

Agricultural entrepreneurs as entrepreneurial partners in land-use management: a policy-based characterization

Scott R. Steele*

Working Paper No. 36 June 1999

Department of Economics
National University of Ireland, Galway

<http://www.nuigalway.ie/ecn/>

*Department of Economics, National University of Ireland, Galway, Ireland. Telephone: 353-91-524411 ext 3043. Fax: 353-91-524130. [E-mail: scott.steele@nuigalway.ie](mailto:scott.steele@nuigalway.ie)

Abstract

An organizational economic analysis of the agricultural enterprise illustrates that agricultural entrepreneurs are not the independent capitalist entrepreneurs they are often assumed to be. This paper offers an alternative characterization of agricultural entrepreneurs as entrepreneurial land-use managers in an (uneasy) partnership with the state to provide food and fiber and additional non-food based environmental products and services. Analysis of European and North American agricultural policy on market liberalization and the environment support this characterization. The partnership characterization is important for understanding current agricultural policies and the relationships between agricultural entrepreneurs, the state and the general populace.

JEL Classification:

Key Words: Agricultural entrepreneurs, organisational economics, land-use management

1. Introduction

The politics of agricultural policy and agricultural policy revision are often controversial and adversarial.¹ Underpinning much of these contentious debates are alternative visions of presumptive policy entitlements (Bromley and Hodge, 1990), ‘good farm practices,’ and the very nature of the agricultural enterprise. This paper makes an initial attempt to recast the debate by arguing that agricultural entrepreneurs and the state are partners in land-use management. Using organizational economics I argue that the agricultural enterprise is a unique enterprise that should be viewed in partnership terms. Such a characterization is supported by a policy-based analysis showing that agricultural entrepreneurs are not independent capitalist entrepreneurs of the traditional variety. Furthermore, the developed partnership characterization makes clear that great care must be taken in considering the incentive implications of agricultural policy.

2. Problem Setting

With few exceptions, agricultural economists, policy makers, and agricultural entrepreneurs, view the agricultural enterprise as a capitalist enterprise and the agricultural entrepreneur as an independent capitalist not unlike the small shopkeeper of “Main Street.” At the same time, however, these parties see agricultural entrepreneurs as entrepreneurs of a special type—a type that (1) needs price supports, (2) is required to follow good farming practices, and (3) must be engaged to maintain the countryside and diverse service-providing ecological habitats.

In the OECD context the agricultural enterprise has been constructed through legal and economic means as a capitalist enterprise (Durrenberger, 1984). Further, recent trends on free trade policy suggest that the agricultural enterprise will move in a direction where the agricultural entrepreneur can be viewed on a par with the classical textbook

entrepreneur who responds to supply, demand, and price (Kamp and Runge, 1994; European Commission, 1997; Hallberg, 1996; Stuart and Runge, forthcoming).

At the same time, however, agricultural entrepreneurs appear to be moving away from the textbook entrepreneur categorization as they themselves, together with policy makers and academics, are referring, with increasing frequency, to the services that the agricultural enterprises provide to the wider community through maintenance of the countryside. There is increasing pressure on policy makers to recognize that farmers are providing a service and that “payment for services rendered” should be forthcoming. Does this development push agricultural entrepreneurs out of the category of ‘independent capitalist entrepreneurs’ and into the category of ‘employees of the state’? What, then, is the nature of the agricultural enterprise and agricultural entrepreneurs?

This paper argues that agricultural entrepreneurs are not the independent capitalist entrepreneurs one would expect to find in textbooks and on “Main Street.” The difference that exists, however, is not a category difference—agricultural entrepreneurs and “Main Street” entrepreneurs are both utility (profit) maximizing agents seeking to do the best they can given particular institutional and market conditions. The policy-significant difference between agricultural and “Main Street” entrepreneurs is simply a matter of magnitude. The actions of agricultural entrepreneurs are generally of greater concern and interest to the larger community than are the actions of “Main Street” entrepreneurs.

Such considerations arise because the last twenty years have witnessed a change in the nature and scope of the agricultural enterprise. The agricultural enterprise is no longer viewed primarily as a cog in the process of industrialization.² Environmental interests, policy makers concerned with rural development, and agricultural academics now view the agricultural enterprise as jointly producing commodities and other non-food products and services for the larger community (Bromley and Hodge, 1990; Coleman, 1993).

Given the scope of the modern agricultural enterprise in terms of being able to alter the visual countryside, to pollute rivers and watersheds, to reduce soil erosion and levels of sediments in rivers, and to provide wildlife habitats, the environmental implications of agricultural activities are of significant concern to the general populace. The activities of agricultural entrepreneurs are associated with large-scale externalities (positive and negative) while the activities of “Main Street” entrepreneurs generally are not. As such, “Main Street” entrepreneurs are given relatively expansive freedom to succeed or fail on the basis of market forces. In contrast, given the interest of the citizenry in the business of agricultural entrepreneurs, agricultural entrepreneurs are directly affected by the non-market forces of collective action. This is true to such an extent that the state and agricultural entrepreneurs might best be viewed as partners in commodity production and land-use management.

In expanded and illustrating the point the sections to follow briefly consider the history of agricultural policy in North America and the Common Agriculture Policy [CAP] of the EU. I then briefly examine current agricultural policies in North America and the EU in an attempt to provide a more accurate characterization of the agricultural entrepreneur. Following this an organizational economics approach is taken in systematically examining the nature of the agricultural entrepreneur and the relationship between agricultural entrepreneurs and the state. We arrive, in the end, with a more accurate characterization of the agricultural entrepreneur and then consider the implications of this characterization.

3. Brief history of agricultural policy and policy research in North America and Europe

The history of agricultural policy research in North America (post World War II) has been dominated by dedicated agricultural scientists in the agricultural colleges and universities throughout the United States. Such research has been pursued “in the service of the economic development in rural and farm America” (Durrenberger, 1984). The nature of the agricultural enterprise in this era was defined and constructed through the interplay of farmers, agricultural interests and agriculture researchers throughout North America.

The model to which most agricultural economists, policy makers, and agricultural entrepreneur subscribe—the model of agricultural entrepreneurs as ‘independent capitalist entrepreneur’—is not a natural category

There is abundant evidence that during [middle to late 19th Century] in the United States, farmers were appalled at the prospect of becoming peasants, with all the implications of the reactionary, Old world social and economic relations, overtones of stagnation, subservience to aristocratic landowners, impoverishment and impotence (See Powers 1976:35, 49; and letters and editorials in Wallace’s Farmer (1874) for the period).

To avoid becoming peasants and to avoid categorization as subservient employee, the farmer, in conjunction with agricultural researchers, had to act strategically to create the category of farmer as ‘independent capitalist entrepreneur.’ Such an approach has been generally successful (hence the current paper which seeks to show that such a categorization is actually misleading and is not consistent with actual policy circumstances).

The gradual categorization of agricultural entrepreneur as ‘independent capitalist entrepreneur’ was greatly aided by the cooperative movement and could have been significantly delayed, or even thwarted, if not for the acquiescence of the legislative branch in the form of the Capper-Volstead Act that exempted members of agricultural cooperatives from antitrust action. At one level, the cooperative movement allowed agricultural entrepreneurs to adopt some entrepreneurial habits and entrepreneurial logic. But, for fear of anti-capitalist tendencies, the cooperative movement needed further direction.

