
Data and Social Science Rhetoric: Policy and Instruction

by *Kenneth P. Jameson¹, University of Utah*

The 1996 American Economics Association Presidential address was given by health economist Victor Fuchs(1996) and frames the issue of this paper quite well.

After quoting a 1965 article by George Stigler that "the age of quantification is now full upon us" and that it will be "a scientific revolution of the very first magnitude"(p.6), Fuchs goes on to note that the revolution is still in the future: "(b)ut the shallow and inconclusive debate over health policy in 1993-94 contradicts (Stigler's) expectation that this research would narrow the range of partisan disputes and make a significant contribution to the reconciliation of policy differences."(p. 6)

There are many other examples of contemporary social issues, and related policies, whose resolution seems immune to the insights claimed by social sciences: environmental disputes ranging from the northwest salmon to the Utah wilderness, welfare reform, in particular the treatment of teenage welfare mothers, or even the inheritability of intelligence with all of its racial and social darwinist implications². Does the continued intransigence of social issues and the stubborn intractability of social policy imply that all of the developments in data collection, data storage, and data analysis have come to naught, that the age of quantification is a bust and that the millennium should see social science move in a different direction? I don't draw that conclusion, though I accept the problem as quite real.

I believe that social science and empirical investigation can make important contributions to our understanding and to resolution of policy issues, but only if we are clear on the nature of social science and the role of quantification. In particular we must admit the limits of our truth claims, their communal nature, and the possibility of their being utilized to serve vested interests. We must then be very clear about our potential contribution and must educate our students and the public about what we can offer. Finally, I think that we must find ways of broadening access to our basic data and analyses in order to include a wider array of interests in the dialogue. Visualization techniques graphics-based policy simulations may be fruitful in this regard. If so, we social scientists and social science data managers will still be active participants in the issue/policy discussions and our data and analysis could have an even greater effect on those debates.

This view implies a very different set of challenges for social science data librarians and for social science data users,

one which will be interesting and potentially quite helpful for social scientists as well as for social policy.

The Nature of Social Science: Rhetoric

Fuchs offers three possible explanations for the unsatisfactory state of affairs he describes: that health economists cannot agree among themselves, that the results were not disseminated adequately to influence policy, and that differences in values could not be bridged by empirical research. He developed a questionnaire to examine the issue and concluded that on "positive(i.e. logical positivist) issues," there is substantial agreement among health economists(seventy-two percent gave the same answer to seven of his questions). There is less(thirty-four percent) agreement on "policy-value" questions. So he concludes that value differences account for the irrelevance of economic analysis to the health care reform debate, though the inability to convince policy-makers about the "positive" results also contributed.(p. 15)³

Fuchs settles comfortably into the mainstream understanding of what economists do and even quotes its central document, Milton Friedman's *Essays in Positive Economics*(1953). It is based on a distinction between positive or scientific statements by economists and normative or value-laden statements. That seventy-two percent of health economists agree with Fuchs on seven propositions is taken as evidence of the possibility of positive economics; Fuchs claims that this realm should be expanded to find those positive components of policy-value issues, i.e. that economists can solve social and policy issues in the degree that they can succeed in attaining positive scientific results.

There is a different and more satisfactory way of understanding the very real problem that Fuchs highlights. It starts again from a particular understanding of the nature of economic science, in this case that economics uses "rhetoric" to arrive at conclusions whose status and limitations can best be understood within that context. Let us examine this approach. In an important article in one of the central journals of the economics profession, D. McCloskey(1983) argued that economics is best understood as a form of argumentation or persuasion rather than the value-free scientific endeavor that logical positivists would have us believe. This effort does allow economists and other social scientists to "make knowledge," but it is a contingent knowledge which depends greatly on the operation of the scientific community of economists, the times, the biases or

ideologies of researchers, the historical development and context of the issues, and the technical capacities of the scientists. Rorty(1987) describes this as "pragmatism" and suggests that the aspiration of scientists should be to find mechanisms to bring about "unforced agreement" among themselves, rather than to reach some objective Truth. Examination of the main economics journals indicates that McCloskey's perspective is gaining a very slow and gradual acceptance(Sims, 1996). However, this methodological perspective remains controversial (Maki,1995), and, for the most part, economists remain minimally introspective about their methodology.

