Social Capital: An Interdisciplinary Concept*

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ABSTRACT This paper sets forth an interdisciplinary interpretation of social capital that will permit the concept to be used with precision in scholarly and scientific work. If the interpretation is accepted, the social capital concept cannot be regarded as a social theory, nor as a statement of normative goals. The interdisciplinary concept proposed here is applied to rural studies.

The term social capital has come to be widely used in the social sciences, and has earned a place in the rural studies literature as well (Coleman 1988, 1990; Flora 1998; Flora and Flora 1993; Hofferth and Iceland 1998; Israel, Beaulieu, and Hartless 2001; Warner 1999). Although social capital is clearly an interdisciplinary concept, there is little in the literature which states this quality explicitly and specifically. Here I set forth an interdisciplinary interpretation of social capital, and in the context of that interpretation I examine the principal criticisms that have been made of the social capital concept. I conclude the paper with a discussion of the concept’s potential usefulness in rural studies.

The concept of capital is drawn directly from economics literature. Social distinguishes social capital from other forms of capital; its content is provided by social sciences other than economics, especially sociology and anthropology. If an interdisciplinary concept is defined as one that yields insights and knowledge which cannot be obtained from independent, single-discipline efforts, one cannot deny that social capital is such a concept. Loury (1977), an economist, provided the first generally recognized application of the concept to explain economic performance more clearly. His work was followed by that of Coleman (1988, 1990), a sociologist. Coleman was well informed about economics and treated capital as an economic concept. His work brought depth of meaning to the adjective social as used in the term social capital.

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The social capital concept has numerous possible applications in rural studies. It has been used as a diagnostic tool for analyzing rural areas' potential to achieve specific objectives. It calls particular attention to the passage of time in understanding rural places at a specific point in time. Of course, sociologists have long recognized the importance of time in community studies, quite independent of the concept of capital (Sharp 2001). Even though the term capital was introduced into economics as a way of dealing with the passage of time, economic theory often employs static analysis and neglects time as a variable. This may be appropriate for some problems, but it misses the essence of many problems in rural studies.

Communities have long been an important subject of study by sociologists, but economists typically have directed their attention elsewhere. Many economic models do not provide for intermediary decisions between firms and individuals at the micro level and the nation-state at the macro level. The social capital concept provides a means of bringing communities and other small groups into economic analysis consistent with social theory (Castle 1998; Kraybill 1998; Oakerson 1998; Salamon 1998; Summers and Brown 1998).

The traditional economic view of the capital stock in a geographic area includes natural, human, and human-created capital. The addition of social capital permits a fuller accounting of available assets and requires a fundamentally different view of rural decision making. Later in this paper I discuss different classifications of the various forms of capital.

The Noun and Its Modifier

If a concept is to be useful in scientific and scholarly discourse, it must be capable of being used with precision. In this case, precision will follow if we give attention to both the noun, capital, and its modifier, social.

Two characteristics of capital, usefulness and durability, are important in the context of this paper. To be useful, an item must be involved in either the production or the consumption functions of individuals or firms in a society. These functions describe a causal relationship between an outcome and those items which make the outcome possible. If the economic meaning of capital is respected, an item of capital can exist only in the context of a production or consumption function as those terms are defined in economics.

Durability simply means that an item has the capacity to be used in production or consumption in more than one time period. In other words, time is an explicit variable in the creation and use of
capital. The concept of capital was introduced into economic theory to account for the costs associated with the passage of time. Such costs include the consumption or production opportunities forgone in the present in order to make the asset available in the future. Baron and Hannan (1994) state that a capital market and an opportunity cost must exist if an item is to be considered as capital. Because social capital has different characteristics than the other forms of capital, they question whether social capital qualifies as capital. Coleman (1990) believes that most manifestations of social capital arise as a by-product of other activities and that they are public goods.

If Coleman is correct in this respect, it is questionable whether there is any advantage to considering social capital on a par with the other forms of capital that have proved useful in economic analysis. I maintain the point that social capital does not always arise as a by-product of other activities; it may require conscious decision and sacrifice.

The public good dimension of social capital certainly affects the incentives for creating this capital. One person's use of social capital does not diminish the quantity available for use by others, and group action is necessary for its creation. The conscious creation of social capital certainly requires sacrifice and entails opportunity costs. Later in this paper I discuss the creation and development of social capital.