While the cooperative movement allowed for the development of entrepreneurial skills it was at another level anti-capitalist. The cooperatives aimed to remove all capitalist profit taking from the agricultural food production-distribution-processing network. There was significant opposition to such a movement that resulted in the development of a National Farm Bureau that made alliances with government and the emerging agriculture extension services to take action to direct the cooperative movement and minimize some of the anti-capitalist elements... Through the various alliances the Farm Bureau was able to sell the idea that the farmer was a businessman – farmers became capitalists businessmen by academic assumption and by self-ascription (Durrenberger, 1984).

The view of the farmer as independent entrepreneur has been continually supported and reinforced by government policy, academic rhetoric and academic ideology. The following view of the farmer provided by the Association of American Agricultural Colleges and Experiment Stations in a 1911 committee report remains largely unaltered in today’s “official” policy and academics journals:

He [the farm manager] is chiefly and essentially concerned with the application of economic principles to the conduct of his business. Outside of economics there is nothing which can give his business a

sound scientific basis...it is clear that farm management comes within the domain of economics, because the purpose of farming is to secure a profit from the use of the land and its equipment. If profit is lost sight of, the farm manager, though trained in all branches of farm practice, is doomed to failure....The term farm management may properly be restricted to that phase of rural economics which deals with the business organization and direction of individual farm enterprise, or in other words, deals with the farm as a unit” (quoted in Taylor and Taylor 1952:94-95).

Over the last two decades, however, there has been some implicit recognition that the farmer might be something other than an ‘independent capitalist entrepreneur’ of the form and type of the small merchant or shopkeeper. This implicit recognition has emerged primarily on two fronts. First, in terms of rural development and rural renewal, it is recognized that farming and the agricultural sector have a unique role to play in promoting or thwarting rural development. Second, in terms of environmental protection, broadly speaking, it is recognized that agricultural entrepreneurs, and the agricultural sector, have a unique and indispensable role to play. The European model of agricultural has consistently been more amenable to such features.

To a much larger degree than North American agricultural policy, European agricultural policy has been based on a view of the agricultural enterprise that is less direct in its claims that the agricultural enterprise is a capitalist enterprise. To see this it is worth quoting Article 39 of the Treaty of Rome where the objectives of a common agricultural policy are given:

The objectives of the common agricultural policy shall be (Treaty of Rome, 1957):

- (a) to increase agricultural productivity by promoting technical progress by ensuring the rational development of agricultural production and the optimum utilization of all factors of production, in particular, labour;

- (b) thus, to ensure a fair standard of living for the agricultural community, in particular, by increasing the individual earnings of persons engaged in agriculture;
- (c) to stabilise markets;
- (d) to provide certainty of supplies;
- (e) to ensure the supplies reach consumers at reasonable prices.

Concurrently, however, Europe and North America are facing similar problems³ in defining the role of agricultural entrepreneurs especially where these entrepreneurs have seemed to be quite successful in parlaying their independent capitalist model into a claim for presumptive entitlement and, hence, full compensation, where the state seeks to change the agricultural policy and/or levels of support (Bromley and Hodge, 1990). It would appear that one of the fundamental problems in agricultural policy, then, would be in defining and characterizing the nature of agricultural entrepreneurs and their relationship with the state. It does not go without notice that there may be good reasons for agricultural entrepreneurs to maintain claims that they are independent capitalists, after all this plays an important political role. However, a systematic consideration of the facts suggest an alternative model.

4. North American Agriculture and Policy in the Next Decade

North America agricultural policy is undergoing significant changes. For a recent example, one can turn to the 1996 Federal Agricultural Improvement and Reform Act (FAIR). A critical review of the FAIR Act is beyond the scope of this paper (See, for example, Stuart and Runge, forthcoming). Nevertheless, by examining certain aspects of the Act one can gain a greater understanding of the nature of the agricultural enterprise; at least in the eyes of the legislature.

The spirit of the Act can be seen in the “freedom to farm” provisions of the Act. The most significant “freedom to farm” provisions concern the manner in which payments to producers of “program commodities” (maize, grain sorghum, wheat, barley, oats, cotton and rice) have been decoupled from specific cropping activities (Stuart and Runge, forthcoming). The majority of program commodity producers took on board the freedom to farm opportunity by signing a seven-year “contract” with the USDA that guaranteed seven years of per-acre payments decoupled from cropping activities. Such producers were free to farm in the sense that they could make cropping decisions on the basis of market forces and were not forced to follow proscribed cropping patterns. These “freedom to farm” provisions are linked to other provisions of the Agriculture Market Transition Act with the aim of providing a gradual transition for producers. The transition of interest here is one from a world of entitlement subsidies to a world where market forces determine the behavior and where the successful agricultural entrepreneur will be the one with the greatest entrepreneurial skills.

In terms of transforming agriculture into a market driven activity, the agenda of the FAIR Act is clear. Agricultural entrepreneurs are “Main Street” entrepreneurs and must face and contend with market forces. While some provisions must be made for the transformation of agriculture into its liberalized form, the agricultural enterprise must be market driven.

At the same time, however, many of the provisions of the FAIR Act seek to increase the number and amount of environmentally friendly agricultural activities. The conservation agenda of the legislature and general public is supported under the act in the form of a \$2.2 billion increase in funding (Hallberg, 1996). Included in the conservation agenda are elements to promote land conservation and wetland conservation. In both such cases producers are provided with incentives to keep certain lands fallow, keep wetlands intact, or increase wetlands. The majority of such incentive programs “rely on incentive payments with linkages to...voluntary commodity programs” (Kamp and Runge, 1994).⁴

5. EU Agricultural Policy, Agenda 2000 and the Buckwell Committee

Agenda 2000 is the EU document that will guide the next reform of the CAP (European Commission, 1987).⁵ In terms of redefining and re-categorizing the European farmer it goes some distance in rejecting the academic and ideological assumption that the agricultural entrepreneur is—must be—an independent capitalist entrepreneur on a par with the “Main Street” shopkeeper. The most significant development is that there is a clear position taken in respect to the fact that farmers provide a service to the Community and it is this service that will justify the majority of payments to farmers.

Agenda 2000 aims to develop a new European model of agriculture. The main components of such a model are:

1. a competitive agricultural sector which can gradually face up to the world market without being over-subsidized, since this is becoming less and less acceptable internationally;
2. production methods which are sound and environmentally friendly, able to supply quality products of the kind the public wants;
3. diverse forms of agriculture, rich in tradition, which are not just output-oriented but seek to maintain the visual amenity of our countrysides as well as vibrant and active rural communities, generating and maintaining employment;
4. a simpler, more understandable agricultural policy which establishes a clear line between the decisions that have to be taken jointly and those which should stay in the hands of Member states;

5. an agricultural policy which makes clear that the expenditure it involves is justified by the services which society at large expects farmers to provide.

