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Profits and Risk: Fitting an Old Framework to a New Agriculture

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ABSTRACT

Textbooks in agricultural economics characterize resources used in production agriculture into four categories: land, labor, capital, and entrepreneurial ability. Profit is presented as earned by management. This traditional list of resources is respecified. Management is redefined as a specialized type of labor and two additional resources, information and risk bearing capacity, are added. Profits accrue not to management but to those able to bear the risk inherent in production agriculture. Equity diversification is a means for farmers to provide and manage this resource and, thus, earn economic profits. Producer education and the repeal or amendment of legislation restricting the ability of farmers to diversify their equity investment are needed.

Key Words: agriculture, equity diversification, farm management, information, resources, risk

HIGHLIGHTS

The traditional classification of resources in production agriculture includes land, capital, labor, and management. However, the traditional model does not satisfactorily explain what we observe. Re-specification of the resources facilitates identification of the source of profits and alternatives for sector participants. Resources are respecified to include land, capital, labor, information, and risk bearing capacity.

- Management and labor are combined into a single resource category. It is argued that management is better viewed as a specialized type of labor.
- Information is added as a unique resource used in production agriculture. Accurate, timely, and detailed information is important for good decision making, and it should be considered a distinct resource used by farm operators.
- Risk bearing is differentiated from risk management; the latter is considered an activity of management. Risk management involves adopting tools to reduce risks associated with production, marketing, and financing. Risk management tools have explicit or implicit costs which tend to negate economic profits.

Risk bearing can provide economic profits.

- Diversification of equity is a tool by which to manage risk without sacrificing economic profits.
- The extent to which farm owners will diversify their equity investment is limited by their independent nature, communication difficulties between them, a lack of education regarding the benefits of, and alternatives for, this tool, and policies limiting the organization of farm ownership (*e.g.*, so-called corporate farming laws).
- The potential scope of equity diversification by farmers is large. Producers could diversify, for example, by investing in operations of different types, within different geographic locations, or producing for different markets. Equity sharing of productive assets or enterprises among agricultural producers may not only reduce risk but production costs as well. Facilitating entities could serve to help identify potential equity sharing partners, evaluate and compare risk and returns from perspective operations within which to invest, and evaluate the impact of these investments on an individual's portfolio. Dramatic advances in communication during recent years greatly reduce the cost of identifying suitable partners.
- Equity sharing is restricted or prohibited in nine states. There are sometimes compelling arguments for the existence of these laws, but there are other means by which to obtain benefits such as the continued existence of the family farm and protection of rural communities and the environment. In many cases, these alternatives are already in place. Furthermore, allowing farmers to share equity may increase the chances a family farm will survive.
- The challenge in facilitating producer efforts to increase profitability by increasing risk bearing ability is two-fold. First, producers must be educated regarding the advantages of diversifying their equity investment. Second, policymakers should be urged to carefully consider how adopting new or revising existing (*e.g.*, anti-corporate farming) legislation will affect the ability of farmers to provide the resource of risk bearing to the farm operation.

Profits and Risk: Fitting an Old Framework to a New Agriculture

Cheryl J. Wachenheim and David M. Saxowsky*

1. Introduction

Structural and other changes continue to redefine the agricultural sector. This evolution has been well-documented and includes, for example, increasing farm size and specialization, decreasing farm numbers, increasing use of production contracts, and evolving markets for specialty products and those with otherwise unique characteristics (*e.g.*, organic). The causes, nature, extent, and results of these changes have been and continue to be widely discussed and debated throughout both the popular and academic literature. In general, the changes suggest that the pendulum is swinging from the long-held characterization of production agriculture as a near perfectly competitive industry to one increasingly characterized by imperfect competition.¹

Textbooks in agricultural economics characterize the resources used in production agriculture into four categories: land, capital, labor, and entrepreneurial ability (management) (Figure 1). Land defines the soil and the environment within which the farm is contained. Capital includes resources that are tangible and depreciable such as farm machinery, buildings, and brood cows, as well as equity. Labor is considered strictly the physical act of performing a task while management defines the process of controlling the other resources. Decision making, innovation, gaining access to and use of information, and risk management have all traditionally been considered functions of the management resource. Although managers are motivated by a variety of goals (*e.g.*, profit, quality of life, risk aversion), within the narrow confines of textbook neoclassic economics, they seek only to maximize profit.

