arrangements. Consequently, as hybrid governance structures grew in importance, more complex contractual designs influenced organizational transactions. With the onset of more complicated contract design, incomplete contracting costs increased. And in the absence of credible and enforceable contractual arrangements, the opportunity for one of the transacting parties to extract appropriate quasi-rents accruing to a relationship-specific

investment leads to the under-investment hold-up problem. Brousseau (1994) expands and constructively challenges Williamson (1985) deterministic governance structure model by focusing on the dynamics of contracting categorization. Sporleder (1992), Hobbs (1996), Zylbersztajn (1996), and Gow and Swinnen (1998) are examples of an increasingly more microanalytic transaction cost literature that informs our understanding of the agroindustrialization process.

Accompanying transaction cost economics another contract oriented approach to understanding the agroindustrialization process emerged. In addressing the importance of contract design in tightly coordinated and owner–manager separated agrifood systems, principal-agent concepts gained popularity because of their ability to analyze and formulate efficient contract terms. Principal-agent theory examines the tradeoff between the cost of measuring behavior and the cost of measuring outcomes and transferring risk to the agent. Applied studies of moral hazard and adverse selection problems represented by Sappington (1991), Lajili et al. (1997), Hayami (1998), and Shirley and Xu (1998) demonstrate the breadth of applicability of this microanalytical “getting contracts right” approach to the issue of agroindustrialization.

By the 1990s a new concept, supply chain management (SCM), surfaced as an alternative paradigm. First put forth by logistics scientists as a method to improve technical efficiency in procurement and inventory control management processes, SCM soon developed a following among food system and agribusiness specialists. Defined as an integrative philosophy to manage the total flow of a distribution channel from supplier to ultimate user, SCM is expanding into a more comprehensive coordination analysis approach. The unit of analysis is the coordinated chain, not the firm. A case supported basic assumption is that rivalry is not company against company, but supply chain against supply chain (Christopher, 1992). Beers et al. (1998) summarize the origins and conceptual background of the “getting agrichain performance right” approach, while Hamdar (1999) is an example of the application of an array of complementary institutional arrangements transforming the food chain of a developing country.

Increased liberalization of market policies, privatization initiatives, and globalization phenomena during

the 1990s heightened the agribusiness researchers' quest for understanding the causes and consequences of exogenous and endogenous inputs on food chain participants. Simultaneously, adaptation of information and bio-genetic technologies accelerated inter- and intra-industry and firm structural and organization shifts as agroindustrialization paradigms would predict. Food system participants in developing and developed economies continue their pursuit of efficiency and risk ameliorating strategies and structures. Yet, economizing on transaction costs is not the only factor under analysis. Quality, screening, animal safety, traceability, community development, and other food system sensitive social, environmental, and behavioral objectives are emerging (Van Hoek, 1999). To analyze these more complex objective functions, new frameworks such as networking models, system simulation, ecological footprinting, and reverse logistics are being advanced. Similar to the development economists' challenges in the study of agroindustrialization, the agribusiness systems analysts are developing more microanalytical oriented paradigms and tools.

3.2. *Agribusiness management*

For this discussion, we define agribusiness management as the study of intra-firm coordination and motivation as compared to the study of inter-firm coordination by agribusiness economics. The evolution of this field has been sporadic with bursts of research activity and then periods of little or no activity.

Notwithstanding farm management/economics "get farm enterprise mix right", the first intra-firm analysis in off-farm processing plants were the 1950–1960s cost and efficiency studies (French, 1977). Later, this firm efficiency work was broadened to examination of optimum size and location of plants. "Getting technical efficiencies right" was not broad enough according to Shaffer (1973), as he argued to study a more holistic system from input to final consumer. This vertical system approach, or as it was called later subsector analysis, was heavily influenced by industrial organization theory and therefore became public policy oriented. This shift in the early 1970s to inter-firm rather than intra-firm analysis left an agribusiness management void with the notable exception of innovative theoretical cooperative work during the 1980s (Royer, 1987).

With the birth of several agribusiness journals and the International Agribusiness Management Association (IAMA), intra-firm work in the agrifood sector re-emerged. This time, however, it evolved into two directions: the strategic management direction of "getting strategy right" and the new institutional economics direction of "getting organizational design right".