When economics is viewed from the perspective of rhetoric, the shortcomings of the age of quantification are not surprising. Data- based empirical analysis is only one among many approaches to persuasion/knowledge. Indeed for Aristotle, data are "extrinsic" to making an argument, i.e. not an inherent part of the process. As Crowley(1994) notes:

Ancient philosophers seem to have had a clearer understanding of the limited usefulness of empirical facts than moderns do. Perhaps because of their skepticism about the nature of facts, ancient rhetoricians were equally skeptical about the persuasive potential of facts. Aristotle wrote that facts and testimony were not truly within the art of rhetoric...He considered extrinsic proofs to be outside of the art of rhetoric because a rhetor only had to pick them up and display them to an audience.(p. 6)

For the Greeks the intrinsic components of arguments were the proofs and the canons or principles. Proofs can be logical or "logos," pathetic (emotional) or "pathos," and ethical or "ethos," all of which can and do play a role in persuasion, even in economics. The canons prescribe how a persuasive argument is structured, its arrangement, style, delivery, and memory(or links with other pieces of shared knowledge)(Covino and Jolliffe,1995).

Making a convincing argument about a social issue or policy is very complex from this perspective. Data and quantitative analysis play a role, one which has certainly increased in importance since the nineteenth century. But many other elements enter into any research, influence what is accepted as true, and determine what is persuasive in policy. Indeed, much of McCloskey's original article is concerned with illustrating how metaphors, appeals to authority, analogies, etc. are immanent in good economic argument.

To understand how we might approach data and empirical analysis differently and enhance its role in arguments over social issues and policy, let me illustrate the claims that I am making with several specific cases.

Social Science Rhetoric Observed

I have chosen three case studies to illustrate different aspects

of the claim that rhetoric best describes what we do in social science. One comes from "psychology" considered very broadly, one reports on a recent treatment of advances in macroeconomics and economic policy, and the final example is an overview of the debate on NAFTA (the North American Free Trade Agreement) and the role of economic analysis.

A. Social Darwinism in Modern Clothes

Darwin's evolutionary theory with its mechanism of natural selection provided a powerful metaphor for viewing society.⁴ It easily lent itself to categorizations of societies and of societal groups as superior and inferior. Herbert Spencer's "survival of the fittest" aphorism provided a handy shorthand for this supposed process and was the basis for "social darwinism," the belief that the elite of society had attained that status because of their evolutionary superiority.⁵ The development and application of the IQ test around the turn of the century provided a new quantitative measure which could be used to document the differences between the superior and the inferior, be it in terms of economics or race or gender. After this analysis was carried to its logical extreme, in the eugenics movement, all became aware that there were many confounding factors in the environment which could account for most of the variation across groups. Advances in social scientific knowledge combined with a realization of the potentially terrible implications of eugenics to discredit such simple stratifications. This seems an excellent case in which quantitative analysis resulted in reaching a truth, i.e. that individual variation has a strong biological basis, though most differences across broad groups are better explained by cultural and environmental factors.

However, the debate is newly joined, history is in the process of being repeated. Biology and evolution have once again become quite dynamic, and genetic determinism is being explored in every area of the individual, from the prevalence of cancer to aggression and criminal behavior to homosexuality. Evolutionary ecologists use the biological framework to examine the whole gamut of societal differences from children's food preferences to marriage behavior. And though biologists and evolutionary ecologists are careful to delimit their claims, it was inevitable that the new biology would spawn a return of social darwinism and of scientific racism. The latter had continued to exist in the backwaters of social science and in non-standard journals, and it received much more widespread consideration through its identification with Arthur Jensen of University of California and Richard Herrnstein of Harvard.

The more recent and more interesting case, from a social science perspective, is the social darwinist manifesto <begin underline> The Bell Curve. <end underline> (Murray and Herrnstein,1994) The argument is simple: that the demands of the modern economy and society require higher levels of cognition and, as a result, a cognitive elite has emerged.