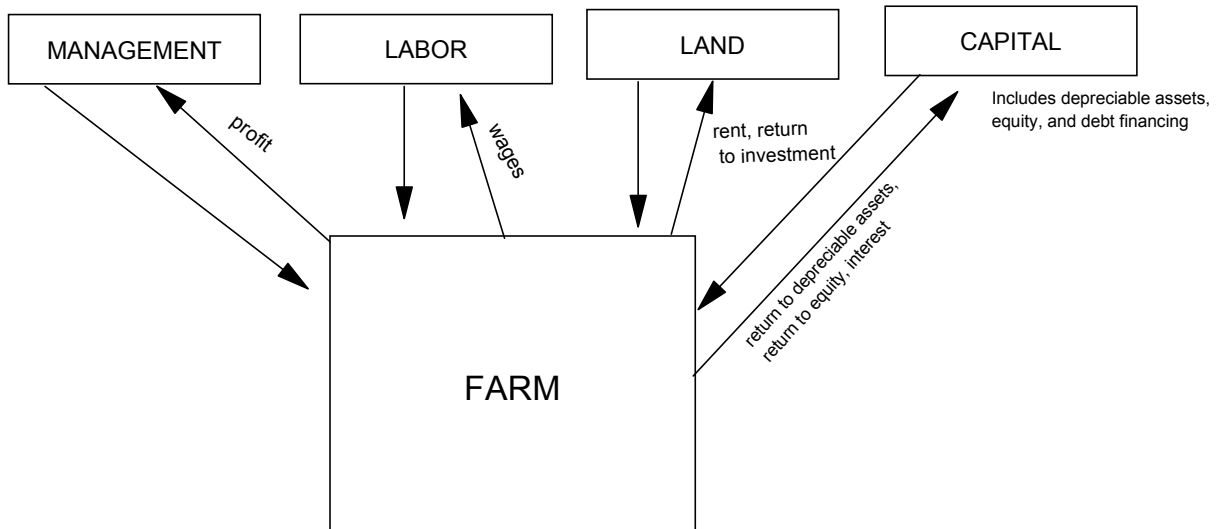
When considered a perfectly competitive market, the assumptions defining production agriculture are strict. Under perfect competition, there exist: 1) a large number of buyers and sellers, none of whom individually influence price, 2) homogeneous products, 3) free entry and exit, and 4) information that is readily available for and accessible by all market participants (Rhodus, Baldwin, and Henderson). The assumption of free entry and exit defines all resources as instantaneously and freely mobile.² Free entry and exit, perfect information, and the notion that the behavior of rational market participants striving to maximize profits can be predicted with certainty, result in a risk free environment.

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¹ Here, production agriculture is narrowly defined to include production and marketing of agricultural commodities produced on the farm.

² Resource mobility is not defined literally but rather by use. Although it can be altered by capital improvements, the land resource is fixed in its locale. It is mobile in that it can be used in other alternative productive activities.

Figure 1. Inputs to Production Agriculture:
Traditional Framework



Within this environment, textbooks identify fair return to the use of the resources of land, capital, labor, and management to be rent, interest, wages, and profit. In *Agricultural Economics and Agribusiness*, Cramer, Jensen and Southgate (1997, p.79) state, “This grouping accords with the view of resource earnings held by firm operators, with the payment to *land* called ‘rent’, the earnings of *labor* its ‘wage’, the earnings of *capital* its ‘interest’, and rewards to *management* being ‘profit’.”

The purpose of this paper is to revisit this traditional classification of resources. Doing so will facilitate identification of the source(s) of profits in the sector and definition of alternatives for its profit-seeking participants. Specifically, it is argued that the re-specification of resources combines labor and management into a single resource category and two resource categories, information and risk bearing capacity, be added. A brief discussion supporting reclassifying the management resource as labor and the specification of a resource called information are first presented. This re-emphasizes a fundamental economic principal: economic profits are not generated if resources earn only the value of their contribution to an economic activity. An argument is then presented to add risk bearing capacity as an additional resource category. It is contended that a capacity to bear risk can be a source of economic profits. In making this argument, a wide array of risk *management* tools available to farmers and their effectiveness in *shifting* risk is discussed. It is emphasized that the cost of using these tools can negate economic profits. Thereafter, an explanation of how bearing risk can generate profits is presented. Discussion of an alternative which can increase the risk *bearing* ability of farmers and, thus, allow them to earn economic profits follows.

2. Redefining the Resources of Production Agriculture

Changes in production agriculture warrant a reconsideration of the economic framework used to describe the forces shaping it. Specifically, economists should re-evaluate how well existing models explain and predict decisions made by, and the varying levels of success of, farm owners. The traditional economic framework does not explain satisfactorily what is observed. Why do some farms earn a profit while others with comparable resources do not? Why do some sectors of the agricultural marketing channel earn profits while others do not?