The strategic management literature identifies a number of paradigms relevant to the study of agroindustrialization. For this piece we review only one, resource base theory (RBT), based upon the recognition that tangible and intangible assets — called resources — in an organization generate quasi-rents over a sustained period of time. The central construct of this theory is based on the resources of the firm: physical, financial, human and organizational capital. Thus, the emphasis is on "getting resources right". Westgren (1995) in applying the RBT to a number of agribusiness management examples obtained results consistent with Barney's (1991) conclusion that sustained competitive advantage requires firm resource heterogeneity.

The second area of research informing agribusiness management is new institutional economics. This "getting organizational design right" framework is usually divided into three fields: agency theory (AT), transaction cost (TCE), and incomplete contracts (IC). The concept that team effort in organizations gives rise to intra-firm (or managerial) transaction costs, including measurement costs and the free rider problem, emerged from the influential paper by Alchian and Demsetz (1972). Subsequent principal-agent theoretic work addresses intra-firm incentive and risk sharing problems with particular emphasis on the agency problem between managers and residual claimants. Intra-firm transaction cost economics core premise is that contracts are expensive to write, monitor and enforce. This suggests that most, if not all, contracts are incomplete. Contractual incompleteness matters because renegotiation imposes ex post and ex ante costs leading to potential hold-up situations and the consequent reluctance to invest in relationship-specific investments. Therefore, under-investment ensues and profits are foregone not only to the organization, but also to the coffers of the nation state. The intra-firm incomplete contracts subfield addresses the issue of ownership of non-human assets when contracts are

incomplete. Given that contracts fail to specify all aspects of asset usage, then the optimal firm ownership structure should align residual claimant with residual control rights (Hart, 1995).

Cook and Iliopoulos (2000) provide an example of agribusiness management applied research focusing on the transaction costs of equity capital acquisition in agricultural cooperatives. They estimate a structural equation model to measure organizational design effects on members' investment incentives. Such intra-firm microanalytic approaches create the framework for public and private decision-makers to design more efficient organizations — elements critical to the agroindustrialization issues of income development and quality of life improvement.

4. General observations

This brief review of the microanalytical approaches of development economics, agribusiness economics, and agribusiness management proffers but a glimpse of theoretical and empirical analysis relevant in the attempt to understand and inform the phenomenon of agroindustrialization. In this section, we endeavor to sift and winnow from this stock of multidisciplinary output a set of general observations which might serve as a platform for further discussion among scholars, policymakers, practitioners, and managers in their quest to understand and affect the agroindustrialization process.

4.1. *Observation 1 — farm economic interdependence*

The Reardon–Barrett definition of the agroindustrialization process is comprised of three related sets of changes. In the initial set, “growth of non-farm activities such as agroprocessing, distribution, and farm input provision” is denoted. This growing interdependence between the farm production sector and the pre- and post-farmgate economic activities is documented empirically by both development and agribusiness researchers. Representing the development economics literature, Haggblade et al. (1989) conclude their findings on African farm households and non-farm enterprises by identifying three collaborating phenomena: increasing non-farm share of rural employment,

growing participation of non-farm sources of income, and diversification of household expenditures. The field of agribusiness research was created from the findings published by Davis and Goldberg (1957). In their Leontieff input–output intersectoral dependence study of the pre- and post-WWII farm structure they documented a pattern of increasing economic interdependence between farm and non-farm economic sectors in the U.S..

Therefore, our first observation — both fields, development economics and agribusiness research, originate at the same point with the recognition that farm production value added decreases relative to value added by non-farm food system participants.

4.2. *Observation 2 — institutional and organizational change*

The second set of changes in the Reardon–Barrett definition suggests “institutional and organizational change in the relation between agrifood firms and farms, such as a marked increase in vertical coordination”. The market channel school of the development economics literature analyzes how markets actually work in developing countries, focusing on a variety of alternative institutional arrangements used to effect exchanges in conditions of pervasive risks, information constraints, moral hazard, and imperfect contract enforceability. Institutional arrangements are designed to substitute for missing markets or emerge as a response to imperfect information in less than competitive markets. In general, development economists seek to understand the efficiency and equity implications brought about by institutional and organizational changes in the interface between farms and agribusiness firms. Stage two of the agroindustrialization definition is arguably the *raison d'être* of the agribusiness research agenda, as the previous agribusiness economics section documents. Most analytical frameworks related to agribusiness research deal directly or indirectly with vertical coordination issues applying a diverse set of theories with emphasis on overall agribusiness system efficiency.