Entry into the elite is largely determined by genetic inheritance of IQ(sixty percent roughly). While "social murrayism," i.e. "rule by the fittest," is not new, it is presented in a thoroughly modernist manner, i.e. with reams of data and statistics. Indeed the 552 pages of text are accompanied by over 100 pages of statistical appendices and tables of regressions and other tests, symbolic of "the quantitative age." At the same time the book illustrates the failure of that age. It was a best seller and reached a wide audience. It was widely reviewed, and, as noted by Gould(1994), most of the reviewers immediately disqualified themselves from assessing the quantitative claims of the book. It gained a great deal of credibility simply for its many pages of tables, for its quantitative argument. The very presence of tables became an important part of the book's rhetoric on the issue. And they disqualified many participants from the discussion because of their self-admitted inability to assess the quantitative basis for the argument.

Goldberger and Manski did examine the quantitative analysis, and they found that the authors' claims were not supported by the data and statistical analyses. They wrote: "(w)e conclude The Bell Curve. is driven by advocacy for HM's vision, not by serious empirical analysis. America may or may not be on the way towards a custodial state. Policy interventions may or may not be effective. We know no more after studying The Bell Curve. than we did before."(p. 775)

Although Herrnstein was a psychologist, the book can be seen as a political tract that has consciously and extensively adopted the quantitative rhetoric of social science, with notable success. In any case, the issues which the book focused on forced the American Psychological Association to issue a report of a task force on "Intelligence: Knowns and Unknowns"(Neisser,1996) which followed an earlier statement of the American Association of Physical Anthropologists. These are reminiscent of anti-social darwinism/racism statements issued by the American Anthropological Association in 1938 and UNESCO in the 1950s(Degler, 1991, pp. 203- 204). The APA report supports the work that has been done in measuring intelligence while at the same time noting its limitations. They conclude: "what is responsible for(group differences in test performance)? The fact is that we do not know. Various explanations have been proposed, but none is generally accepted."(Neisser, p. 94)

In any case this debate illustrates that one of the central issues that was posed in the 1880s--and seemingly solved through quantitative analysis--remains open to dispute. This is despite the incredible increase in availability of data and in technical sophistication of quantitative analysis. The advances of the Quantitative Age have not been successful in resolving the century old issue. If we are to reach any conclusions, we must bring to bear a much wider range of

mechanisms for discourse, including ethos and pathos as well as the empirically based logos which is accepted as the substance of contemporary social science.

B. Modern Macroeconomics

Sims(1996) provides another excellent example, in this case from contemporary macroeconomics, which again illustrates the nature of economic discourse and the inability to reach agreement based solely upon logical positivist canons. His conclusions are quite different from my own, however.

Macroeconomics, the study of economic processes at the national level, is dominated today by a theoretical approach termed "new classical" economics. One of its founders, Robert Lucas, was honored with the Nobel Prize for Economics in 1995. There are two outstanding elements of new classical economics: it is consistently based on the reigning deductive economic theory of markets and maximization, and it allows little role for government policy in affecting the macro economy. The newest work in this genre deals with one of the remaining puzzles, the existence and explanation of business cycles. Its approach is to use "computational experiments," computations which are not based directly on empirical or econometric work. This is a departure from traditional quantitative approaches in economics, though it remains fundamentally quantitative. The Sims article is a critique of this approach and makes the case that normal empirical investigation of economic phenomena can lead to scientific progress.

His concerns have many parallels with Fuchs's. The underlying question is why social science disciplines seem to be turning away from empirical investigation, moving toward anthropological ethnography on the one hand or toward non-empirical quantitative model solving and calibration on the other. He concludes that "the popularity of the critiques(of traditional empirical work) probably arises from the excesses of enthusiasts of statistical methods."(p. 109) The promises of empirical investigators have gone beyond what can be delivered, which contributes to the isolation of economists from policy debates. My conclusion is that we should be more careful of our claims, and we should realize that they are simply one input into the argument, the rhetoric, about significant economic and policy issues.