But how does one define the farmer in such a model of agriculture? Can consistent and effective policy be pursued if the farmer is considered as a run-of-the-mill independent entrepreneur?

The European model has taken major steps in decoupling production and payments to agricultural entrepreneurs. EU directive 2078/76—the directive to institute agri-environmental programs—for example, is designed to provide transfer payments to farmers who make commitments to provide services to the wider community. Given the European model of agriculture, the CAP and EU policy will continue in this direction.

Further evidence of the EU's commitment to support the agricultural entrepreneurial activities that provide general services is found in the Buckwell Report (1997) which also supports the characterization of an alternative model of the agricultural entrepreneur. The Buckwell committee anticipates that current circumstances and development goals in Europe will necessitate the EU to move from a CAP to the Common Agricultural and Rural Policy for Europe [CARPE]. One of the most important elements of the CARPE is based on the principle that farmers provide goods and services for which they are not rewarded by the market, and the CARPE is designed to provide the appropriate inducement and rewards for these services. In its purest form, the CARPE argues for payments to agricultural entrepreneurs, when they are necessary, to avoid the under-provision of environmental and cultural landscape services. Crucially, however, payments are not entitlements to receive money if the provision of the desired services do not impose additional costs on farmers.

6. Agricultural entrepreneurs as entrepreneurial partners in land-use management

It is not an easy proposition to locate agricultural entrepreneurs in the traditional employer-employee economy. Nevertheless, a systematic consideration of the issues shows that the environmental (Bromley, 1996) and rural development implications of modern agriculture (Buckwell, 1997) necessitates a new model of the agricultural entrepreneur—a model of ‘agricultural entrepreneurs as entrepreneurial partners in land-use management.’

Now consider the literature on organizational economics as a means to situate agricultural entrepreneurs in the economy.⁶ In this section I consider three streams of the literature and examine the place of the agricultural enterprise from such a perspective. It should be noted that: (1) no attempt is made to resolve ongoing debates in the organizational economics literature and (2) I do not make a comprehensive attempt to explain how the three streams considered fit together.⁷

The three streams considered can be briefly enumerated as follows:

1. *Residual control rights.* This stream of literature argues that ownership is determined on the basis of claims to residual control rights. Most recently this view is associated with the property rights approach of Hart (1995).
2. *Residual control of income.* This stream of literature is closely related to the above but argues that ownership is determined by residual control of income. While it is often the case that residual control rights and residual control of income are vested in one individual (the enterprise owner) this is not always the case and, hence, differences between the streams emerge.⁸

3. *Risk-based theories of ownership.* Risk-based analyses of economic organizations are associated with Knight (1957) and the proposition that ‘he who bears the risk is also given control rights.’

I now consider each of the above in turn and examine the agricultural enterprise from such perspectives. The analysis will give credence to the partners in land-use characterization of agricultural entrepreneurs.

5.1 Residual control rights and decision making in the agricultural enterprise

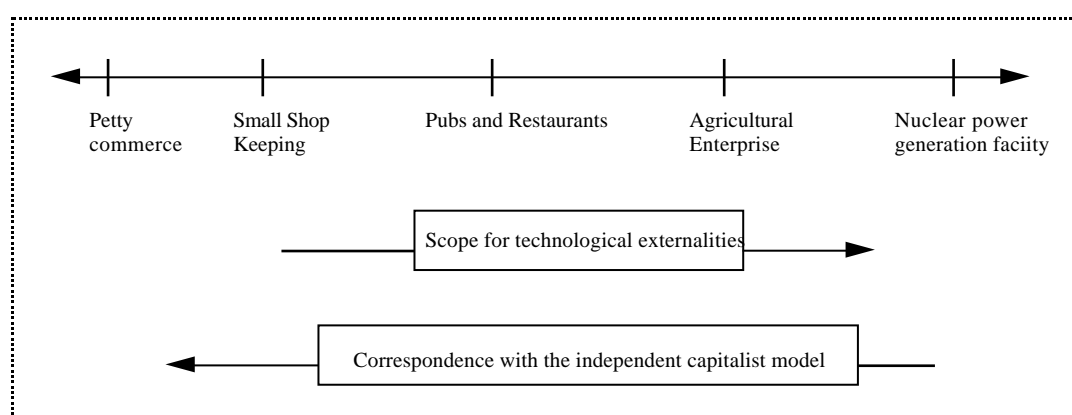
The property rights approach to organizational economics suggests that residual control rights define ownership (Hart, 1995). The logic of this position can be illustrated by considering the following question: ‘When firm A acquires firm B what does firm A get for its money’? Where, at time t , firm A and firm B may have a variety of contracts specifying conditions for a series of mutually beneficial transactions, there is, of logical necessity, some contingencies under which the behavior of firm A and firm B are not contractually determined.⁹ As Hart states it:

Given that a contract will not specify all aspects of asset usage in every contingency, who has the right to decide about missing usages? According to the property rights approach, it is the owner of the asset in question who has the right. That is, the owner of an asset has residual control rights over that asset: the right to decide all usages of the asset in any way not inconsistent with a prior contract, custom, or law (Hart, 1995).

In the property rights approach ‘ownership begins where contracts end.’ At first glance, then, it is clear that agricultural entrepreneurs are owners in the sense of residual control rights—agricultural entrepreneurs have residual control rights where legal and contractual obligations end.

However, in defining ownership as the point where legal and contractual obligations end one loses some of the ability to view the agricultural enterprise as a unique enterprise. Consider, for example, a privately held nuclear power plant. Clearly the plant owner has residual control rights but to what extent does such an owner have any latitude in the operation of the plant—all fundamental operations of the plant are determined by legislation or regulation. Furthermore, the owner’s residual control may be abruptly and unilaterally appropriated as the state changes policy according to the demand of the citizenry or new scientific evidence. How different is such a relationship from the relationship between agricultural entrepreneurs and the state? Figure 1 is useful in formalizing the discussion.

Figure 1. Externalities and Independent Capitalists



The Figure gives a continuum of economic organizations (petty commercial trade, small shop keeping, pubs and restaurants, agricultural enterprise, and nuclear power generation) where, on the far left, are organizations that can be considered independent capitalists of the traditional textbook variety. As one moves to the right the scope of potential externalities—the extent to which the citizenry has an interest in the activities of the organization—increase. And, correspondingly, moving to the right, organizations are consecutively associated with greater state circumscription of choice and consecutively less well characterized by the independent capitalist model of production and behavior.

While I am not disputing the definition of ownership in the property rights approach I am suggesting that enterprises on the left may be so different from those on the right of the continuum, that, for some purposes (policy making included), it may be useful and important to consider them as different in kind. In policy terms, it would not be wise—and possibly dangerous—to treat enterprises on the right as independent capitalist entrepreneurs. In such a case the burden of proof might be on the wrong party. For independent capitalist entrepreneurs the burden of proof for altering the scope of entrepreneurial control will lie, as it should, on the state. Consequently, by treating enterprises on the right as independent capitalists (as if they were on the left of the continuum) the populace would likely be forced to live with unacceptably high levels of externalities.