Our second observation is — development economists and agribusiness researchers generally agree that the growing number of complex contractual arrangements replacing spot markets is a defining characteristic of the agroindustrialization phenomenon.

4.3. Observation 3 — differing scopes of interest

The third set of changes identified in the Reardon–Barrett agroindustrialization process definition relates to “concomitant changes in the farm sector, such as the changes in product composition, technology, and sectoral and market structure”. Development economists observe that self-sufficient production units tend to have more exposure to markets as they diversify their production scope to cash or nontraditional crops. The contract farming literature analyzes the impacts on farm units as they integrate with the non-farm sector by means of production contracts. Such outgrower schemes are not standardized across developing regions, but normally a contract with a downstream firm enables the farmer to have access to credit, production inputs, modern technologies, and extension services. However, the farmer is bound by contract to deliver a certain amount of product at a future date under strict quality and safety standards. The literature also examines relations between large and small businesses given the observed bimodal distribution of business size and asset concentration in most developing countries. The power relation characterizing such transactions evolves from the asymmetric relative size, hence bargaining power, between buyers (“agroindustry”) and suppliers (farmers). This feature of outgrower contracts raises efficiency and equity issues.

Agribusiness scholars, on the other hand, generally focus on issues faced by remaining farm enterprises or pre- and post-farmgate firms — particularly the coordination and motivation costs resulting from the consequent increased economic specialization accompanying the agroindustrialization process. These transaction costs are more difficult to measure than the traditional production costs and encompass activities such as compiling and transmitting information, time delays caused by more centralized decision-making, maladaptation costs created by inaccurate information, and imperfect commitment costs.

Our third observation is — we detect a difference in scope between development and agribusiness economists’ research agendas. The development economist’s scope of interest includes both successful and displaced resources during the agroindustrialization process, while agribusiness researchers more narrowly focus their interest on the efficiency and competitive issues of the remaining participants and organizations.

4.4. Observation 4 — what causes agroindustrialization?

Development and agribusiness economists appear to observe similar phenomena related to the industrialization of the global agrifood economy. Increasingly they utilize concepts drawn from microanalytical economic paradigms explaining institutions and institutional arrangements. However, differences exist. The major difference observed by the authors appears to be the lack of agreement concerning the direction of causality as to what factors drive agroindustrialization.

Generally speaking, development economists believe that agroindustrialization is private firm driven. That is, intra-firm organization design and coordination strategies influence the nature, form, and rate of agroindustrialization. Implied in their work is the presumption that vertical coordination strategies of agribusiness firms, particularly the contractual relation with the farmer, have effects on quality, equity and efficiency outcomes, thereby influencing sector competitiveness and consumer choice. Hence, intra-firm decision-making influences producer and consumer welfare. On the other hand, agribusiness researchers tend to hold the viewpoint that private firm and commodity system governance structure and strategy decisions are responses to technological, demographic and social changes occurring at the institutional environment level. In other words, agribusiness firms react to changes in the rules of the game fostered by exogenous forces. However, agribusiness scholars generally agree that the choice of strategies and structures at the firm level affects market performance and thus social welfare.

Hence, our fourth observation — development economists suggest the cause of agroindustrialization is private firm market power behavior implemented through strategic and structural design decisions, whereas agribusiness scholars start with the premise that agroindustrialization is exogeneously determined and exchanges are organized by means of transaction cost minimizing governance structures.

4.5. Observation 5 — choice of microanalytic tools

Possibly such differing perspectives regarding the nature of the agroindustrialization process may be due to the analytical tools of choice of develop-

ment and agribusiness economists. The former tend to favor the *ex ante* contract design approach of the Stiglitz–Bardhan vintage, which postulates institutional arrangements emerge as a response to missing markets and information constraints. The latter seem to be more at ease with new institutional economics subfields such as transaction cost economics, agency theory, and property rights theory, which emphasize transaction cost minimizing organizational arrangement design. It remains to be seen whether both strands of non-Walrasian institutional economics might substitute or complement each other in informing the ongoing industrialization of agriculture.