The adjective social means, of course, that more than one individual is involved. Although social legitimizes the presence of sociology in the term social capital it creates complications in economics. Much economic modeling has been concerned with individual decision making at the micro level, and with the impact of the aggregate effects of individual behavior, corporate behavior, and public policies at the macro level. As stated above, typical economic policy models neglect group action intermediate between the micro and the macro level.

Nevertheless, there exists a body of economic literature concerned with collective action at other than the macro level. The work of Mancur Olson (1965) is generally regarded as a forerunner of this school of thought, which draws on both economics and political science. Other social sciences also have been concerned with collective action, but usually they employ behavioral assumptions different from those traditionally used in economics. As a result, it is difficult to incorporate these assumptions into economic models. The collective action, or public choice, literature in economics
makes use of traditional economic behavioral assumptions, such as self-interest, to explain the behavior of individuals within groups. Collective individual actions, in turn, define group activity and performance. Yet it has been difficult to incorporate this approach into traditional economic modeling to account for group action intermediate between individuals' and firms' behavior, on the one hand, and that of the nation-state, on the other.

The concept of social capital has the potential to enrich the field of economics with concepts that are found mainly in sociology. Trust, an expectation of reciprocity, and information exchange have been identified as characteristics of social capital. Similar characteristics have been recognized in many social sciences as necessary for the functioning of economic and political systems (Arrow 1974; Fukuyama 1995; Williamson 1993). Yet these characteristics in and of themselves do not constitute social capital; Woolcock defines social capital as "the norms and networks that facilitate collective action" (2001:13). His definition emphasizes what social capital is, rather than what it does, in keeping with the way other forms of capital typically are defined. The noun capital, however, implies that there must be a useful social consequence, or effect, if the entity is to qualify as capital.

A capital good, then, must satisfy the requirements of production or consumption functions, as those terms are defined in economics. If this is so, how can a phenomenon such as "neighborhood effects" on children's and youths' development be incorporated into such an analysis? A reviewer of an earlier version of this paper observed that a robust body of literature in psychology, education, and sociology has investigated and documented such effects (Elder and Conger 2000; Furstenberg et al. 1999; Leventhal and Brooks-Gunn 2000). The reviewer stated, "For children, the importance of overlapping social networks and the presence of other adults than parents as resources seem of paramount importance." If there are "neighborhood effects," and if human capital is valuable, such effects should be included in production functions. In other words, group action, as a means of achieving certain aspirations, is indirect but more effective than more direct, individual effort. This, of course, is consistent with the role of capital in economic systems, where capital generally is a mechanism for achieving "roundabout" production. Coleman envisions social capital as a means of achieving individual ends; yet, he admits, it does not follow that individuals necessarily act independently, that their goals are reached indepen-
dently, nor that their interests are wholly self-serving (1988:301). The incorporation of social capital into economics is a way of modifying the discipline so that group or social relations are included in the discipline. Conversely, the use of the economic concept of capital in other social sciences may increase their generality as well. To insist that social capital be defined so as to enter economic production or consumption functions does not mean that the resulting social system will be governed entirely by individuals’ independent actions.

In the absence of social capital, producers and consumers at the micro level need consider only independent preference functions. It is assumed that decisions are coordinated by markets operating within a legal framework provided by an exogenous government. The presence of social capital means that individuals’ decisions must be coordinated by some means in addition to the market. In the jargon of economics, preference functions lose independence and become interdependent. The incorporation of social capital into economic systems requires that at least some social activities become endogenous to that system. This is exceedingly important in rural affairs, where group activity traditionally has been quite important. The presence of social capital becomes evident when one can show that the norms and networks which facilitate collective action contribute to useful goods and services, as defined by production or consumption functions and as contrasted to what would exist in their absence. The lack of such evidence implies that social capital may not exist as a distinctive form of capital in some instances, even though it may exist in singular cases. Nevertheless, the concept of capital is empirical, and (at least in principle) social capital is subject to measurement and empirical verification. According to this interpretation, social capital cannot be viewed as meaning “all things to all people.”