Sims's suggestion is quite different and diametrically opposed to Fuchs's. He uses the metaphor of economic researchers as a priesthood or guild whose purpose is to perpetuate a given body of knowledge.(p. 107) That knowledge he terms "data reduction," his term for advances in natural science and for potential advances in social science. Traditional data managers and users will find support from Sims. He catalogues many advances in empirical macroeconomics gained by applying probability-based inference to the new class of dynamic, stochastic,

general equilibrium models which are at his frontier. This may be tempered by his suggestion that those who persist in "technically demanding forms of theorizing and data analysis" should spend less time criticizing and more time reading each other, i.e. should join their priesthoods and guilds together.

From my perspective, such a step would only reinforce the separation of economic researchers from economic policy discussions, the problem highlighted by Fuchs. And given the theme of this paper, that we need to find mechanisms to open up our discourse to a wider community, the direction that Sims suggests is inconsistent. From the standpoint of data managers and social science computing specialists, creating greater solidarity among guilds would simply extend and expand the isolation that troubled Fuchs. It would cause data to be further removed into the realm of a very narrow "discourse community" insulated from broader discussion and from participation in public policy debates.

C. The NAFTA Debate and Economic Analysis

The debate over the North American Free Trade Agreement was characterized by incongruous alliances, shifting alignments and deep divisions over the merits of the pact. Fast track authority was approved in response to fears of an unmanageable contest among special interests. NAFTA was approved by a narrow margin after supplemental agreements over labor and environmental issues were added and after last minute bargaining by the Clinton Administration. The debate was acrimonious and often gave way to polemics. Orme (1993:2) has argued that the debate was not about the agreement itself but was instead about "competing domestic political agendas and irreconcilable world views." However, most of the debate was not conducted in these terms. Combatants presented their arguments as scientific facts, based upon sophisticated empirical analysis, above reproach and self-explanatory to all who would honestly examine them. A series of articles appeared from both sides whose objective was to dispell the myths and fallacies of opponents.(Orme 1993) Opposition was equated with faulty thinking, incomplete reasoning or plain stubbornness. Particularly divisive was the debate over the employment and wage effects of the NAFTA.

Economists entered this debate in an unprecedented manner and seemed to be integral to the debate in contrast with the health care debate. Seemingly, every position required an economic model churning out specific supporting numbers. The model of choice during the debate became the computable general equilibrium (CGE) model. Its highly mathematical nature tended to recast the debate in terms of who had the best numbers rather than addressing the multifaceted divide separating opposing viewpoints. In Congressional Hearings, little mention was made of the various structural considerations within the models nor was attention given to the implications of various assumptions.

Instead, numbers of jobs to be lost or gained were quoted back and forth. Because of the lack of transparency of CGE modeling, the policy discourse tended to focus on the sheer volume of studies supporting a particular position, or on the source of the studies.

As the debate reached its finale, ideas and observations seemed to subside in favor of an endless numbers game. Various models generated the number of jobs which would be lost and the number of jobs which would be created under the proposed agreement. Wild variations existed between the most optimistic and the most pessimistic projections. The Clinton Administration eventually settled on a figure of 200,000 job gains. Almost all of the modelers advocated or opposed NAFTA. There was little discussion of the possibility that an agreement could have positive impacts under certain conditions, with negative effects in other circumstances; the collapse of the peso showed this to be a major failing. The debate, then, was over whose numbers were better and which study was more scientific and impartial. Indeed, discussions of the jobs issue often incorporated phrases such as "every reputable study" and "a distinguished economist."

A Joint Economic Committee report recently concluded, "The predictions of the studies [of the effect on jobs of NAFTA] are widely contradictory and the utility of the studies in reaching policy conclusions on NAFTA is extremely limited."(Glenn, 1993, p. 1) The arguments based on CGE models tended to obscure rather than illuminate the policy debate. Their complexity and sensitivity to specification tended to focus arguments on the quality of the model, rather than on its policy significance.