The fifth observation is — development and agribusiness researchers are increasingly applying microanalytic tools to examine agroindustrialization phenomena, but the choice of approach may significantly affect their applicable output results.

4.6. *Observation 6 — choice of terminology*

The issue of semantics also may hinder proper communication between development and agribusiness economists. There is a need to clarify some basic concepts as they relate to the three major segments of Reardon and Barrett's agroindustrialization definition. For instance, the term "institution" clearly receives different connotations in both bodies of literature. In the economics of rural organization tradition an institution may refer to a contract, organization, market regulation or social norm, whereas in the new institutional economics there is a distinction between institutional environment and institutional or contractual arrangements, as in North's analogy of rules of the game and players. Terminology matters, because one might suppose that "institutions" are formally endogenized in rigorous economic models, when in fact it is the design of a contractual arrangement that is actually explained. Moreover, a careful examination of the definition of agroindustrialization may reveal that institutional arrangements, but not the institutional environment, need to be explained.⁸

⁸ A theoretical framework treating the institutional environment as an exogenous variable influencing the characteristics of transactions, and hence institutional arrangements, is offered by Williamson (1996b).

Our sixth observation is — terminology is extremely important in addressing complex issues and phenomena, especially in a multidisciplinary subfield-oriented environment.

4.7. *Observation 7 — multitude of units of analysis*

New institutional research is at an embryonic stage, particularly from an empirical point of view. In development economics and agribusiness fields, a multitude of methodological approaches, each requiring different points of reference, has evolved. When utilizing the neoclassical theoretical paradigm, empiricists had access to well-maintained, current, and centralized data files. In exploring microanalytical and new institutional concepts, applied researchers struggle with defining measurable units of analysis. In our brief review of the microanalytic agroindustrialization literature, we encountered a plethora of alternatives ranging from linkages to contracts and transactions, to subsectors, to chains, to networks, to size of enterprise, to generic strategies and intra-firm organizational structures.

Thus, our seventh observation — the lack of conformity as to a common unit of analysis creates a disincentive for policymakers, public and private, to incorporate this informative but less orthodox output into their decision-making processes.

4.8. *Observation 8 — two ships passing in the night*

Our final observation is one of astonishment — how can two fields of applied social science, development economics and agribusiness research, utilizing microanalytic approaches in the study of the same socioeconomic phenomenon — agroindustrialization — pass quietly through the night without noticing each other? Our review identified significant referencing by both groups of the same theoretical sources, but almost no cross-referencing of applied works. There appears to be little cross fertilization, a scarcity of lateral communication, nonexistence of research coordination, and minimal motivation to learn and improve upon each other's endeavors. Perhaps this mutual indifference is justifiable with numerous reasons explaining such behavior: (a) the concept of agroindustrialization is not new, but the concentrated study of its origins, processes, and impacts is

relatively recent; (b) both fields are at early stages of empiricizing the new microanalytical paradigms; (c) the two fields debate quite different aspects of the agroindustrialization process, one group concentrating on poverty alleviation, local food and farming systems, and income distribution issues, while the other emphasizing competition, efficient agrifood system coordination, and governance structure strategies; (d) the clientele groups served, development economics serving a public and quasi-public clientele and the agribusiness group in general assumed to be serving a more private clientele; (e) since both fields are relatively new, energies are focused on understanding intra-field heterogeneity, therefore augmenting opportunity costs of adventuring beyond paradigmatic borders; (f) research outputs are disseminated through different publication outlets; (g) different socioeconomic sectors of the global agrifood system being evaluated.

This is an impressive list of hurdles, disincentives, and disconnects, yet we need to explore whether it is sufficient to deter future collaboration. We begin to address this challenge in the final section.