The classification of capital forms adopted in this paper must be justified. The categories adopted here delineate four forms of capital: natural, human, human-created, and social. These terms are largely self-explanatory. Natural capital pertains to resources found in nature that are useful in human affairs. Because humans have lived in this world a long time and have intervened often in nature, “pure” natural capital is more scarce today than in earlier times. Much so-called natural capital in fact is a combination of natural and human-created capital. Human capital refers to individuals’ capacity to contribute to their own and others’ satisfaction. In a relatively recent development in economic theory, it is recognized that
the total capital stock must provide for investment in people (Becker 1964; Schultz 1961). Human-created capital is the hardware and software that humans have brought into existence, which is useful in more than one period. The concept of capital in economics originally was introduced in order to account for the existence of human-created capital. Finally, social capital is defined as those group relations, or norms and networks, which facilitate accomplishments by social and economic systems.

Coleman (1990:305) uses a different classification system: he refers to financial capital, physical capital, human capital, and social capital. Thus the two classifications overlap perfectly with respect to human and social capital. Coleman is not explicit as to what is included in the "physical" and "financial" capital categories, but it is reasonable to assume that everything included there could also be considered either as "natural" or as "human-created."

Earlier I proposed a classification that was identical to the one used here except that I used the term man-made instead of human-created capital (Castle 1998). The two are identical in content, but human-created is gender-inclusive.

The classification employed in this paper is more consistent with modern economic theory than the one used by Coleman. Nevertheless, the basic arguments advanced here are not affected by the classification system used. The total stock of capital encompassed is identical in the two systems.

Concerns and Criticisms

Sharp wrote, "Social capital has proved to be an inspiring metaphor, but it is less effective as a theoretically grounded concept: scholars disagree over exactly what it is, its benefits, and how to measure it. Without more sharply focused conceptual and theoretical development, the various contributions to the field will not effectively build a coherent body of knowledge about rural communities. Disciplinary boundaries also may be limiting the recent work because outputs and insights from different social sciences are not discovered outside particular disciplines" (2001:137).

The social science literature also contains other reservations that deserve serious attention. Concerns and criticisms of the social capital concept cluster around three issues. One pertains to conceptual ambiguity, another to normative implications, and the third to social capital formation. Below these criticisms are addressed from the perspective provided by the social capital concept advanced in this paper.
Conceptual Ambiguity

The concern with conceptual ambiguity is whether social capital will be defined in terms of its effects or its characteristics (Durlauf 1999; Portes 1998; Portes and Landholt 1996). On the one hand, social capital may be assumed to exist simply because a favorable outcome has been observed; on the other, social capital characteristics may be observed and a favorable outcome is assumed to follow. The danger is that the concept will amount to little more than a tautology.

Coleman (1990:302) was explicit regarding his view of this concept. He wrote that social capital is several different entities possessing two characteristics in common. All of those entities (1) consist of some aspect of social structure and (2) facilitate certain actions of individuals within that structure. Confusion apparently arose because both characteristics have not been recognized, or because it has been assumed that one characteristic, standing alone, constitutes social capital. If attention is given to the noun capital and its modifier, social, there should be no confusion about the relation of effects to characteristics. Social capital characteristics such as trust or an expectation of reciprocity may tell us something about social structure, but they are not the whole of social structure. Such characteristics may contribute to outcomes or effects as stated in individuals' consumption or production functions. It may well be that certain characteristics are necessary for the existence of social capital, but neither provide a description of social structure nor specify effects.

There should be no conceptual ambiguity if social capital and social capital characteristics are considered in this way. The direction of causation is quite clear for both consumption and production decisions: social capital must be combined with other forms of capital in order to specify a production or consumption function. If the effect of social capital on outcomes is to be measured, an account must be provided for all contributions, of which social capital may be one.

There is a risk that empirical work done in the name of social capital will suffer from an ambiguous conceptual base. Coleman was conservative about the quantitative measurement of social capital when he wrote, "Whether social capital will come to be a useful quantitative concept in social science as are the concepts of financial capital, physical capital, and human capital remains to be seen; its current value lies primarily in its usefulness for qualitative analy-
sis of social systems and for those quantitative analyses that employ qualitative indicators” (1990:305, 306).