In practice, enterprises on the right are not viewed as independent capitalists for policy purposes. The question of interest then concerns the appropriate location of the agricultural enterprise on the continuum. Active researchers in the field, I believe, would, in general, agree with my implicit argument (Figure 1) that the scope of modern agricultural enterprises are so large, and the effects so widespread, that, for policy-based reasons, the agricultural enterprise may need to be considered as more akin to the nuclear power enterprise than the small shop-keeping enterprise. Modern agriculture enterprises have significant and widespread effects on water quality, visual amenities, and habitats. This does not imply, however, that incentive implications of excessive state control of the agricultural enterprise should not play a significant role in the setting of policy and policy debates. In addition, it is interesting to note that the location of an enterprise on the continuum is temporally, and context, specific. For hundreds of years the agricultural enterprise would no doubt have been found somewhere on the far left of the continuum.¹⁰ However, as perceptions and preference have changed, as techniques have changed, as relative scarcities have changed, and as scientific knowledge has increased, the agricultural enterprise has moved gradually and consistently along the continuum towards the right.

These factors have led to consistently increasing “control being placed on agriculture and action to curtail farmers rights to externalize social cost on others” in Europe and in the North America similar changes are associated “with a shifting view of the farmer as ‘praiseworthy yeoman of the soil’ towards a ‘corporate business person’” and, therefore, the rights to use land are being constrained in relation to the impacts of land use on other values (Coleman, 1993). It is reasonable to believe that such a process will continue.¹¹

The property rights approach suggests a second dimension along which to consider the unique relationship between the state and agricultural entrepreneurs. Along this dimension, the amount and variety of relationship-specific investments made by the state and agricultural entrepreneurs are difficult to explain without positing a unique partnership-based relationship.

Relationship-specific investments are cost efficient investments that have significant value on the bases that they are part of an economic relationship that extends over time. Outside such a relationship, however, relationship-specific investments would be of a much lower value (Hart, 1995). The organizational problem with relationship-specific investment concerns the cases where such investments would be cost effective but are precluded as a result of contractual incompleteness. The organizational solution to such a problem often involves the acquisition of one enterprise by another so that uncertainty is reduced as the new owner of the larger enterprise acquires residual control rights and, consequently, decides upon all non-contractual determined asset usages.¹²

Analytically, relationship-specific investments can be found if one finds that a proportion of a party’s assets are tied to a particular transaction and have a much lower value in the next best alternative use. The logic of the property rights approach suggests that parties who undertake relationship-specific investments risk exposing themselves to the well-known “hold-up” problem. In particular, in the absence of an acquisition, the property rights approach suggests that significant amounts of

relationship-specific investments (if found) would be (1) occasioned by comprehensive long-term contracts and (2) only emerge in extremely stable industrial environments where incomplete contracting is a relatively minor issue (Hart, 1995). In the following I list examples of relationship-specific investments that appear to be embedded in the agricultural enterprise and then suggest that the conditions enumerated above do not appear to be satisfied. Consequently, I argue that the relationship between agricultural entrepreneurs and the state is unique and, by some means, is able to sustain relationship-specific investments without a typical acquisition and without the satisfaction of the conditions.

First, consider some of the relationship-specific investments made by agricultural entrepreneurs.

1. *Farm machinery.* Agriculture production in the OECD context is associated with extensive mechanization including tractors, threshers, and automated milking machines. Furthermore, the value of such investments are directly linked to state support and subsidies in the agricultural sector. In this sense, such investments are relationship-specific investments—if the state terminated the relationship by withdrawing support, agricultural entrepreneurs would be in a much weakened position as the value of such assets would be far less in the next best alternative use.
2. *Agricultural entrepreneurs—personal investment.* Agricultural entrepreneurs make personal relationship-specific investments including (1) the acquisition of specific agricultural training and skills, (2) the foregoing of opportunities to develop alternative skills, and (3) the entire family's investment in ties to a community and the 'agricultural way of life.' Again, if the state were to withdraw from its current position in the agricultural sector, the above assets would be of much less value.

Given such investments, agricultural entrepreneurs are clearly vulnerable to “hold-up.” Why do agricultural entrepreneurs leave themselves susceptible to the reduction in value of such a large proportion of their assets? I endeavor to give a partial answer to this question after considering the relationship-specific investments that can be attributed to the state.

The state also holds a significant proportion of its assets as agricultural-specific, relationship-specific, investments. While it is a bit more difficult to imagine agricultural entrepreneurs as having the ability to terminate their relationship with the state I, nevertheless, consider two possibilities. First, agricultural entrepreneurs could attempt to coordinate a mass exodus from the agricultural enterprise. In such a case the state’s relationship-specific investments (see below) would be of much less value. Second, and more interestingly, agricultural entrepreneurs could fail to exercise “good will” in providing benefits and/or preventing harm as they go about their daily activities. Agriculture produces both commodities and amenities and while the status quo ante may dictate the appropriate—no compensation level of amenity provision (Bromley and Hodge, 1990)—practicality suggests that it would be impossible to contract for amenity provision if the providers sought, at every turn, to provide the contractual minimum.¹³

In the OECD context the state’s relationship-specific investment with the agricultural enterprise include various levels of the following.

1. *Agricultural research and the agricultural distribution network.* Agricultural research funded by the state is a form of relationship-specific investment in that the state has assets in expensive laboratory equipment and research stations and these assets would be of significantly less value in any alternative use. Similarly, the state’s investment in the road, rail and shipping networks used to transport agricultural produce are relationship-specific investments in the sense that the value of such assets would be significantly reduced if agricultural entrepreneurs were to terminate their relationship with the state.

2. *Public natural spaces, parks, and waterways.* In many OECD countries the state holds significant assets as public land and natural spaces that include lakes, rivers, and forests. Such assets may or may not be held for direct commodity production but are of significant value for their use and/or existence value. The stream of benefits associated with such asset is closely tied to the behavior of agricultural entrepreneurs as agricultural entrepreneurs (1) provide (or fail to provide) habitats for species that also use public spaces or (2) provide ecological services that affect the value of the public assets. Further, it is important to notice that it is not only through direct effects on the public space that agricultural entrepreneurs may alter the value of the asset. In addition, agricultural entrepreneurs may be able to significantly alter the value of the state held asset indirectly as the public must generally travel through the countryside to get to the public space. As such, agricultural entrepreneurs also effect the value of the public asset to the extent that they provide a desirable or undesirable product for the public to experience on the various journeys they make.

Again, therefore, one must ask: “What is the basis for such extensive levels of relationship-specific investment?” By examining some of the issues we can begin to offer a tentative answer that will be expanded upon below (Section 6.4)

In considering the issues let us first recognize that the complexities associated with the joint production of food and fiber and an extensive variety of amenities suggests that production of these commodities and services (the agricultural enterprise) would best be achieved only by using significant amounts of relationship-specific investment. In fact, if all relationship-specific investment were being precluded by the status quo ownership regime, reasonable amounts of commodity production and service provision might only be realized if ownership of all agricultural assets were vested in the state.¹⁴ Of course, however, for obvious democratic and incentive reasons such a radical solution is not to be recommended. Fortunately, given the discussion thus far, the status quo ownership and incentive regime in the agricultural sectors must be

consistent with relationship-specific investments—relationship-specific investments exists. Analytically, however, one must consider how to characterize this unique ownership and incentive regime.