5. Prospects for the future

Our review of the development and agribusiness research literature not only documents constraints to “bridging the gap” but also identifies commonalities and potential complementarities including (a) distinct recognition of the importance of a radical transformation occurring within the global agrifood system; (b) agroindustrialization literature generated by well-trained applied social scientists and economists; (c) growing awareness of the potential for multidisciplinary approaches to the complex set of challenges observed in the agroindustrialization process; (d) evidence of an experienced group of scholars familiar with horizontal and vertical coordination empirical research questions; (e) growing application of microanalytical institutional approaches in examining the contractual nature of agroindustrialization; (f) increasing awareness of the importance and relevance of rigorous descriptive analytical work, especially research case methods, when doing microanalytical institutional work; (g) considerable overlap in the public policy orientation of development and agribusiness

economics research in contrast to the agribusiness management school; (h) an embryonic but strongly rooted recognition that the fields might inform each other regarding the agroindustrialization issue.

Given these observations we argue that potential for strong complementarity exists. That is, increased levels of microanalytical development work on the agroindustrialization process has the potential to significantly increase the marginal return to agroindustrialization oriented output of agribusiness researchers and vice versa. How might this potential complementarity be exploited so as to enhance the quantity and quality of agroindustrialization research?

The current agroindustrialization research environment may be described as a set of decentralized scholars working in an uncoordinated and asymmetric information-laden setting. We also know that coordination challenges with strong complementarities involve design and innovation attribute problems (Milgrom and Roberts, 1992). Given the decentralized nature of agroindustrialization research, it is unlikely that the more centralized design solution of synchronization and assignment adds much to the discussion. Nevertheless, when asymmetric, nonexistent, or misaligned information problems arise in decentralized decision-making environments, we recognize this coordination challenge as having innovation attributes. Innovation attribute problems are simply solved by gathering or developing information sets and then communicating them to affected decentralized participants. The core issues in innovation attribute problems are *who* initiates the gathering, developing, and communicating of relevant information and *what* information is subject to this activity.

This set of coordination problems associated with the potential existence of strong complementarities among development economists and agribusiness researchers, especially in the current decentralized environment, could be ameliorated by initiating efforts to (a) eliminate the confusion and miscommunication caused by a nonstandardized set of terminology; (b) create an improved understanding of the commonalities and differences among the two groups; (c) establish a more institutionalized platform for these many consequent issues to be addressed. This brief review concludes that bridging the perceived chasm between development and agribusiness economists merits serious attention if improving understanding

of causes and solutions to the global agroindustrialization process is a socially desirable objective.