Putnam (1995) conducted pioneering empirical work measuring the existence of social capital arrangements and then attributing particular outcomes to the existence or absence of such arrangements. Unless such associations are grounded in social theory, they may suffer from conceptual ambiguity. Durlauf (1999) specifically exempts Loury (1977) from a charge of ambiguity because Loury’s work was designed to show how social networks could lead to persistent differences in income levels across ethnic groups. The work of Knack and Keefer (1997), who investigated the economic payoff from social capital arrangements across the country, is in the same tradition as Loury’s. Recent research, based on a concept of social capital consistent with the one set forth in this paper (Glaeser, Laibson, and Sacerdote 2000), provides empirical support for the proposition that individuals in fact forgo consumption in the present so that they can make investments in social capital. Research from social sciences other than economics, cited earlier, avoids the charge of ambiguity or tautology (Elder and Conger 2000; Furstenberg et al. 1999; Leventhal and Books-Gunn 2000).

The issue of conceptual ambiguity apparently arises from the implicit assumption that the idea of social capital constitutes a social theory. The view set forth here is that social capital is an interdisciplinary concept that has meaning only in the context of both economic and social theory. Viewed in this way, the concept can be regarded as a device to enhance other, more general formulations.

An analogy may be helpful. Consider the internal combustion engine, a useful human-created capital item. Discussions of the engine’s economic and social implications may be found in the literature of either economics or sociology, but we would not expect such literature to describe the development of the concepts that made possible the creation of internal combustion engines. For such discussion we would turn to engineering, physics, and mechanics. Similarly, the social capital concept contains little to suggest that it can be used as a substitute for existing social or economic theory.

**Normative Implications**

With the above foundation in place, normative issues can be evaluated more effectively. Durlauf (1999), following Coleman (1988, 1990), notes that an effective group may facilitate diamond transactions because of the expectation of honesty. A group with the
same characteristics, however, also may be effective in (for instance) enforcing segregation norms. The social capital literature frequently cites such apparent paradoxes when group actions result in undesirable as well as desirable outcomes. Indeed, it would be surprising if this situation were otherwise. Most, if not all, capital goods may be used to produce items socially desirable in one circumstance but undesirable in another. In the case of social capital, the issue hinges on whether the group's objectives or ends are compatible or consistent with the objectives or ends of the larger society to which the group belongs. Group characteristics may help the group to attain what it considers desirable, but whether that which the group considers desirable is acceptable to the larger society is an altogether different question. Such considerations are documented empirically by the impressive recent research of Schuman and Anderson (1999). Hence the social capital concept does not constitute a normative theory.

Bowles (1999) described how social capital, or community action, has simultaneously created fear and anticipation in both liberal and conservative theorists. The liberals may like the idea of social capital because it holds the prospect of correcting market failure; the conservatives may view it favorably because it may make state action unnecessary. Yet members of each group are fearful when they consider the other side of the subject; such reactions appear to be based on the notion that social capital exists only in small groups such as families or communities. Woolcock (1997), however, has discussed how manifestations of social capital change as one moves from the micro to the macro level. In Woolcock's view, the embedded group norms provide the basis, at the micro level, for the conformity of group actions to expectations regarding those actions. As the level of aggregation increases, embedded norms become less important; social capital arrangements must provide for integrity in intergroup, as contrasted to intragroup, relations. Yet social capital apparently is present at every level of aggregation, even though it may well be manifested in different ways.

Social capital appears to be important in both urban and rural settings. Hofferth and Iceland (1998) provide one example; Wilson's (1988) pioneering work on urban social conditions is another. Nevertheless, we still have much to learn about the interdependence of forms of autonomous social capital and the attainment of public policy objectives. The current national administration's effort to administer welfare through "faith-based" organizations is a case in point.
Consider Figure 1 as adapted to the purposes of this discussion (Castle 2000). As noted earlier, social scientists seem to agree that enterprise economies as well as state activity require a substantial degree of trust among participants. Further, enterprise economies always depend on the public sector to enhance their performance. In addition, both the public and the private sector rely on non-governmental organizations and networks for many services. It follows that social capital is needed at every level of aggregation. In general, there appears to be no a priori reason for either liberal or conservative theorists to view social capital with either fear or anticipation. By definition, social capital exists only if it can be used to create something useful. In individual cases, of course, where something is known about a group's norms or values, there may be reasons for anticipating particular outcomes.