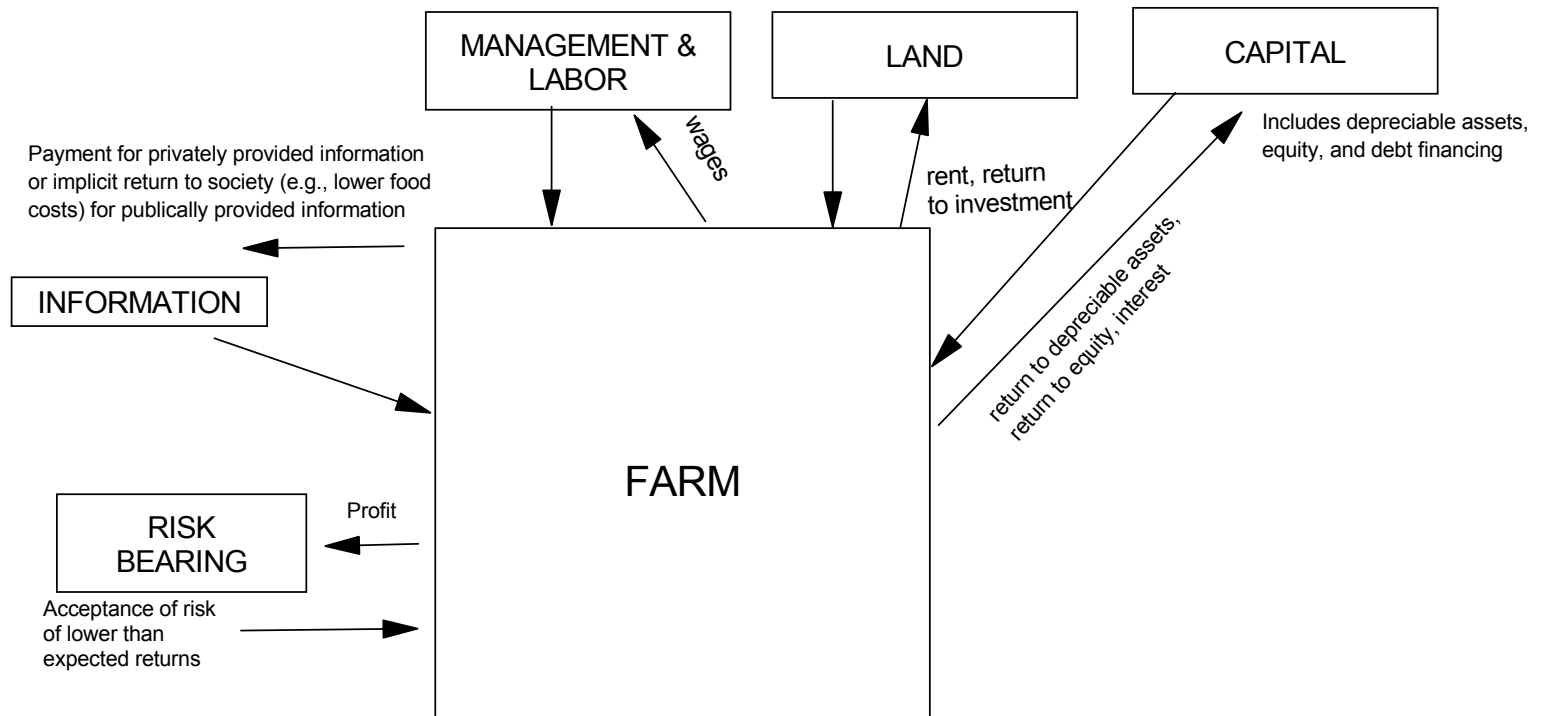
Hypotheses and associated empirical support for a variety of economic models that attempt to explain these phenomenon are found throughout the academic literature and the popular press. For example, differential market power between participants within the marketing channel is proposed to explain differences in profitability. It is argued that profits accrue to those participants comprising the concentrated industries selling inputs to, and buying products from, the farms that comprise a less concentrated sector. Economies of size is used to explain why some farms are profitable and others are not. Production and market efficiencies, it is argued, allow larger farms to earn greater returns than their smaller counterparts.

While sometimes compelling evidence is presented, we lack a theory that well explains and predicts which participants in the agricultural sector will earn economic profits. A point of departure in the search for a more valid and reliable model is to re-specify the resources of production agriculture. First, it is argued that management is not a profit generating resource, but rather is a specialized type of labor earning a wage associated with the value it provides. Therefore, the traditionally separated labor and management resources can be considered a single resource. An argument is made for the explicit inclusion of two additional resource categories: 1) information and 2) risk bearing capacity. Each of the proposed alterations to the more traditional model is discussed in some detail in the following sections. Figure 2 shows the resulting proposed framework defining the resources of production agriculture.

2.1. Management and Labor

It has been noted that the traditional model identifies fair return to the use of the resources of land, capital, labor, and management as rent, interest, wages, and profit. It shows that the existence of or potential to generate economic profits can be attributed to the innovation, decision making, or other skills “owned” by the management resource. As production agriculture evolves and profit margins continue to tighten, the level of skill with which its productive enterprises must be managed increases. The skills required to, for example, identify and develop niche markets and produce products appropriate for them are different than those necessary to produce and market an agricultural commodity. Although management tasks have changed, our consideration of such within the traditional economic framework has not. The abilities of management to direct farm resources to their best-value use have continued to be identified as the source of profits. That is, we continue to conclude that good managers should earn a profit.