The most advanced CGE and econometric models represent the state of the art in terms of internal consistency and mathematical elegance. However, these models contain a huge number of equations and entail many hidden assumptions about unknown parameters: elasticities of supply and demand, cross- elasticities of demand, substitution rates between capital and labor, expenditure functions, and so forth. The solutions require high-powered mathematical algorithms. Often the results look as if they came from a classic black box: only the authors of the models, and perhaps a few other scholars, understand all the ingredients (Hufbauer and Schott 1992, p.51).

Economists were central to debate over NAFTA, however the debate was cast in terms of these highly mathematical models. This effectively limited discussion within policy circles to the results of these models, with legislators quoting numbers back and forth amongst themselves. The result was a debate filled with studies and statistics, all of which seemed to add little to effective communication. Further evidence of the limits on the role of economic analysis was the 51-49 vote for NAFTA despite the heavy weight of

economists and their studies on the pro-NAFTA side of the debate.

So NAFTA provides a third example of the inadequacy of empirical analysis for resolving public policy debates. In this case the most advanced and sophisticated approaches to economic analysis were marshaled for the debate. The end result of the effort was a complete analytical stalemate, with the resolution of the issue depending upon politicians' commitment rather than the persuasiveness of economic analysis. Indeed the widely varying projections and the clearly interested participation of economists was probably counterproductive.

What conclusions can be drawn from these three experiences? And what direction might we go as economists, as social scientists, as data managers and data users, to change the manner in which we enter the public policy debates and the manner in which we teach social science?

What Lessons for Instruction?

McCloskey's original article advocated the rhetorical stance because economists would write better, teach better, have better relations with other disciplines, make better arguments, and have better dispositions--quite the promise!(1983, pp.512-515) It is not clear that increasing use of rhetoric has notably changed the discipline, i.e. there is no evidence that economists have become more even tempered in the last thirteen years. Nonetheless, McCloskey's claim about teaching should be taken seriously. He argues that:

economics is badly taught, not because its teachers are stupid, but because they often do not recognize the tacitness of economic knowledge, and therefore teach by axiom and proof instead of by problem-solving and practice...It is frustrating for students to be told that economics is not primarily a matter of memorizing formulas, but a matter of feeling the applicability of arguments, of seeing analogies between one application and a superficially different one, of knowing when to reason verbally and when mathematically, of what implicit characterization of the world is most useful for correct economics.(p. 507)

This perspective has very important implications for instruction and, implicitly, for democracy as well⁶. The key to defining the difference is that rhetoric as an approach to knowledge is based upon persuasion, is based upon discourse, and strives to reach "unforced agreement." Thus to teach a discipline requires more than simply amassing a set of axioms, proofs and facts that are then transmitted and embodied in explicit knowledge of the students. It requires engagement and active knowledge-making on the part of students.

The difference from traditional teaching is seen quite clearly in instruction in social science. If there are few truths to be

transmitted, students must be empowered to become actively involved in investigating issues and in reaching the level of agreement that they can. Of course the best results and the best techniques of social science should be used, and the best and most extensive sources of data should be brought to bear. But all of the most sophisticated approaches available must be combined with the broader issues of persuasion, with the compelling metaphor, with the ethical stance of the argument and those making the argument.

This makes a very different challenge out of teaching and forces a reworking of the goal of the educational process. The process is likely to involve much more collaboration among students and many more efforts to transmit tacit knowledge of a discipline. Students must first be convinced to become involved in the discourse, in the effort to "make knowledge." While they will not reach an irrefutable truth, they can gain greater knowledge about issues, using data and other extrinsic proofs, and they can then defend a position and contribute to reaching some better resolution of the issues involved. When they have a stake in the outcome, their attention to the data and the techniques increases.

Teaching based upon rhetoric also may alter the definition of the task of the data manager, the data librarian. The challenge of finding information, finding data, and knowing the methods with which to peruse the data remain. But the challenge now it to enable student interaction with the data, student research or investigation or knowledge-making. And the data can only be part of the argument. So active access to and interaction with the quantitative element of economic discourse becomes the goal, and learning is facilitated to the extent that is achieved. The new technologies are challenging the very meaning of data, for the usual organizational categories agreed upon through the Library of Congress are becoming virtually irrelevant. The new organization is keywords and thesaurus based, implying that students can create their own organization of data and redefine it in that fashion. Of course the meaning of thesaurus comes into play here, i.e. storehouse or treasury. One of our social science librarians had her students do a search using a new web based search engine, and each student returned over 500,000 references for the term selected. How can they organize that data?