As suggested above, the existence of the current level of relationship-specific investment indicates that either (1) there are a variety of long-term contracts to protect the two transacting parties from the hold-up problem, (2) the residual control rights of the assets are actually embedded in one of the two transacting parties, or (3) the transactions between the state and agricultural entrepreneurs are unique and characterized by an atypical form of ownership and control. In considering these possibilities I opt for the third possibility and argue that the state and agricultural entrepreneurs have a unique partnership relationship.

To begin, note that neither the state's nor agricultural entrepreneurs' investments can be explained by the existence of explicit long-term contracts—there are no such contracts. Nevertheless, there seems to be an implicit contract with the state specifying that the agricultural enterprise will be protected and maintained as a viable enterprise. Yet, such a contract is not absolute and it is clear that the state is gradually attempting to reduce its obligations under this implicit contract. So, if such an implicit contract were the basis of the observed relationship-specific investments, one should be concerned that, as the state reduces its commitment, the willingness of agricultural entrepreneurs to make desirable relationship-specific investment would likely decrease. Such an outcome would most likely lead to an inferior outcome in the production of food, fiber, amenities, habitats, and ecological services. This must be recognized.

Furthermore, in most OECD countries agricultural interests have substantial political power and, as such, are able to limit the ability of the state to discount its implicit commitments to the agriculture enterprise. In this sense, agricultural entrepreneurs can make some relationship-specific investments because they have the political power to prevent the state from “holding them up.”

In addition, the state is also partially assured of assuring itself against “hold-up” in the sense that the state has substantial latitude, as suggested above, in modifying the boundary between legally mandated obligations and residual control rights. In this sense, both the state and agricultural entrepreneurs appear to have significantly strong positions and, hence, it may be best to see the relationship between the state and agricultural entrepreneurs as embodying the characteristics of a partnership with all the give and take that implies.

To conclude this section we can highlight the main points that emerge when agricultural entrepreneurs are analyzed from a property rights perspective. In general, from such a perspective, I have illustrated that agricultural entrepreneurs are not classical textbook entrepreneurs. The residual control of agricultural entrepreneurs is heavily circumscribed by the state and, hence, for policy reasons, agricultural entrepreneurs must be viewed more directly as land-use managers. Furthermore, the ownership and incentive regime in agricultural enterprises suggests that agricultural entrepreneurs are in a partnership with the state in agricultural commodity production and environmental service provision. A similar partnership relationship emerges when considering the agricultural enterprise with regards to residual clamancy and the allocation of risk exposure.

5.2 Agricultural Entrepreneurs as Residual Claimants

Ownership is often defined according to control of residual income—he/she who controls residual income is the owner and residual claimant. Organizational economics shows the priority of this ownership structure by illustrating how such a structure induces value-maximizing decisions.¹⁵ Now, consider agricultural entrepreneurs. Agricultural entrepreneurs are enterprise owners and sole residual claimants. If this were true, it would be one dimension along which to characterize agricultural entrepreneurs as independent capitalist entrepreneurs. Such a claim is not supported,

however, once it is acknowledged that agricultural entrepreneurs are dependent on government supports dictated by agricultural policy.

Once this is recognized it is clear that, in a dynamic setting, the state is a partial residual claimant of the agricultural enterprise. In a dynamic analysis the state is a significant partial claimant in that it appropriates a share of any increased agricultural returns that may be realized through entrepreneurial innovation. This situation can be seen in poverty trap terms and defines an analogous agricultural innovation trap where the incentive to innovate is dulled by knowledge that the state, as a political necessity, will scale back agricultural support as agricultural returns increase.¹⁶ In a dynamic sense, then, the state and agricultural entrepreneurs are partial residual claimants.

It might be argued, therefore, that agricultural entrepreneurs are similar to employees or managers who are guided by agency contracts and face incentive structures aimed at inducing value-maximizing decisions—like employees in a firm, agricultural entrepreneurs may only capture the benefits of innovation to the extent that the principal (the state) allows. It must be recognized, however, that if agricultural entrepreneurs were able to extricate themselves from state dependency the analysis would change and agricultural entrepreneurs might again be viewed as sole residual claimants and traditional owners of their enterprises. In these terms agricultural entrepreneurs are not quite employees but not quite independent capitalist employers.

5.3 Risk, Agricultural Entrepreneurs and World Markets

World trade agreements and agricultural policy changes in the past fifteen years have increased the entrepreneurial characteristic of the agricultural enterprise by increasing the extent to which agricultural entrepreneurs make choices based on market—world market—circumstances. Every indication suggests that this trend will continue. Further, such market exposure leads to increased exposure to risk. As such, agricultural entrepreneurs are being forced by policy to move in a direction where they

look more like textbook entrepreneurs, who are disciplined, sometimes severely, by market forces.

Such circumstances give rise to a consideration of risk and its importance in characterizing the nature of agricultural entrepreneurs. Based on the work of Knight (1957), organization economics often emphasizes that one finds ownership by finding risk. Control rights are generally vested in the owner who controls returns and who stands to gain or lose as the fortunes of the enterprise rise and fall.

The farm problem in the OECD context has historically concerned the “the low earning of most farm people and the great instability of income from farming” (Schultz, 1945; Gardner, 1992). It is not surprising, therefore, that agricultural policy would undertake the building of policy structures to release agricultural entrepreneurs from the independent capitalist entrepreneurial mode of production. Much of this was accomplished by significantly limiting the risk associated with the agricultural enterprise. This is not to say that farms do not fail—they do. Nevertheless, upon close inspection one can see how the logic of the agricultural policy model closely resembles the principal-agent models used to analyze sharecropping and various contractual relations in developing countries—risk averse agents and principals make contracts that reduce risk but still provide some (sub-optimal) level of incentives. One might ask: “Are things really that different in the agricultural sector of the OECD” ?

Historically, agricultural policy has been aimed at minimizing the risk exposure of agricultural entrepreneurs and, in this sense, agricultural entrepreneurs may be more like employees (agents in a principal-agent framework) then, at first, one might believe. Circumstances, of course, are changing and the state is slowly backing away from its traditional role as risk bearer (i.e., principal in a principal-agent framework). The result may well be the emergence of agricultural entrepreneurs that are (1) exposed to much more risk, (2) more characteristically independent capitalists, and (3) more innovative in the face of market discipline.

5.4 Locating agricultural entrepreneurs in the employer-employee economy

The considerations above have gone some way in illustrating the significant difficulties involved in locating agricultural entrepreneurs in the traditional employer-employee economy. In terms of controlling residual income and exposure to risk, agricultural entrepreneurs look quite similar to traditional employees with incentive contracts. At the same time, however, agricultural entrepreneurs could feasibly terminate the incentive contract and still control the assets on which they could apply their entrepreneurial skills to turn a profit. Such profits would no longer be tied directly to state engagement in their business enterprises. Yet, for most agricultural entrepreneurs in the OECD, practical economic circumstance preclude any significant transformation from their current category—partner with the state in commodity and production and environmental service provision—to the category of independent capitalist entrepreneur.