Figure 2. Inputs to Production Agriculture:
Revised Framework



Alternatively, it is our contention that management should be viewed as a specialized type of labor. This is consistent with the traditional model in that, to successfully bid for their use in a particular enterprise, resources, including management, must be paid a return equivalent to their value in generating net income. When resources are mobile, this is the return offered from their next best alternative use. Within a perfectly competitive framework, if a resource can earn more elsewhere, its price is bid up by profit seeking producers to a level at which it earns no economic profits. It is here emphasized that this holds true for the management resource. Innovativeness, decision making, a willingness to bear risk, and other psychological characteristics and skills defining management simply make it more valuable and, accordingly, it demands a higher wage. This is demonstrated in the marketplace by differences in wages paid to managers at various levels within a firm or to managers in equivalent positions at different firms. Under the assumptions of perfect competition, particularly that of resource mobility, management does not earn economic profit.³ Whether “labor” or “management,” individuals in production agriculture receive a return equivalent to their contribution to the farm. Labor and management do not, therefore, warrant consideration as unique resource categories.

2.2. Information

Information warrants identification as a unique resource used in production agriculture. Accurate, timely, detailed information is important for good decision making just as an appropriate soil type is important for crop growth. Fortunately, there is an extensive array of detailed information available about various agricultural enterprises and the production practices appropriate for use within them and about agricultural and other markets important to farmers (*e.g.*, financial markets). Historically, much of the information used by farmers and other participants in the agricultural sector has been provided by public institutions and is, therefore, publicly available (Schroeder, *et al.*). The primary public sources of agricultural production and market information are the National Agricultural Statistics Service and other agencies of the U.S. Department of Agriculture (USDA) and land grant universities through their Agricultural Experiment Stations and Cooperative Extension Services.⁴

There are also private sources for information about historic, current, and expected conditions in agricultural markets (*e.g.*, Cattle Fax). However, there remain compelling arguments for the public collection and dissemination of information. Therein exist economies of size. Furthermore, market information is likely to be under-collected privately. Its value is

³Only when management is immobile, and paid a wage less than its value to the firm, is economic profit earned. We concede that the management resource for, *e.g.*, a family farm operation, may be relatively immobile in the short run. However, so too is the labor resource the farmer provides. These resources are only immobile over the longer run if the farm’s owner is not motivated solely by profit.

⁴The National Agricultural Statistics Service of the USDA provides state yield and price information (Patrick). Cooperative Extension Services provide a wide array of information about resource use, production practices, and the economic viability of various agricultural enterprises as well as situation and outlook information. The most comprehensive source of price and other market information is the USDA Agricultural Marketing Service (AMS). In fact, most other publicly available information about agricultural markets simply summarizes or otherwise revises that provided by the AMS.

not known until it is used and it is difficult to limit use of the information by others once disseminated.

Regardless of its source, information is and will continue to be a distinct resource used by farm owners and operators for decision making. While we have noted that public information is available to producers and, to some extent, public agents are available to interpret this information in a manner meaningful to individual producers, it is likely this task will increasingly be provided by private entities. As such, the cost of obtaining this resource will shift from society to farm owners. The extent and nature of the market for private information will depend on the willingness of farmers and other market participants to provide a fair return to those who provide this resource. If information continues to be a public good, managers who are more skilled at obtaining, analyzing, and using it will demand a higher wage than those less skilled.

2.3. Risk Bearing Capacity

Similarly warranting explicit consideration as a resource used in production agriculture is the ability to bear risk. Although risk has always been part of production agriculture, farmers are no different than others in that they are, in general and in most circumstances, risk adverse. That is, they accept risk because doing so increases expected profits (or provides other, sometimes intangible, benefits).

Alternatively, for a fair return, farm owners can hire external agents to bear risk. Providing a fair return means that farmers do not lay claim to economic profits when risks are borne by others. Just as a farm manager must decide whether to use equity financed land in the expectation a fair return will accrue to the equity investment or whether to pay others to provide this resource (*e.g.*, cash rent), (s)he must decide whether the farm owner will bear risks or will rather pay others to do so (*e.g.*, an insurance company). Those ultimately bearing the risks inherent in production agriculture do so with the expectation of a fair return.

Many of our traditional measures of risk (*e.g.*, standard deviation) represent “upside” as well as “downside” risk. However, unless owners are concerned about the potential for tax liability, the relevant risk is “downside” risk, for example that of less than or less timely than expected cash flow or net income.⁵ Managing this risk involves anticipating the potential for undesired events or circumstances and, when cost effective, taking measures to avoid them or their consequences. Managing risk can be considered a manager’s responsibility. Bearing risk is not. The distinction is important and it is later argued that risk bearing capacity can be a source of profits while managing risk is not. In the following section, the tools available for risk management and the cost of their use are discussed to support the argument that risk management does not earn economic profit. Characterization of the risk bearing resource as a source of profits is then presented. An alternative by which farm owners can provide this

⁵ If the risk of less than or less timely than expected cash flow or net income can be absorbed by the operation because excess equity is available, the owners would expect a higher return on their equity investment in return for bearing this risk.

resource, diversification of equity investment, is then discussed, as are actions which will facilitate its adoption.