References

- Adelman, I., Morris, C.T., 1997. Editorial: development history and its implications for development theory. *World Dev.* 25 (6), 831–840.
- Akerlof, G., 1980. The market for lemons: qualitative uncertainty and the market mechanism. *Quart. J. Econ.* 84, 488–500.
- Alchian, A.A., Demsetz, H., 1972. Production, information costs, and economic organization. *Am. Econ. Rev.* 62 (5), 777–795.
- Allen, D.W., Lueck, D., 1996. The transaction cost approach to agricultural contracts. In: Martimort, D. (Ed.), *Agricultural Markets: Mechanisms, Failures, and Regulations*. Elsevier, Amsterdam.
- Bardhan, P., 1989a. The new institutional economics and development theory: a brief critical assessment. *World Dev.* 17, 1389–1395.
- Bardhan, P., 1989b. *The Economic Theory of Agrarian Institutions*. Clarendon Press, Oxford.
- Barney, J., 1991. Firm resources and sustained competitive advantage. *J. Mgmt.* 17 (1), 99–120.
- Barrett, C., 1997. Food marketing liberalization and trader entry: evidence from Madagascar. *World Dev.* 25 (5), 763–777.
- Barry, P.J., 1995. Industrialization of US agriculture: policy, research and education needs. *Agric. Resour. Econ. Rev.* 24 (1), 128–135.
- Beers, G., Beulens, A., van Dalen, J., 1998. Chain science as an emerging discipline. Working Paper 98-0001. Agricultural Economics Research Institute, The Hague, Netherlands.
- Boomgard, J., Davies, S., Hagglblade, S., Mead, D., 1991. A subsector approach to small enterprise promotion and research. *World Dev.* 19 (3), 199–212.
- Brousseau, E., 1994. Contracts as modular mechanisms: some propositions for the study of hybrid forms. Working Paper 94-01. A.T.O.M., Université de Paris I Pantheon, Sorbonne.
- Christopher, M., 1992. *Logistics and Supply Chain Management*. Pitman, London.
- Coase, R.H., 1937. The nature of the firm. *Economica* 4 (n.s.), 386–405.
- Coase, R.H., 1960. The problem of social cost. *J. Law Econ.* 3 (1), 1–44.
- Cook, M., Iliopoulos, C., 2000. Ill-defined property rights in collective action: the case of agricultural cooperatives. In: Menard, C. (Ed.), *Institutions, Contracts, and Organizations: Perspectives from New Institutional Economics*. Edward Elgar, London.
- Davis, J.H., 1956. From agriculture to agribusiness. *Harv. Business Rev.* 34 (1), 107–115.
- Davis, J.H., Goldberg, R.A., 1957. *A Concept of Agribusiness*. Division of Research, Harvard Business School, Boston.
- Delgado, C., Hazell, P., Hopkins, J., Kelly, V., 1994. Promoting intersectoral growth linkages in rural Africa through agricultural technology and policy reform. *Am. J. Agric. Econ.* 76 (5), 1166–1171.
- Demsetz, H., 1967. Toward a theory of property rights. *Am. Econ. Rev.* 57, 347–359.
- Escobal, J., Agreda, V., Reardon, T., 2000. Endogenous institutional innovation and agroindustrialization on the Peruvian coast. *Agric. Econ.* 23, this issue.
- Eswaran, M., Kotwal, A., 1985. A theory of contractual structure in agriculture. *Am. Econ. Rev.* 75 (3), 352–367.
- Evans, P., Stephens, J., 1988. Development and the world economy. In: Smelser, N. (Ed.), *Handbook of Sociology*. SASE Publications, Newbury Park, CA, pp. 739–773.
- Fafchamps, M., 1996. The enforcement of commercial contracts in Ghana. *World Dev.* 24 (3), 427–448.
- French, B., 1977. The analysis of productive efficiency in agricultural marketing: models, methods and progress. In: Martin, L. (Ed.), *A Survey of Agricultural Economics Literature*, Vol. 1. University of Minnesota Press, Minneapolis, MN, pp. 93–206.
- Furubotn, E.G., Richter, R., 1998. *Institutions and Economic Theory: The Contribution of the New Institutional Economics*. The University of Michigan Press, Ann Arbor, MI.
- Glover, D., 1990. Contract farming and outgrower schemes in east and southern Africa. *J. Agric. Econ.* 41 (3), 303–315.
- Goldberg, R.A., 1968. *Agribusiness Coordination: A Systems Approach to the Wheat, Soybean, and Florida Orange Economies*. Division of Research, Harvard University, Boston.
- Gow, H., Swinnen, J., 1998. Up- and downstream restructuring, foreign direct investment, and holdup problems in agricultural transition. *Eur. Rev. Agric. Econ.* 25, 331–350.
- Hagglblade, S., Hazell, P., Brown, J., 1989. Farm–nonfarm linkages in rural sub-Saharan Africa. *World Dev.* 17 (8), 1173–1201.
- Hamdar, B., 1999. A new era for efficient food manufacturing in Lebanon: the experience of conserves modernes chtaoura. *Supply Chain Mgmt.* 4 (1), 14–17.
- Harrison, K., Henley, D., Riley, H., Shaffer, J., 1974. Improving food marketing systems in developing countries: experiences from Latin America. Research Report No. 6. Marketing in Developing Communities Series, Michigan State University, East Lansing, MI.
- Hart, O.D., 1995. *Firms, Contracts, and Financial Structure*. Clarendon Press, Oxford.
- Hayami, Y., 1998. Introduction. In: *Toward the Rural-based Development of Commerce and Industry: Selected Experiences from East Asia*. World Bank, Washington, DC.
- Hirschman, A.O., 1958. *The Strategy of Economic Development*. Yale University Press, New Haven, CT.
- Hobbs, J., 1996. Transaction costs and slaughter cattle procurement: processors' selection of supply chains. *Agribusiness* 12 (6), 509–523.
- Hoff, K., Braverman, A., Stiglitz, J.E. (Eds.), 1993. Introduction. In: *The Economics of Rural Organization*. Oxford University Press, Oxford, pp. 1–27.
- Key, N., Runsten, D., 1999. Contract farming, smallholders, and rural development in Latin America: the organization of agroprocessing firms and the scale of outgrower production. *World Dev.* 27 (2), 381–401.
- Krugman, P., 1995. *Development, Geography, and Economic Theory*. The MIT Press, Cambridge, MA.