Drawing these considerations together, therefore, I offer the tentative characterization of agricultural entrepreneurs as entrepreneurial partners in land-use management. Such a characterization drives home the point that agricultural entrepreneurs are partners in a complicated multi-product production process and highlights the significant incentive and organizational issue associated with the design of agricultural policy. I now briefly consider the implications of such a view.

7. Implications

The implications of the proposed characterization are best viewed in contrast to the implication of the popular alternative characterization. Consider the provision of an appropriate amount of environmental services. As discussed in Section 6.1, the popular characterization of agricultural entrepreneurs as independent capitalists could be very damaging for the provision of desirable environmental services. In short, given

the independent capitalist characterization, excessive state intervention in altering the decision set for independent capitalists would require compensation payments or, at the very least, solid scientific evidence of harm. In both circumstances, as a result of presumptive entitlements, the community as a whole will be forced to endure a sub-optimal level of environmental services (Bromley and Hodge, 1990). Under a partners in land-use characterization it is recognized that agricultural entrepreneurs are not independent capitalists and, therefore, presumptive entitlements tend to become less of an obstacle in efforts to provide environmental services for the general populace.

However, it must be made clear that the partners in land-use characterization should not be read as an unqualified assault on agricultural entrepreneurs or an attempt to force them to provide positive externalities for which they are not rewarded. The nature of the agricultural enterprise has been redefined as the logic of the ‘agricultural entrepreneurs as independent capitalists’ model has failed to withstand scrutiny—agricultural entrepreneurs can do nothing about this. As partners in land-use management, however, agricultural entrepreneurs should seek the development of agricultural policy structures that allow them to benefit from innovation.

Agricultural entrepreneurs have a great deal of information on how best to jointly produce commodities and environmental services yet the incentive to transmit this information to state agencies is dulled by the fact that the state may require such innovations to be pursued without compensation. Not only does this dulling effect exist in terms of information transmitting but also in terms of providing direct incentives for agricultural entrepreneurs to put time, effort, and money into innovation. Referring to the agricultural innovation trap one may wonder how the countryside might be fundamentally different if not for the poor innovation incentives embedded in agricultural policy. As an agricultural entrepreneur why should I attempt to innovate in the provision of commodities or environmental services if it is costly to do so and the expected additional returns from my enterprise will largely be absorbed by the state? The ability to change the nature of the farm problem may lie in agricultural entrepreneurs themselves and significant changes may be possible if

agricultural policy structures are modified to provide for a discriminating match between incentives, information, and decision authority.

In short, agricultural entrepreneurs must argue for agricultural policy structures that allow them to benefit from innovations in either the field of commodity production, environmental service provision, or in a unique combination of the joint production of both. The state must be made to recognize the poor incentive properties associated with agricultural policy in regards to innovation and the important level of environmental services provided by agricultural entrepreneurs as an act of good will in a partnership relationship. The partners in land-use characterization highlights these facts.

In addition, the partners in land-use characterization is important in that it highlights the extensive levels of relationship-specific investments that are made by the state and agricultural entrepreneurs. As such, the partners in land-use characterization and analysis illustrate that relationship-specific investment is of fundamental importance in the joint production of commodities and environmental services. The popular characterization of agricultural entrepreneurs as independent capitalists discounts such investments in the sense that they cannot exist. Consequently, the state may be hard pressed to acknowledge and reward the significant levels of relationship-specific investment made by agricultural entrepreneurs on the basis of an ongoing partnership with the state. Significant changes by the state may lead to significant reductions in the levels of relationship-specific investments that would appear to be necessary for efficient joint production of commodities and environmental services.

An additional implication emerges in the context of expectations concerning the future need for increasing levels of relationship-specific investment to support cost-effective joint production of commodities and environmental services. If agricultural entrepreneurs are categorized as independent capitalist entrepreneurs for policy purposes it may be more difficult to achieve the desired level of relationship-specific investment—independent capitalist entrepreneurs will be reluctant, in a world of

incomplete contracts, to invest in relationship-specific investment for fear of hold-up. Partners, on the other hand, each with a stake in the outcome, may be more willing to make the necessary relationship-specific investments to achieve a superior outcome. Consequently, an organizational analysis of the agricultural entrepreneurial problem suggests that, if efficient joint production is to be achieved and wholesale acquisitions of agricultural land (by the state) avoided, it will be necessary to support and further develop the emerging partnership relationship between the state and agricultural entrepreneurs.

As a final illustration consider a particular example of attempting to achieve a high degree of extensive organic agriculture. To achieve such an outcome agricultural entrepreneurs would need to make significant investments in new training and the rearrangement of cultivation practices. The state, for its part, would need to support such activities. It is doubtful, however, that an explicit long-term contract could be written to protect agricultural entrepreneurs' relationship-specific investments in organic agriculture. There is simply too much uncertainty concerning yields and consumer demands that a large proportion of relationship-specific investment would be precluded if relationship-specific investments were only linked to contracts amenable to independent capitalist entrepreneurs. Consequently, it appears, for example, that extensive organic agriculture might only be achieved through the support and development of a unique partnership-type relationship between the state and agricultural entrepreneurs.

8. Conclusion

The main thrust of this paper, and the partnership characterization proposed, can be summarized in the following quotation where Milgrom and Roberts explain the rise of complicated and extensive economic organizations:

There is another...view according to which markets are a primitive way of organizing activity—one that worked well enough in simpler times when agricultural products were traded for finished foreign goods or for the hand-made products of local craftsmen and that still works well enough for distributing consumer goods and for buying and selling standardized items (grains, financial assets), but one that has proved inferior as a way of organizing the transactions arising in complex, multistage production systems. In this view, the market's declining importance is evidenced by the emergence and growing importance of large integrated firms, internal labour markets, joint research ventures and the like (1988).

Placing these statements in the agricultural context one observes the similarities as agricultural entrepreneurs are engaged in an extremely complex multi-stage and multi-product production system. Given such a complex system it would not be surprising, therefore, to find that production would be most efficiently organized in a partnership structure that encompasses many of the characteristics of a firm in terms of incentives, managerial transactions, and the ability to support significant levels of relationship-specific investment.

The partners in land-use management characterization of agricultural entrepreneurs developed here offers a tentative first-step to a more accurate characterization of the agricultural enterprise. Such a characterization is important in that it illustrates that the popular model of agricultural entrepreneurs as independent capitalist entrepreneurs is an untenable characterization and offers insight into the direction of future policy concerning the efficient production of commodities and environmental services. In addition, the characterization highlights the incentive implications of agricultural policy in such a way as to illustrate the necessity of fostering the continued support and development of a partnership between agricultural entrepreneurs and the state in the context of land-use management.