What does "socially useful" mean? That which is socially useful will include both public and private goods. Equality under the law is an example of a public good insofar as a society values such a condition. In such a circumstance, norms and networks that promote or protect such a public good would qualify as social capital. Enterprise economies produce items that are socially desirable, but all societies make economic activity subject to public authority in varying degrees. The twentieth century was not kind to systems that looked to government as the principal source of both ends and means: it cannot be expected that a theory of social capital will provide normative guidelines for a complex modern society.

This does not mean that normative considerations need be, could be, or should be eliminated from economic, political, or social theory. All intellectual constructs are partial and incomplete, and the scope of their application always must be considered carefully. Social capital is no exception.

Social Capital Formation

Critics of social capital also have expressed concern about the lack of an explanation for social capital formation. This criticism is important and valid. Woolcock (1997) addresses this concern in an important way, but much remains to be done. Earlier work by Granovetter (1973, 1985) is quite important in this respect: his 1973 paper on "weak ties" is relevant to intergroup relations as discussed by Woolcock. Granovetter's later work, concerning embeddedness, contributes to an understanding of social structure at all levels of aggregation. Much of our knowledge of social capital stems from our understanding of small groups such as families and religious or
Figure 1. Social Capital in a Nation State: Micro to Macro Conditions

ethnic communities. Manifestations of social capital that can serve intergroup needs are understood considerably less well, however.

The social capital concept is obviously relevant to the institutional economics literature (Castle 1998). The writings of Granovetter (1985), North (1990), and Williamson (1993) are especially pertinent in this respect. Collective action theories that depend on standard economic assumptions about individual choice suffer inherent limitations when used to explain group behavior. Wildavsky, for example, wrote, "Worse still, preferences are referred to as 'tastes,' for which, as the saying goes, there is no accounting, thus rendering them not merely noneconomic but nonanalyzable" (1987:5).

Social Capital and Rural People and Places: An Application

Our system of government accords a substantial degree of autonomy to rural people and places. Such autonomy is especially important because of fundamental characteristics of the countryside; these include relatively sparse human populations, interdepen-
dence with urban and global systems, and generally great diversity, even though economic activity in particular rural places often is highly specialized. Because populations are sparse, space and distance are important variables. Interdependence ensures that solutions to rural problems almost always reflect urban and global considerations. And diversity, among other effects, makes generalizations exceedingly hazardous.

Rural people face many and varied problems including chronic low incomes in some places and for particular groups, arrested economic development, limited provision of health and educational services, and significant challenges related to environmental management, land use, and communication facilities. Rural people traditionally have accorded importance to group and community action when addressing common problems. Apparently they believe that individual aspirations can be achieved most successfully if individual effort is supplemented with cooperative endeavors.

Such cooperative activity takes many forms. Some is facilitated by the autonomy provided to local people under our system of government (Oakerson 1995). Much of this activity, however, apparently stems from the realization that individual aspirations often come closer to fulfillment through group action. Some local group activity is made more effective because participants share a common religious or ethnic heritage. Apparently, however, much of this activity stems from geographic proximity, the recognition of common problems, and pragmatism. Cooperative action often becomes institutionalized, and the resulting formal organizations become a part of the rural landscape (Hobbs 1995). In other instances, cooperative activities are associated with particular problems as they arise; then the activities remain or disappear, depending on the persistence and importance of the problems addressed. In any case, it is quite important to recognize the capacity of the local social structure to facilitate cooperation in traditional activities, as well as in emerging issues. The previously cited recent literature on "neighborhood effects" is obviously relevant here.

Is the concept of social capital, as described here, relevant to the rural social environment? As indicated, some research offers evidence that social arrangements contribute to economic output (Knack and Keefer 1997) and that individuals are willing to invest in social arrangements (Glaeser et al. 2000). The latter research also indicates that such investments are affected by spatial considerations. Yet this general validation does not mean that the concept will be useful in rural settings.
Rural extension programs across the country designed to address rural (as contrasted with agricultural) issues provide indirect evidence that rural people consider the management of their durable assets an important task. Rural people participate in the planning of such programs; the resulting efforts often are centered on the management of one or more of the four forms of capital. One of the most successful of these programs, led by Glen Pulver and associates, originated at the University of Wisconsin. This program emphasized an appraisal of all assets available to the community that might be used to achieve the goals identified within the community. The exercise identified the asset, or capital form, that was the most limiting. Some extension programs emphasize the natural environment, others assist entrepreneurs in various ways, and some are concerned with human capital.