- Lajili, K., Barry, P., Sonka, S., Mahoney, J., 1997. Farmers preferences for crop contracts. *J. Agric. Resour. Econ.* 22 (2), 264–280.
- Machethe, C., Reardon, T., Mead, D., 1997. Promoting farm–nonfarm linkages for employment of the poor in South Africa: a research agenda focused on small-scale farms and agroindustry. *Dev. South. Africa*, 14, 377–394.
- Marion, B.W., 1986. *The Organization and Performance of the US Food System*. Lexington Books, Lexington, MA.
- Mellor, J.W., 1976. *The New Economics of Growth: A Strategy for India and the Developing World*. Cornell University Press, Ithaca, NY.
- Milgrom, P., Roberts, J., 1992. *Economics, Organization and Management*. Prentice-Hall, Englewood Cliffs, NJ.
- North, D.C., 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge.
- Reardon, T., Barrett, C.B., 2000. Agroindustrialization, globalization, and international development: an overview of issues, patterns, and determinants. *Agric. Econ.* 23, this issue.
- Royer, J., 1987. Cooperative theory: new approaches. *Agricultural Cooperative Service Report* 18. USDA, Washington, DC.
- Sappington, D., 1991. Incentives in principal-agent relationships. *J. Econ. Perspect.* 5 (1), 45–66.
- Sauvee, L., 1998. Toward an institutional analysis of vertical coordination in agribusiness. In: Royer, J., Rogers, R. (Eds.), *The Industrialization of Agriculture*. Ashgate, Aldershot, UK.
- Shaffer, J.D., 1973. On the concept of subsector studies. *Am. J. Agric. Econ.* 55, 333–335.
- Shirley, M., Xu, L.C., 1998. Information, incentives, and commitment: an empirical analysis of contracts between government and state enterprises. *J. Law Econ. Organization* 14 (2), 358–378.
- Sporleder, T., 1992. Managerial economics of vertically coordinated agricultural firms. *Am. J. Agric. Econ.* 74 (5), 1226–1231.
- Staal, S., Delgado, C., Nicholson, C., 1997. Smallholder dairying under transaction costs in East Africa. *World Dev.* 25 (5), 779–794.
- Stiglitz, J.E., 1974. Incentives and risk sharing in sharecropping. *Rev. Econ. Stud.* 41, 219–255.
- Stiglitz, J.E., 1988. Economic organization, information, and development. In: Chenery, H., Srinivasan, T.N. (Eds.), *Handbook of Development Economics*. North-Holland, Amsterdam.
- Van Hoek, R., 1999. From reversed logistics to green supply chains. *Supply Chain Mgmt.* 4 (3), 129–134.
- Waelbroeck, J., 1998. Half a century of development economics: a review based on the handbook of development economics. *World Bank Econ. Rev.* 12 (2), 323–352.
- Westgren, R., 1995. Firm resources, industrial organization and Austrian economics: the bases for a new strategic management approach to competitiveness. In: *Proceedings of the 22nd International Conference of Agricultural Economists*, Dartmouth, pp. 98–109.
- Williamson, O.E., 1985. *The Economic Institutions of Capitalism*. Free Press, New York.
- Williamson, O.E., 1996a. The institutions and governance of economic development and reform. In: *Proceedings of the World Bank Annual Conference on Development Economics*. The International Bank for Reconstruction and Development, Washington, DC, pp. 171–197.
- Williamson, O.E., 1996b. Comparative economic organization: the analysis of discrete structural alternatives. In: *The Mechanisms of Governance*. Oxford University Press, Oxford, pp. 93–119.
- Zylbersztajn, D., 1996. Governance structures and agribusiness coordination: a transaction cost economics based approach. In: Goldberg, R.A. (Ed.), *Research in Domestic and International Agribusiness Management*, Vol. 12. JAI Press, Boston, pp. 245–310.