

PROPOSAL NO.: XXXXXXXX
INSTITUTION: XXXXXXXX
NSF PROGRAM: SOCIOLOGY
PRINCIPAL INVESTIGATOR: XXXXXXXX
TITLE: XXXXXXXX
RATING: Excellent

REVIEW:

What is the intellectual merit of the proposed activity?

the proposed research seems to be the logical culmination of the PI's contribution to the field, its intellectual merit is therefore high. NSF has already funded his earlier book, which culminated in a major statement on the dynamics of transformation of East European economies and polities (the book co-edited with Bruszt), and which advanced the theory of "recombinant property". This theory has been at the center of some controversy - though it was also justly celebrated as an a novel way of looking at property transformation - and the proposed new research is superbly designed to address this controversy. First, it is based on a similar theory which identifies a relationship between uncertainty and the network properties of firms, but it extends this theory into a comparative framework of different types of uncertainty (clearly derived from Dimaggio and Powell's seminal article), different types of firms' strategies and network structures; second, it proposes to examine these empirically and dynamically, through time, thus promising to test the merits of the theory vis-a-vis certain criticisms of the original argument (i.e. that it was limited only to a few firms, or that it was a snapshot of a particular moment in Hungarian history); finally, it will do so by actually introducing a methodological innovation, studying the trajectories of firms and business groups within networks and institutional contexts. My only concern, and where I think the weakness of the research lies, is with respect to the idea of "uncertainty". In terms of the research design, one might say that while the various trajectories will be derived empirically in a fairly transparent procedure, the idea of "uncertainty" has at best interpretative validity, i.e. it could only make sense if the actors themselves are shown to have thought of their situation as "uncertain". The problem here, however, is that the actors have been defined as firms, rather than individuals. These are firms which respond to uncertainty, and which "shop" for various types of owners to protect themselves from it. But one cannot interview firms, only individuals, and only individuals perceive and respond to uncertainty, though they may do so in concert. Moreover, individuals may manipulate perceptions of uncertainty to influence the actions of others. In short, the concept of "uncertainty" cannot give the PI that clear and objective demarcation on which to base an explanatory model. I consider this issue, however, as something which should be dealt with at the analysis and writing stage of the research, and should not reflect on its merits.

What are the broader impacts of the proposed activity?

I'm not sure what is meant by this, but if it refers to feasibility, then I consider the proposal as delineating a doable and important project, and the PI to be one of the few people actually capable of pulling it off. As I said earlier, if the research and analysis deliver on the promise of the proposal, it has the potential of addressing a major controversy over the nature and dynamics of property transformation in post-communist Eastern Europe, and to do so with data which nobody else possesses, both in terms of its breadth (number of firms), time span (the whole period of transformation), and depth (specific monthly information creates a large data set which allows to deploy the type of innovative analysis the PI proposes). Moreover, it will introduce a novel form of analysis, combining the formal quantitative construction of trajectories with the formal quantitative description of network ties. This form of analysis promises to combine structure and process - a regular polarity of social scientific research - in a way which I have not seen up till now.

Summary Statement

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RATING: Very Good

REVIEW:

What is the intellectual merit of the proposed activity?

This is a bold proposal describing research on patterns of firm ownership in Hungary between 1989 and 2000. The project involves a large-scale data collection on characteristics of firms (including ownership, measures of employment and economic performance). The proposed analysis provocatively combines idea about network ties between firms and recent thinking on sequences analysis. The main empirical expectation is that during period of high uncertain immediately the transition from communism, firms would try to hedge by diversifying their ownership and also by connecting to the state. Testing these hypotheses are only part of the promised empirical work, as much descriptive analysis of the evolving sequences of networks and ownership patterns are also offered by the proposal.

This seems like an exciting project that builds on Stark's imaginative economic sociology of post-communist transition. The introduction of sequence analysis introduces a dynamic element into the usual study of ownership structures. The research promises a real advance in sociological understanding of economic structural change under the turbulent conditions of market transition.