Notes:

1. Recent street protests in Brussels can attest to this in the European context.
2. See, for example, Fei and Ranis (1961) or Timmer (1987).
3. Justification for 1992 CAP reforms was based on the fact that the agricultural intensification promoted by the CAP had: (1) increased the level of environmental degradation that could reasonably be attributed to agriculture; (2) increased the Community's risk exposure to serious environmental damage; and (3) significantly affected the visual amenities of the European countryside. In addition, of course, the pre-1992 CAP was also yielding excessive surpluses and absorbing a significant portion of the Community budget. The reforms of 1992 aimed to increase agricultural intensification with the dual goal of (1) reducing the environmental damaging aspects of agriculture and (2) decreasing the magnitude of commodity surpluses in the EU.
4. The main conservation programs in the FAIR Act are: the Conservation Reserve Program (CPR) which makes annual per acre payments to farmers for allowing highly erodible land to lie fallow for 10 years; the Wetlands Reserve Program (WRP), which has the government purchase wetlands to hold in perpetuity; the "sodbuster" and Swampbuster" provisions, which are measures to deny farmers a range of federal benefits if they convert swampland or environmentally sensitive land to cropland; and the Conservation Compliance Provisions (CCP), which links conservation programs to commodity programs in that farmers must comply with certain environmental plans as a condition of eligibility for commodity payments.
5. At the time of writing these contentious negotiations are underway.
6. Organizational economics is a vast and compelling literature that attempts, among other things, to explain the nature and scope of the firm ownership, and corporate governance (Coase, 1937; Williamson, 1975 and 1985; and Klein et al., 1978).
7. For an extensive introduction to the issues of the day see Milgrom and Roberts 1988, Hart 1995, and Putterman 1987.
8. Hart (1995) argues that residual control rights and residual control of income are often held by the same individual but that it is residual control rights that are the final distinguishing feature of ownership.
9. The classic example of this situation is the case where General Motors (firm A) decided to acquire Fisher Body (firm B) (Klein et al. 1978 and Klein 1988).

10. Incidentally, this is no doubt some of the reason for the growing pains and confusion in characterizing the nature of the agricultural enterprise - movement along the continuum can result in some significant confusion as independent capitalists are transformed into something significantly different.
11. It might be interesting to empirically locate various enterprises on the continuum. As a first attempt to measure distance from the left-hand side of the continuum one might consider counting pages of legislation related to a particular enterprise.
12. See, among others, Hart (1995) and Williamson (1985).
13. Akerlof's (1982) analysis of the labor contract as a partial gift exchange seems appropriate here as is the work of authors who explicitly recognize the necessity of trust and informal institutions to the economy as a whole (Samuels, 1989).
14. Such a solution is suggested by the Coasian property rights model (Coase, 1960).
15. Of course, for this ownership structure to make sense the residual claimant must also have the authority to make value-maximizing decisions that result in greater individual returns. Milgrom and Roberts (1988) and Hart (1995) explain that residual control rights and rights to residual income are usually jointly held. Hart, however, suggests that the concept of residual income is not very robust or interesting (Hart, 1988).
16. Nevertheless, regulatory lag may leave some residual incentive to innovate - the innovator may be able to realize higher returns during a lag period.

References

- Akerlof, G. 1982. Labor contracts as partial gift exchange. *Quarterly Journal of Economics*, 47: 543-69.
- Bromley, D.W. and I. Hodge. 1990. Private Property Rights and Presumptive Policy Entitlements: Reconsidering the Premises of Rural Policy. *European Review of Agricultural Economics*, 17: 197-214.
- Bromley, D.W. and I. Hodge. 1996. *The Environmental Implications of Agriculture*. University of Wisconsin-Madison: Department of Agricultural and Applied Economics, Working paper No. 401.
- Buckwell Report 1997. *Towards a Common Agricultural and Rural Policy for Europe*. EU Commission DG VI: Report of an Expert Group..
- Colman, D. 1993. Environmental economics and agricultural policy. In A. Rayner and D. Colman, eds., *Current Issues in Agricultural Economics*. London: Macmillan.
- Coase, R. H. 1937. The Nature of the Firm. *Economica*, 4: 386-405.
- Coase, R. H. 1960. The Problem of Social Cost. *Journal of Law and Economics*, 111: 1-44
- Durrenberger, P.E. 1984. *Chayanov, Peasants, and Economic Anthropology*. London: Academic Press Inc.
- European Commission. 1997. Commission orientations: Agenda 2000-Agriculture, July, http://europa.eu.int/comm/dg06/ag2000/text/text_en.htm.
- Fei, J. and G. Ranis. 1961. A theory of economic development. *American Economic Review*, 5: 533
- Gardner, B.L. 1992. Changing Economic Perspectives on the Farm Problem. *Journal of Economic Literature*, 30: 62-101.
- Hallberg, M. C. 1996. *1996 Food and Agricultural Legislation: New Wine in New Bottles?* Penn State Cooperative Extension, College of Agricultural Sciences: Farm Economics, University Park:, May/June.
- Hart, O. 1988. Incomplete Contracts and the Theory of the Firm. *Journal of Law, Economics and Organization*, 89: 1757-74.
- Hart, O. (1995). *Firms Contracts and Financial Structure*. New York: Oxford University Press.
- Kamp, P.V. and F.C. Runge. 1994. Trends and Developments in United States Agricultural Policy: 1993-1995. *The Review of Marketing and Agricultural Economics*, 62: 317-35.

- Klein, B. 1988. Vertical Integration, Appropriable Rents, and the Competitive Contracting Process, *Journal of Law and Economics*, 21: 297-326.
- Klein, B., R. Crawford, and A. Alchian. 1978. Vertical Integration as Organizational Ownership. *Journal of Law, Economics and Organization*, 4: 199-213.
- Knight, F. 1957. *Risk, Uncertainty and Profit*. Chicago: University of Chicago Press.
- Milgrom, P. and J. Roberts. 1988. Economic Theories of the firm: past present and future. *Canadian Journal of Economics*, 21: 444-458.
- Powers, E.G. 1976. *Years of Struggle: The Farm Diary of Elmer G. Powers, 1931-1936*. In H. R. Grant and L. E. Durcell, eds., Ames: Iowa State University Press.
- Putterman, L. 1987. Corporate Governance, Risk-Bearing and Economic Power: A Comment on Recent Work by Oliver Williamson. *Journal of Institutional and Theoretical Economics*, 143: 422-434.
- Samuels, W.J. 1989. The Legal Economic Nexus. *George Washington Law Review*, 57: 1556-78.
- Schultz, T.W. 1945. *Agriculture in an unstable economy*. New York: McGraw-Hill.
- Stuart, K. and F.C. Runge. Agricultural Policy Reform in the United States: An Unfinished Agenda. Forthcoming in *The Review of Marketing and Agricultural Economics* (forthcoming).
- Taylor, H.C., and A.D. Taylor. 1952. *The Story of Agricultural Economics in the United States 1840-1932*. Ames: Iowa State College Press.
- Timmer, C.P. 1987. The Agricultural Transformation. In H. Chenery and T.N. Srinivasan, eds. *Handbook of Development Economics*, Amsterdam: North Holland Press, 1.
- Treaty of Rome. 1957. Treaty Establishing the European Community as Amended by Subsequent Treaties, Source:<http://www.hri.org/docs/Rome57/Rome57.txt>
- Wallace's Farm and Dairy Journal (1874-) Des Moines Publishing Co.
- Williamson, O. (1975). *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press
- Williamson, O. (1985). *The Economic Institutions of Capitalism*. New York: Free Press

Department of Economics

National University of Ireland, Galway

Working Paper Series

No. 36 June 1999 “Agricultural entrepreneurs as entrepreneurial partners in land-use management: a policy-based characterization,” Scott R. Steele

No. 35 June 1999 “The Monetary Transmission Mechanism: Evidence and Implications for European Monetary Union,” Stilianos Fountas and Agapitos Papagapitos.