As noted by Coleman (1998), social capital development may be viewed as a prerequisite to the use and development of other forms of capital; this has been found to be important in some rural places (Gurwitt 1998). Rural sociologists traditionally have given considerable attention to rural communities, and it is to their credit they have done so (Summers and Brown 1998). Even though the social capital concept is not a substitute for in-depth analysis of group relations, it has the potential to bring together different categories of knowledge. In addition, a group of economists that call themselves the Community Economics Network associate with both regional science and agricultural economics professional associations. The existence of the Community Economics Network, the attention accorded to communities by rural sociologists, and the structure of numerous extension programs constitute pragmatic recognition of the importance of group action in rural places.

Figure 1 helps to put into perspective the principal arguments presented in this paper. The first three columns identify recognized, formal, organized activity in society. Column 1 depicts private-sector activity; Column 2, the public sector. Column 3 pertains to recognized social networks and nongovernmental organizations. There exist academic disciplines that provide in-depth understanding of each of these columns, but they are less successful in dealing with relationships between the columns. Liberal theorists emphasize the importance of the second column; conservatives emphasize the first. Even so, the columns are highly interdependent, and practical people work across them constantly. Group characteristics that facilitate this work by practical people are obviously important. Yet as stated above, such characteristics, when standing alone, do not con-
stitute social capital. An item of social capital exists only in relation
to its positive effect on a group objective or purpose, which in turn is
rooted in the aspirations of individuals constituting the group.

It is not difficult to deduce examples of needed rural sociology
and rural economic research from the above discussion. With re-
spect to rural sociology, there is a need for fuller understanding of
social capital formation at different levels of aggregation in society,
especially in regard to what Woolcock (1997) calls intergroup rela-
tions. Specifically, what facilitates intergroup relations in the same
way as embedded norms facilitate intragroup relations? Certainly
recognition of need is an important step in the creation of social
capital, when such recognition depends on an understanding of in-
dividual and group aspirations.

As with other forms of capital, specific items of social capital be-
come obsolete with the passage of time and attendant social
change. New items may not be obvious to many at first because they
may take unconventional forms. Yet these new forms must be rec-
ognized if attempts are made to measure the adequacy of social
capital. The fact that people are “bowling alone” is not relevant un-
less the consequences of bowling alone, as well as with others, are
known. A survey of surviving traditional group arrangements may
be no more relevant to the adequacy of current social capital than
is a survey of automobile junkyards to improving contemporary
transportation systems (Young 2001).

In a recent working paper from the National Bureau of Eco-
nomic Research, which examines social capital in both community
and the home, the authors conclude that the decline in social cap-
ital has been overstated (Costa and Kahn 2001). These authors be-
lieve that valuable information would be obtained by examining,
from a social capital perspective, social arrangements in rural areas
that have experienced different rates and kinds of economic
change. Such an examination would need to be concerned with the
usefulness of traditional forms of social capital, as well as with new
configurations that have arisen in response to emerging needs. This
undertaking would not be easy: new configurations are not likely to
be found unless the researchers know what they are seeking.

The economic concept of capital was invented to provide a ra-
tionale for forgoing immediate gratification in order to be more
productive later. This concept may help to clarify group relations as
one moves from the micro toward the macro level in societies. Ef-
forts that result in improved understanding among groups in order
to enhance intergroup decision making constitute investments in creation of social capital. They require sacrifice at the present for the sake of realizing benefits in the future.

Assume that in one of the United States, a perceived need arises for a different way of managing a natural resource—water, for example. Many people recognize that a different organization will be needed to implement a new management plan; this, in turn, will require a reorganization of state agencies. Yet there may be a lack of trust among those who will be affected by the possible change. This lack may make immediate consideration of the change unlikely, even though it appears that most or all parties would benefit from a different way of managing water. Although the water problem is acute, and the outline of a solution can be visualized, the governor may decide to appoint a study commission that would include the principal actors or their representatives. Such a move might be undertaken in the belief that a degree of trust and an expectation of reciprocity will be established among the participants. Such procedures in fact are commonplace and may be regarded as an investment in social capital formation.