That said, I throw out two comments that I think could be useful to keep in mind as the project develops. First, its unclear from the proposal whether or how organizational deaths will be treated in the analysis. The proposal makes it clear that, in contrast with many retrospective studies of organization, bankrupt or merged firms will be included in the analysis. This is good. In all the illustrative analyses, firms survive over the entire 10 time points. I think there will be great interest in whether certain patterns of ownership or network structure will tend to lead to merger or business failure and I think the project could be strengthened by developing some a priori think on this issue, before the data are analyzed. Other sorts of outcomes, like downsizing or firm revenue, would also be interesting to examine in this way. In short, I tend to think that the evolving structure of networks or ownership is not intrinsically interesting, but only important insofar as leads us to improved understanding of economically consequential outcomes. I would try to push the investigator further in this direction.

Second, sequence analysis is a provocative idea, but it does not capture very well the more familiar time-series ideas

about duration and dependence. (Larry Wu developed this argument in his review of Abott's work.) Organization survival has conventionally been studied in a duration framework with event history methods. Aggregate economic processes are usually studied in time dependence framework in which a model describes economic dynamics. Conventional time-series methods have a great deal to offer, and I don't think they should be rejected out of hand. Measures of path-dependence (as autoregression) or volatility (as variance heterogeneity) and lots of other ideas congenial to economic sociology can be usefully captured by the more conventional conceptual vocabulary of time-series analysis.

What are the broader impacts of the proposed activity?

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Summary Statement

This project will exploit unique and rich data to help understand the pathways of property transformation. As such the work should shed light on macro-social changes in the study country, Hungary. By extension the findings should have implications for other settings undergoing market transition. The project is informed by and should contribute to the study of organizations specifically and economic sociology generally.

The methodological contribution of the proposed work rests on the mapping of sequences of a firm's location within a network. This sequence analysis would appear to be challenging, but also of significant potential benefit to the field. There is considerable methodological sophistication here. The project does appear to emphasize classification of clusters and sequences over modeling the transitions though the state space. The proposal could say more about selection into (and perhaps out of) the observation set. The text describes several hypotheses that link national

(market) conditions to firm network structure. The research team has done considerable preliminary work to assemble the data and develop the detailed techniques to enable analysis. The project can contribute to theory, substance, and method.

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Summary Statement

Summary:

The most basic purpose of the proposed project is to augment existing data and to perform new analyses using these data. The PI proposes to present results from the project at professional meetings and workshops as well as in research papers that would be published in refereed journals.

Data collection: Existing data contain information on firm ownership, management, and other characteristics of the 500 largest firms in Hungary in 1999 ("large" is defined in terms of revenue). These data record monthly changes in ownership, management, and other firm characteristics. The PI proposes to gather equivalent data for firms that are among the 500 largest in any of the years between 1989 and 2000. Additionally, the PI proposes to gather data to create indices of political, institutional, and market uncertainties. Finally, the PI proposes to interview managers, bankers, investors, etc. regarding their perceptions of the constraints and opportunities available to them.

Analysis: Using these new data, the PI proposes to examine changes in property transformation - that is, in the ownership structures and network structures of firms. The focus of the proposed analysis is on the effects of political, institutional, and market uncertainties on ownership structures and network structures. The goal of the proposed project is to better understand the ways in which business organizations respond to uncertainty by altering their ownership and network structures. The PI also proposes to combine sequence analysis and network analysis to complete the analysis.

Comments:

I should begin by stating that I am not an expert in economic sociology or in the proposed methodology. Thus, I will attempt to provide a general review of the proposed project. That being said, I believe that the project is worthy of funding if enough funds are available. The hypotheses are interesting and well reasoned. For example, the PI proposes that market uncertainties should lead firms to align with banks or foreign owners as a means of protecting

the vitality of their business. Additionally, the proposed project involves both undergraduate and graduate students. Finally, the PI appears more than qualified to undertake the project and has made significant contributions to the field (which were based on prior funding). Overall, I would rate the proposed project as good, but not excellent. My major concerns are related to details of the analysis, which are not clear in the proposal (for example, the measurement of the "uncertainty" variables and how sequence analysis and network analysis are to be combined). I discuss these concerns in more detail below.