No. 34 May 1999 “Exchange rate pass-through, the terms of trade and the trade balance,” Eithne Murphy and Lelio Iapadre.

No. 33 May 1999 “The Impact of Health Status on the Duration of Unemployment Spells and the Implications for Studies of the Impact of Unemployment on Health Status,” Jennifer Stewart.

No. 32 December 1998 “Subsidies in Irish Fisheries: Saving Rural Ireland?,” Vilhjålmur Wium.

No. 31 October 1998 “Has the European Monetary System Led to More Exports? Evidence from Four European Union Countries,” Stilianos Fountas and Kyriacos Aristotelous. (Published in *Economics Letters*, Vol. 62, No. 3, 1999).

No. 30 October 1998 “Real Interest Rate Parity under Regime Shifts: Evidence for Industrial Countries,” Jyh-lin Wu and Stilianos Fountas.

No. 29 October 1998 “Analyzing Gender-Based Differential Advantage: A Gendered Model of Emerging and Constructed Opportunities,” Scott R. Steele.

No. 28 September 1998 “The Impacts of Transition on the Household in the Provinces of Kazakhstan: The Case of Aktyubinsk Oblast,” Pauric Brophy.

No. 27 July 1998 “A Comparison of the Effects of Decommissioning, Catch Quotas, and Mesh Regulation in Restoring a Depleted Fishery,” J. Paul Hillis and Vilhjålmur Wium.

No. 26 July 1998 “The Sensitivity of UK Agricultural Employment to Macroeconomic Variables,” Patrick Gaffney.

No. 25 July 1998 “The Economic and Social Costs of Alzheimer's Disease and Related Dementias in Ireland: An Aggregate Analysis,” Eamon O'Shea and Siobhán O'Reilly.

No. 24 July 1998 “Testing for Real Interest Rate Convergence in European Countries,” Stilianos Fountas and Jyh-lin Wu. (Published in the *Scottish Journal of Political Economy*, Vol. 46, No. 2, 1999).

No. 23 April 1998 “Production, Information and Property Regimes: Efficiency Implications in the Case of Economies of Scope,” Scott R. Steele.

No. 22 April 1998 “An Empirical Analysis of Short-Run and Long-Run Irish Export Functions: Does Exchange Rate Volatility Matter?,” Donal Bredin, Stilianos Fountas, Eithne Murphy.

No. 21 April 1998 “Technology and Intermediation: the Case of Banking,” Michael J. Keane and Stilianos Fountas.

No. 20 March 1998 “Are the US Current Account Deficits Really Sustainable?,” Stilianos Fountas and Jyh-lin Wu. (Forthcoming in the *International Economic Journal*)

No. 19 December 1997 “Testing for Monetary Policy Convergence in European Countries,” Donal Bredin and Stilianos Fountas. (Published in the *Journal of Economic Studies*, Vol. 25, No. 5, 1998).

No. 18 September 1997 “New Fields of Employment: Problems and Possibilities in Local and Community Economic Development,” Michael J. Keane.

No. 17 September 1997 “Estimation of the Impact of CAP Reform on the Structure of Farming in Disadvantaged Areas of Ireland,” Eithne Murphy and Breda Lally.

No. 16 May 1997 “Exchange Rate Volatility and Exports: the Case of Ireland,” Stilianos Fountas and Donal Bredin. (Published in *Applied Economics Letters*, Vol. 5, No. 5, 1998)

No. 15 May 1997 “Tests for Interest Rate Convergence and Structural Breaks in the EMS,” Stilianos Fountas and Jyh-lin Wu. (Published in *Applied Financial Economics*, Vol. 8, No. 1, 1998)

No. 14 May 1997 “Cointegration Tests of the Profit-Maximising Equilibrium in Greek Manufacturing 1958--1991,” Theodore Lianos and Stilianos Fountas. (Published in *International Review of Applied Economics*, Vol. 11, No. 3, 1997)

No. 13 April 1997 “Agriculture and the Environment in Ireland: Directions for the Future,” Eithne Murphy and Breda Lally. (Published in *Administration*, Vol. 46, No. 1, 1998)

No. 12 March 1997 “Male Mortality Differentials by Socio-Economic Group in Ireland,” Eamon O’Shea. (Published in *Social Science and Medicine*, Vol.45, No.6, 1997)

No. 11 July 1996 “Testing for the Sustainability of the Current Account Deficit in Two Industrial Countries,” Jyl-Lin Wu, Stilianos Fountas and Show-Lin Chen. (Published in *Economics Letters*, Vol. 52, No. 2, 1996)

No. 10 April 1996 “Towards Regional Development Programmes in Russia,” Michael Cuddy.

No. 9 April 1996 “Uncertainty in the *General Theory* and *A Treatise on Probability*,” Joan O’Connell.

No. 8 December 1995 “Some Evidence on the Export-Led Growth Hypothesis for Ireland,” Stilianos Fountas. (Forthcoming in *Applied Economics Letters*).

No. 7 November 1995 “Caring and Theories of Welfare Economics,” Eamon O’Shea and Brendan Kennelly.

No. 6 September 1995 “The Relationship Between Inflation and Wage Growth in the Irish Economy,” Stilianos Fountas, Breda Lally and Jyh-Lin Wu. (Forthcoming in *Applied Economics Letters*)

No. 5 September 1995 “Quality and Pricing in Tourist Destinations,” Michael J. Keane. (Published in *Annals of Tourism Research* , Vol. 24, No. 1, 1997)

No. 4 September 1995 “An Empirical Analysis of Inward Foreign Direct Investment Flows in the European Union with Emphasis on the Market Enlargement Hypothesis,” Kyriacos Aristotelous, Stilianos Fountas. (Published in the *Journal of Common Market Studies* , Vol. 30, No. 4, 1996)

No. 3 September 1995 “The Social Integration of Old People in Ireland,” Joe Larragy and Eamon O’Shea.

No. 2 September 1995 “Caring and Disability in Long-Stay Institutions,” Eamon O’Shea and Peter Murray. (Published in the *Economic and Social Review*, Vol. 28, No. 1, 1997)

No. 1 September 1995 “Are Greek Budget Deficits ‘too large’?” Stilianos Fountas and Jyh-lin Wu. (Published in *Applied Economics Letters*, Vol. 3, No. 7, 1996).

Enquiries:

Department of Economics,
National University of Ireland, Galway.

Tel: +353-91-524411, ext. 2177
Fax: +353-91-524130
Email: claire.noone@nuigalway.ie
Web: <http://www.nuigalway.ie/ecn/>