2.4. Risk Management

Risks in production agriculture include those associated with production, marketing, and financing. Risk management tools available to farmers today by and large help them *manage* but not *bear* risk. Nearly all available risk management strategies, with perhaps the exception of those offered to producers by society,⁶ have an explicit (*e.g.*, payment of an insurance premium) and/or implicit (*e.g.*, foregone revenues) cost associated with their use. These costs tend to negate expected economic profits. A brief review of the tools available to manage production, marketing, and financial risks in production agriculture and the cost of their use is provided in Table 1 and discussed here to demonstrate this point.

There are various means by which farm owners can reduce production risk. However, employing strategies to reduce the likelihood of an undesirable production event have associated costs. For example, increasing the likelihood field work will be timely by carrying excess machinery capacity has an implicit cost, the otherwise expected earnings from the invested capital. Applying chemicals to reduce or eliminate potential weeds and insects and thereby reduce the risk of lower than expected crop yields has an explicit cost, that of purchasing and applying the chemicals. Diversification of the farm operation can reduce production risk by reducing the consequences of an undesired event. A farm can be diversified by increasing the number of enterprises (*e.g.*, crop and livestock enterprises on a single farm) or including in the farm operation geographically separated enterprises or those that use a diversity of resources or production practices (*e.g.*, growing several different varieties of corn). Managing risk through diversification may also provide other advantages such as facilitating the use of labor and other resources (*e.g.*, because the time at which resources are required varies between enterprises) and improving yield (*e.g.*, because of the benefits of crop rotation). In spite of its advantages, because diversification reduces the size of individual enterprises, a cost is generally associated with its use as a risk reduction strategy. This cost may be explicit (*e.g.*, increased production cost) or implicit (*e.g.*, reduced revenues). The cost of another production risk management tool, subsidized crop insurance, is borne as an explicit cost, in part by the farmer through premiums and in part by the taxpayer.

There are also costs associated with managing market and financial risk. The cost of strategies to manage market risk may be explicit (*e.g.*, the premium on an option contract) or implicit. The strategies of spreading sales or forward contracting, for example, may have an implicit cost, *e.g.*, foregone revenue. That of qualifying or maintaining eligibility for government programs may include administrative and other explicit costs, but may also include foregone revenues. Financial risks are similarly reduced by strategies which pose an explicit cost (*e.g.*, the premium for insurance carried, the interest cost associated with maintaining borrowed financial reserves) or an implicit cost (*e.g.*, foregone revenue or increased cost because capital expenditures to increase production or efficiency were postponed or not made).

⁶ Those for which society is bearing the risk without extracting due profits, *e.g.*, subsidization of crop insurance.

Table 1. Tools for Risk Management in Production Agriculture

TYPE OF RISK	TOOL FOR RISK MANAGEMENT	POTENTIAL OR EXPECTED COSTS	
		EXPLICIT	IMPLICIT
PRODUCTION	Investment in lower risk enterprises		Foregone revenues
	Diversification of enterprises (e.g., production practices, enterprise type, geographic location)	Increased production cost	Foregone revenues
MARKETING	Market information	Cost of obtaining, analyzing, using	Time/management
	Participation in government programs	Increased production, administrative costs (e.g., record keeping, application)	Foregone revenues associated with maintaining eligibility
	Spreading sales; use of forward contracts or other marketing arrangements		Foregone revenues, time/management
	Hedging	Brokerage fee	Foregone revenues
	Options	Premium, brokerage fee	
FINANCIAL	Insurance*	Premium	
	Maintaining reserves (inventory, financial)	Increased overhead cost	Foregone revenues
	Deferring or reducing capital investments	Lease or rental expense	Reduced efficiency (increased production cost or foregone revenues)

* Crop and revenue assurance insurance can also be considered tools by which to reduce production and/or marketing risk.

3. Diversification of Equity Investment as a Risk Bearing Strategy

Risk cannot be engineered out of production agriculture.⁷ Government programs have thus far dictated that society take on some of the risk—public monies fund, for example, commodity programs, subsidized crop insurance, and disaster payments. Other risks have been efficiently spread or transferred away from the farm operation through external economic agents who provide the risk bearing resource (Johnson 2000). The remaining risk must either be managed internally or borne by the farm owner.

⁷ There is also substantial risk in the agribusiness sector. Agribusinesses and others, for example, take on the risk associated with developing technologies in both the input and output markets.

The extent to which the public will be willing to continue accepting risks inherent in production agriculture is uncertain. Internal resources (*e.g.*, owner equity) or external agencies assuming the remaining risk will continue to demand payment for doing so, thus eroding or negating economic profits in production agriculture. Alternatively, in other sectors of the economy, business owners can acquire profits without bearing substantial risk. In these sectors, a well-designed business structure can support diversification of equity investment among multiple owners. Because particular organizational structures facilitate diversification of an equity portfolio, they allow business owners to bear risk, that is, to *manage* risk without sacrificing economic profits.