1. Does increasing the sample size have merit? I believe that it does. My understanding is that existing data for 1999 are retrospective. In other words, the 1999 data on ownership and network structures go back until 1989 for the companies that were among the 500 largest in 1999. By including firms that were among the 500 largest at any point from 1989 to 2000, the PI will be able to distinguish between firms that survive and those that do not. My concern, however, is that no "small" companies are included in the data (size is, once again, determined by revenue). I would assume that large firms (with a lot of revenue) would have many more ownership and network options than small firms (which lack revenue). Since the "small" firms account for two thirds of all employment and half of the GDP (p. 5) and likely have a different (and limited) set of options for property transformation, excluding them from consideration may obscure other interesting pathways of property transformation. It is also impossible to answer an interesting question if the small firms are excluded entirely: what is distinctive about firms that become "large firms" as compared to firms that do not? Thus, maybe it would be worthwhile to gather data for a sample of firms that never attain the "large firm" distinction (I say sample because I am assuming this is a huge number of firms).

2. On page 6, the PI proposes to gather data on the organizational features of the firms for each month (e.g., SIC codes of activity, raising and lowering of capital, etc.). However, the PI does not propose to use these data in the analysis. The stated hypotheses near the end of the proposal all focus on the relationships between the different types of uncertainties and the ownership and network strategies. Where do these data figure into the analysis? In addition, it is not clear how the targeted interviews will contribute to the proposed analysis. These data could be easily incorporated into the analysis. However, it is not clear whether or not this is planned.

3. The measurement of the "uncertainty" variables is uncertain. The PI proposes to analyze surveys of enterprises, reports of risk assessment firms, enterprise annual reports, and articles from the business press to generate these variables. However, it is not clear how these variables are to be measured. For example, will the PI create a dummy variable that is coded 1 for any period of political uncertainty? Will the PI create an index composed of individual items, such as the number of new government regulations, to measure the degree of institutional uncertainty?

4. I believe that I understand the logic of sequence analysis and network analysis as described by the PI. It appears as though the PI will use a computer program (OPTIMIZE) to identify clusters of firms that differ in their ownership and network structures. Because data would be collected over time, it would be possible to identify changes in these ownership and network structures over time. However, I am not sure I understand how ownership structures and network structures will be related to the periods of uncertainty. Will the PI visually inspect the data to look for patterns in the timing of changes in the ownership and network structures relative to changes in uncertainty (e.g., uncertainty has an immediate effect or a lagged effect)?

5. It is not clear how sequence analysis and network analysis are to be combined. On page 12, the PI states that "it is difficult enough to follow each of our 15 hypothetical firms, and we could not hope to follow 1,800 firms across 144 PAJEK representations." My understanding is that the number of data points would make network analysis, with its graphical presentation, unrealistic - that is, there would be too many links to describe the network structures in a meaningful way. To deal with this, the PI proposes to use sequence analysis to examine clusters of firms. Thus, it appears as though the PI uses sequence analysis and discards network analysis rather than "innovatively combining" the two.

6. The PI proposes to study "historical processes in an eventful way." I am wondering whether another methodology might be useful in addition to sequence analysis - event history analysis in particular. Early in the proposal, the PI alludes to questions about which strategies lead to survival and which do not, yet the testable hypotheses stated near the end of the proposal focus narrowly on the relationship between uncertainty and ownership/network structures. The PI could use the sequencing software to identify clusters of firms that use different ownership and network strategies to deal with uncertainty. These clusters could then be used as independent variables in an event history analysis - along with the other firm characteristics that the PI proposes to collect - to predict the timing of events of interest, such as bankruptcy, mergers, etc. Event history models are capable of incorporating time-varying independent variables and modeling different event types. Additionally, using event history analysis, it would be possible to statistically model the amount of time until each firm within a cluster adopts the particular ownership or network structure. For example, on page 8, the firms in the second cluster switch from "7" to "2" at different points in time. Perhaps differences in firm characteristics explain these differences in the timing of property transformation. Perhaps sequence analysis is capable of such things as well?