Durlaug (1999) asserts that we know much more about how different types of government programs affect community action than about how government can build social capital in impoverished communities. Durlaug may well be correct, but his assertion begs the question of how effective government programs are created initially. If effective government is to exist, appropriate social capital arrangements must be in place. (See the extreme right-hand column in Figure 1.) Research is needed to document, from a social capital perspective, how effective intergroup programs come into existence. Such investigations have the potential to reveal much about creation of social capital, including the magnitude of the investment required to achieve particular goals.

Warner’s (1999) interesting and useful research is directly relevant here. She provides a theoretical rationale and examples of the relation of community organization to local government. Her research fits neatly within the framework set forth in Figure 1 and addresses directly some of the questions not addressed by Durlaug (1999).

For the sake of symmetry, I now focus on an economic research problem that arises from the interdisciplinary concept set forth in this paper. To do so, I must return to the four forms of capital described earlier: natural, human, human-created, and social. If such a classification is valid, most aspirations will be realized only when
all forms of capital are used. The nature of the relationship between these forms becomes important for deciding how much, and when, the different forms should be employed.

Coleman (1988) believes that social capital must exist before the creation of human capital. If this is so, two important implications for economic research follow. First, time becomes an important explicit variable in economic analysis. Traditional rural economic research appropriately has devoted considerable attention to understanding the location of rural economic activity, and distance has been accorded an important place in the rural economic research agenda. The introduction of capital considerations provides theoretical justification for both time and distance in this agenda, even though many rural researchers, especially sociologists, have long recognized pragmatically the importance of time (Lobao 1996; Sharp 2001:142). Second, if the formation and use of social capital must precede the development and use of other forms, insights from sociology will be important in the design of economic research. Here we find a symmetry with the use of economic concepts in the design of sociological research, as described earlier. This is the hallmark of a truly interdisciplinary accomplishment.

Summary

In the interdisciplinary interpretation of social capital set forth in this paper, I direct attention to the meaning of the noun capital and the adjective social. Both economics and sociology must play leading roles in providing meaning for these terms. Anthropology, political science, and perhaps other disciplines are relevant as well. The interpretation of social capital proposed here is consistent with the early work of Loury (1977), Coleman (1988), and the most recent writing of Woolcock (1997, 2001) concerning social capital, although it is an extension of those authors' work.

The concept of social capital advanced here has the potential to be useful in scientific and scholarly discourse. If this is to occur, social capital cannot be considered a social theory, nor a source of normative goals. When it is viewed as an interdisciplinary concept, as described in this paper, many of the seeming paradoxes that have been attributed to social capital disappear. Empirical validation is provided by the few investigations undertaken that are rigorously consistent with the concept set forth here.

The social capital concept in rural studies offers a rationale for successful extension programs, and justifies rural sociologists' traditional emphasis on rural communities, organizations, and institu-
tions. It holds the prospect of enriching research agendas in both rural sociology and rural economics.

Some economists and sociologists apparently view the social capital concept as a threat. Some sociologists have resisted embracing the concept because they regard it as based on rational choice models widely used in economics, and they may fear the imperialism of economics. Some economists have been less than enthusiastic about social capital, perhaps because its use may seem inconsistent with their concept of capital. Moreover, a recognition of social capital may require the abandonment of economic models that provide no place for group activity other than at the level of the nation-state.

Even though the concept of social capital was advanced as a means of accommodating individual aspirations more effectively, attention must be given to the social attributes necessary for group action. These attributes are not explained most clearly by individual rational choice assumptions. The result is the creation of interesting research possibilities in both sociology and economics. If the social capital concept is employed so as to be consistent with the viewpoint set forth in this paper, it has the potential to improve the explanatory power of economic models. When the concept is viewed in this way, there is no a priori reason why it should be threatening to either the "conservative" or the "liberal" point of view.

END NOTE: An important article on the economics of social capital appeared after this manuscript had been accepted for publication in Rural Sociology (Sobel). Had I seen Sobel's article earlier, I would have changed certain details in this article. Nevertheless, I believe Sobel's article is consistent with, and strengthens, the principal arguments set forth here.

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