The reason is well-understood. As demonstrated by Modigliani and Miller, an asset (*e.g.*, a farm enterprise) held as part of a portfolio (*e.g.*, of farms or farm enterprises) is usually less risky than this same asset held in isolation. The expected return from a portfolio of assets is the weighted expected return from each asset. The expected riskiness of an investment, however, is its contribution to the riskiness of the portfolio of assets held. The more diversified are the returns from assets held in the portfolio, the greater the risk reduction from holding the assets in a portfolio of assets rather than individually. The advent of mutual funds and other investment alternatives has facilitated the ability of equity investors to diversify risk. In the same way, equity diversification through investment in various assets (*e.g.*, machinery, buildings) or business entities (*e.g.*, farms) would allow farm owners to *bear* risk. By bearing (rather than shifting) risk, farm owners thus become entitled to accrue profits. However, this basic tool is underutilized in production agriculture, particularly among farms organized as sole proprietorships or partnerships.

Production agriculture appears to be the only sector in our economy that expects owners of small businesses to invest a majority of their assets in a single firm and, in states with anti-corporate farming legislation, requires that the ownership of the business be held by no more than a small group of relatives. The independent nature of farmers and communication difficulties between them and a lack of producer education regarding the benefits of, and alternatives for, equity diversification likely contribute to the lack of the use of this alternative among farmers. Furthermore, policies limiting the organization of farm ownership can greatly impede the adoption of this strategy, one which has the potential to reduce risk without eroding economic profits. Restrictions on the source of equity investment in production agriculture reduce the ability of farm owners to bear risk. [So-called anti-corporate farming laws negate or severely limit equity diversification among farm owners. The nature and rationale of such are discussed in more detail in the appendix.] Alternatively, agribusiness firms and those in other economic sectors widely use the strategy of diversification of equity investment to allow owners to bear risk, that is to manage risk without sacrificing expected profits.

Opponents to reducing impediments to shared equity investment as a means to improve the risk bearing capacity of farm owners might argue that the cooperative structure already allows producers to share equity. However, the one member/one vote rule of cooperative organization denies producers the ability to share in decision making in proportion to their equity contribution and the amount of risk they hold as a result. Opponents might further argue that value added, so called “new generation” cooperatives, provide producers with a vehicle for diversification. However, membership in such generally requires additional equity rather than diversifies investment of existing equity.

In spite of laws and attitudes which impede its adoption, there is good reason to consider the potential of diversified equity investment as a risk bearing strategy for farm owners. Economies of size reduce the number of enterprises in which one farm family can invest. In fact, it is increasingly the case that, to grow or maintain a viable size operation, producers must resort to debt financing; in effect receiving the financier as the outside investor. The difficulty arises in the nature of debt payment, which is designed to be of a specific amount payable at a specific time, versus equity payment, which is by nature responsive to the production and market risk inherent in production agriculture. In effect, by using debt financing to reduce production and market risk through diversification or other means, the producer increases financial risk.

3.1. Equity Diversification Alternatives

The potential scope of equity diversification by farm owners is large. Producers could diversify, for example, by investing in operations of different types (*e.g.*, a livestock producer investing in one or more crop enterprises), operating within different geographic locations, or producing for different markets (*e.g.*, grain targeted for a commodity market versus a certified organic operation aimed at a growing niche market). Equity sharing of productive assets or enterprises among agricultural producers may not only reduce risk but production costs as well. Coordinated machinery sharing by producers in regions where machinery is needed at different times will reduce capital investment cost. If the pool of sharing producers is well-selected, planned machinery and equipment needs would not overlap. Custom combiners have long capitalized on differing harvest times between geographic regions.

Facilitating entities could serve to help identify potential equity sharing partners, evaluate and compare risk and returns from perspective operations within which to invest, and evaluate the impact of these investments on an individual's portfolio (*i.e.*, expected return and risk). Dramatic advances in communication during recent years (*e.g.*, the Internet) greatly reduce the cost of identifying and collaborating with suitable partners. Because some equity sharing arrangements, if successful, might promote reduced capital expenditures by farmers, those agribusinesses likely to be affected might gain by pro-actively internalizing the benefits. For example, developing a program wherein assets are leased by period of use rather than annually may allow dealers to reduce the cost to participating producers and increase their own revenues.

Options by which the risk borne by farm owners can be reduced through equity diversification are limited only by the imagination and, in nine states, laws which restrict or prohibit it. Thus, there exists a compelling reason to reexamine how our policies are, first, hindering movement towards the natural risk management mechanism of diversification (one that is of no or low cost to society) and, second, how we are facilitating it. The first step is simply to make it possible by eliminating or rewriting existing legislation.