7. I am surprised that there is no hypothesized connection between changes in the ownership structures and network structures. It seems as though there would be important interactions between the two.

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REVIEW:

What is the intellectual merit of the proposed activity?

The proposed research will use advanced methodological techniques to address some of the key questions in economic sociology, namely how economies are organized and how they change. The PI proposes to describe and track the changes in the Hungarian economy between 1989 and 2000 using a firm-centered database that emphasizes the formation and changes in network ties among owners, managers, and directors of firms. The key merits of this research are the proposed methodological techniques (sequence analysis) to track changes in network patterns, the analysis of complex and dynamic networks of firms (business groups) that form the foundation of this economy, and the focus on the "careers" of firms.

What are the broader impacts of the proposed activity?

The proposed research advances economic sociology in the following ways: 1) A demonstration of a post-socialist economy in the process of rapid economic change; 2) an advance in the theories of business groups, showing the

importance of overlapping networks; 3) the development of new ideas about differences among firms and business groups in the same economy; 4) by applying the concept of career to changes in how firms are positioned vis a vis other firms in the same economy, new theoretical ground is opened. These insight will lead to a wider perspective on the organization of entire economies; 5) the development of methodological techniques to accurately describe and track complex economic organization.

Summary Statement

This is a very strong research proposal by a person having a superb record of accomplishments.

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IN RE: NSF 0136995

I should remark that my own expertise lies on the methodological rather than the substantive side of this project. Using methodological originality and strength as a criterion, this proposal seems very creative. I agree with the contention that getting network analysis into motion - analysing the diachronic properties of networks - is an important advance. I am also sympathetic to the search for sequential regularities.

That said, the next question is whether the dataset is one "friendly" to sequence analytic approaches. Typically, we would choose a method like sequence analysis when we expect long "patterned regularities" in behavior over many time periods. Often, in individual career behavior, for example, that isn't the case, or, rather, we measure the career mainly in terms of its turning points, and hence overemphasize irregularity. The first proposed dataset (on "compositional aspects of property"), however, seems quite likely - on substantive grounds - to produce a more limited and quite distinct set of characteristic patterns. It thus seems a good candidate for the proposed methods. On the network (positional aspect of property) side, I am less sure. First, I am not yet clear why we should expect "long regularities" in network position; that is, why we would find regularities of a kind that makes sequence analysis more useful than, say, some form of individual transition analysis, like event-history. I think it will be necessary to look at these network data both ways in order to see which one gives better purchase.

Second, and more important, changes in the network position of one firm redefine the positions of others. Most obviously, withdrawal of one element of a dyad leaves the other element isolated willy-nilly. And so on. This is not an insuperable difficulty, and I myself would be inclined to go ahead with the analysis and see what happens. And in part, the move from looking at actual network position to looking at types of network positions deals with this objection. But the whole issue needs to be seriously theorized. Although sequence analysis is not a statistical technique, it more or less presumes independence of cases, and in the network analysis situation that isn't true. All that said, however, I think applying sequence analysis to the network data as proposed is a very interesting idea. With appropriate comparison to alternative techniques and with careful theorizing, it may provide a unique view on the changes hypothesized.

Overall, I think the proposal offers a real methodological advance, applicable to a substantively interesting and well-founded dataset. I know of no comparable attempt to combine sequence analysis and network analysis and, indeed, of no comparable attempts to tease out sequence patterns for firms. So I'm strongly inclined to recommend funding on both grounds.

In the matter of budgets, competence of investigators, and so on, I have relatively little to add. The PI has plenty of substantive expertise on his own and is surrounded by colleagues who can give him whatever advice he needs on the analytic side. There are funds in the budget for methodological consulting if needed. There are also quite sufficient funds to collect and clean the data. I am not sure all the bells and whistles are needed, but I do think that a project of this scope will require substantial commitments not only to the PI, but also to the individuals gathering and cleaning a dataset this large.

What are the broader impacts of the proposed activity?

No comments

Summary Statement