3.2. Changing State Legislation to Make Equity Diversification Possible

The most obvious policy to revisit is ironically that which was initially designed and subsequently defended as a means to enhance the ability of small, family farms to survive. This paper has demonstrated that the risk bearing ability of farm owners can be an important source of profits in production agriculture. However, progress in increasing the risk *bearing* ability of farm owners through equity diversification is not likely without the repeal or amendment of state

laws restricting or prohibiting equity investment in farms by non-family members. There are sometimes compelling arguments for the existence of such laws. However, we argue that the benefits now attributed to legislatively mandated farm structure (*i.e.*, saving the family farm, protecting rural communities and the environment) can be maintained without anti-corporate farming laws. Reasonable alternatives to addressing societal concerns about the impact of farm structure on the community and the environment exist and in many cases are already in place. Furthermore, allowing farmers to share equity, including accepting outside *equity* investment, may increase the chances a “community and environmentally friendly” family farm will survive. Undesired impacts of changes in the equity financing of local farms on society (*e.g.*, reduced local purchasing and community involvement by farmers) can be avoided by amending statutes to allow for outside equity to flow into production agriculture while preserving local control. Concerns about the impact of farm structure on the environment are unnecessary when there exists a system of well-written laws regarding the production practices of farms and their environmental impacts. With these safeguards in place, producers will be *free, but not compelled*, to improve their risk bearing capacity through diversification of their equity investment. Outside equity will not flow into production agriculture to share risk unless producers allow it and economics encourages it.

4. Conclusion

The present framework within which the resources of production agriculture are considered benefits from the redefinition of management as a specialized type of labor, one which in equilibrium demands a return equivalent to the value it provides. Furthermore, consideration of information and the ability to bear risk have become important to understanding the forces and interactions in production agriculture. Explicit consideration of them as resource categories is thus warranted.

Production agriculture has changed and continues to change. Profit margins are tightening and farmers face increasingly concentrated markets both for purchasing inputs and selling outputs. Our nation continues to lose farms. However, by evaluating the industry within our existing framework, we continue to expect those operating under good management to survive and continue to prosper. Those managers skilled in obtaining and using information and managing risk will continue to generate profits.

Alternatively, it has here been argued that, no matter how skilled, when managers are rewarded for the value they provide to the farm, no economic profits are earned by the farm owner. Alternative profit sources need to be identified. That considered in detail within this paper is increasing the ability of the farm owner to bear risk, specifically through diversification of their equity investment. Advances in communication and other technologies have greatly reduced transactions costs, and will facilitate the ability of producers to communicate, evaluate and compare risk and returns from their perspective operations, and, where allowed, reduce their risk through diversification by investing equity in one another’s operations or sharing equity-owned assets (*e.g.*, machinery).

The challenge in facilitating producer efforts to increase profitability by increasing risk bearing ability is two-fold. First, producers must be educated regarding the advantages of diversifying their equity investment. This process will be facilitated by explicitly specifying the

ability to bear risk as a resource in production agriculture. Second, laws must be changed to allow producers to fully diversify their equity investment. Policymakers and others involved in or influencing production agriculture should consider how those in related business sectors have diversified risk and identify those mechanisms most likely to benefit agricultural producers. Policymakers should carefully and more explicitly consider how adopting new or revising existing (*e.g.*, anti-corporate farming) legislation will affect the ability of farmers to provide the resource of risk bearing to the farm operation.

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APPENDIX – A Discussion of Farm Ownership Legislation

Traditionally farmers have had the majority of their assets invested in the farm business, even in states where non-family investors are allowed. Most farms are household based, family operations organized as an individual or family (sole) proprietorship or partnership (Welsh). However, the structure of production agriculture is changing. Corporate farms are increasing in number as the number of individual family operations, part owner/operators, partnerships, full owners, and tenants is decreasing (Thomas, *et al.*).

In most states in the United States, the corporate structure for, and outside ownership of, the resources used in production agriculture (*e.g.*, land, facilities, livestock) are allowed. However, nine states (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin) legislatively limit the corporate structure or outside investment (Welsh, Bahls, Knoeber, Johnson 1995, Stayton, Krause). The strictest law is that found in North Dakota. [A recent Rural Life Poll shows continuing support for this legislation among farmers (Institute for Regional Studies).] The fact that all states with so called anti-corporate farming legislation exempt the family farm indicates policymakers recognize that the corporate form of organization is not itself a threat (Johnson 1995, Krause).

Rather, concern about real, perceived, or anticipated effects of changes in the structure or organization of production agriculture has fueled adoption of legislation limiting investment in the sector's resources. There is mixed opinion on the effect of these laws. Many argue legislation is not effective at protecting a structure of family farms in favor of continued concentration (Bahls, Knoeber, Johnson 1995, Stayton). Hurt; Cecelski and Kerr; and Stayton further note that such state legislation, when based on social goals, may inherently protect potential inefficiencies and in fact shift economic growth in the sector out of the state. In fact, valid competitiveness concerns exist when states independently impose requirements on firms operating within their state. This issue has been well-explored for various industries and a multitude of issues ranging from environmental restrictions on agricultural production to term limits for our nation's legislators.

Arguments supporting anti-corporate farming laws include a social desire to protect our agrarian heritage, and a belief that corporate farms have undesirable outcomes. There is general agreement within the literature that the intent of anti-corporate farming legislation has been to protect the family farm (Bahls, Powers, Stayton). Supporters argue that family farms should be protected because they represent the ideal on which this nation was founded. The perception is that larger farms (corporate farms) benefit from economies of size and, thus, threaten the survival of smaller farms (family farms) (Welsh, Johnson 1995). However, the extent to which this is true and is an appropriate rationale to legislate farm structure has been long debated.

Others favoring anti-corporate farming legislation support their position with evidence or assertion that corporate farming has undesirable outcomes for society, especially local communities and the environment (Welsh). Although reality is far from definitive, the focus of the literature and popular press is asymmetrically weighted towards the virtues of small and medium-sized farms, family farms, and independent producers and against large farms and corporate farms. [A number of terms are used in the literature to differentiate farms by

organization or characteristics. The question of whether large farms and corporate farms can be appropriately lumped together for discussion has not been sufficiently addressed.]

The majority of the relevant literature provides evidence or otherwise asserts that a structure of production agriculture based on smaller sized farms results in more socially and/or economically healthy rural communities (Hassebrook and Cleaveland, USDA, Wallace, Bahls, Drabenstott, Lins, Northwest Area Foundation, Cecelski and Kerr, Daniels, MacCannell, Goldschmidt). Two explanatory theses have been offered. First, it has been frequently argued that smaller or independently owned farms are more likely to purchase their agriculture inputs and do their personal shopping locally (Carlin; Lawrence, Otto, and Meyer; Paul; Drabenstott; MacCannell). Second, it is argued that independent producers or those with smaller farms tend to believe they have more of a stake in, and are therefore more involved in, the local community (USDA; Paul; Fulton and Gillespie; MacCannell). Bahls and MacCannell argue that this is, at least in part, due to an increase in absentee ownership of larger farms. There are, however, conflicting conclusions within the literature about the effect of farm structure on local communities (Johnson 1995). Hefferman and Campbell, for example, concluded that the presence of corporate agriculture in the Midwest appears to enhance, rather than harm as asserted by Goldschmidt and subsequent work, the viability of rural communities.

The literature in general also provides evidence or otherwise asserts that small farms are more sustainable and better protect the environment (Potter and Lobley, Paul, Bahls, Thomas *et al.*, Northwest Area Foundation, MacCannell). However, again reality is far from clear. Ervin and Smith point out that how industrialization of agriculture affects environmental quality depends on pollution processes, the rate and nature of technology and technology adoption, and environmental regulations. They assert that evidence from other sectors suggests that more industrialized farms will adopt new technology, including that which reduces the negative impact of production agriculture on the environment, earlier and at a faster rate and may have more ability, but less willingness, to do so.

Finally, there are those who argue against investment in agriculture by outsiders because they are perceived as undesirable in certain regions and farming activities (Krause). Particular concerns about equity investment by external agents are the resulting distance between ownership and management and that the corporate structure generally used for such provides limited liability. Roy argues that, under corporate organization, when firm ownership is diffuse, managers are not accountable to owners. He asserts that managers not sufficiently accountable may engage in activities that shareholders (*i.e.*, equity owners) do not endorse.

The corporate structure is of concern because owner liability for the actions of the business is limited. Prohibiting corporate farms effectively prohibits farm owners from limited liability protection. Liability is a particularly important consideration in production agriculture because of the sector's unique relationship to the environment. However, there exist in agriculture and in other economic sectors, mechanisms, often legislated, which reduce the risk of environmental damage. For example, processing plants occupy an important position within the agribusiness marketing channel. There are a few who would argue that the organizational structure of these entities should be restricted because limited liability protection may motivate owners' decision making to the expense of the environment. Rather, laws directly (*e.g.*, by specifying allowed filtering technology) or indirectly (*e.g.*, by specifying maximum nutrient

loads in waste water) govern business practices. There is in fact already an extensive set of laws which govern practices used in production agriculture and the allowable environmental impact of their use. As the public becomes more aware of and educated about the relationship between farming and the environment, and the technology by which to measure and identify sources of environmental damage improves, increasingly strict environmental regulations governing production agriculture continue to evolve. The same holds true for other issues where limited liability may otherwise be an important argument against the corporate organization for production agriculture (*e.g.*, worker safety). In fact, allowing outside or shared investment may encourage adoption of farming practices which minimize environmental impact, improve worker safety, and so on. Producers may be both more willing (*e.g.*, as the details of the operation are more carefully scrutinized) and, because of outside investment, more able, to adopt such practices. It is not a giant leap of reason, for example, to expect a producer soliciting a potential investor to be well-prepared with up-to-date, well-organized manure management records that otherwise may not be kept.