What Lessons for Public Policy?

The policy problem is more complex. Very rarely can a policy be advocated without support of a social science analysis. Even the Utah State Legislature attempts to base its parochial attempts to return to an earlier age upon social science analysis, albeit research which is used in a way opposite its author's intent. (Wilson, 1996) And there are now mechanisms in place which allow each side to have its own analysts, e.g. the whole industry of think tanks in Washington and in state capitals who collaborate with and often serve legislators and even lobbyists. In this regard policy analysis has come to resemble forensic testimony

more than science. From a logical positivist standpoint, this would be a very unsatisfactory state of affairs; truth should not depend on the discourse framework. From a rhetorical perspective, however, this is understandable and speaks to the importance of social science. At least each position does have to have a justification that can be understood in terms of social science. This is to the good and a testimony to the importance of social science analysis. That opposing viewpoints can have their defenders often simply reflects the partial and contingent nature of social science knowledge, though at times disputes may represent an abuse of knowledge and research⁷. However, the inability of social science to give definitive conclusions may contribute to cynicism about the process and to dismissal of social science as a contributor to the debate. So in the long run, this situation may turn unfavorable to the social sciences.

In summary, the use of data and social science analysis in instruction and in policy illustrates both the positive and the negative of current approaches to social science. In the case of instruction, adoption of a rhetorical understanding is indeed likely to improve instruction and to give to students, particularly undergraduate students, a better sense for how social science relates to their lives. In the case of policy, the opposite trajectory seems to be underway. While we can understand why all sides have their experts, in the long run social science may be sullied and will have much less importance in policy debates.

How might social science and data(quantitative analysis) be used more effectively in policy debates?

What Avenues Are Open?

I believe that the combination of "rhetoric" and the new technologies opens up new avenues of linking social science approaches with policy issues. The task is to make our approach and analysis more accessible to wider groups of persons. How can this be done? We are beginning the attempt to use "visual rhetoric," i.e. to present the analyses in visual terms rather than in our more common statistical terms⁸. This approach of visualization is becoming more accepted and used in science. There are major projects at NCSA and Argonne in Illinois and at Cornell. The former are termed "CAVES" and combine three dimension projection of audio and video with high performance computing power. They have produced a number of simulations of complex processes in visual form, e.g. the cooling of molten metal running down an inclined plane. To my knowledge they have not simulated economic or social science processes, though Cornell does talk of Sociological problems.

We are experimenting with different display devices for exhibiting data and for allowing the viewer to maneuver through the data to investigate relations that may appear. This is a very inductive approach which we hope may broaden access to data and data interpretation. We will see if

the conclusions drawn differ from those the statistical procedures had indicated. As you can see there is no need for knowledge of sophisticated statistical techniques, that anyone with visual acumen could examine the information and search for patterns.

The second approach that we will be using is development of simulations of social science phenomena, e.g. the role of education in expected incomes and health outcomes of children in Utah. Here we hope to put in sets of transitional probabilities and allow the observers to change the amounts of education and see the differing outcomes for categories of children, based upon previously calculated statistical relations. This draws much more upon the deductive framework used in economics. It should allow a much broader range of participants into the discourse and open up active interaction with the issues and the underlying analysis. We hope that this could be a useful input into public policy discussions and could even guide some decisions.

While this work is only in its beginning phases, there is evidence that the impact of "visual rhetoric" can be substantial. What is needed now is its application to closing the breach between social science and social policy by broadening access of the public to the results of social science analysis.

Finally, this effort may provide a new role for the data librarian and the data analyst, one which places emphasis on the interaction with data as much as with its location and access. For to the extent that the information can be presented visually it should allow much wider access to the data and to the possibility of its interpretation, and therefore it should broaden the range of persons who can be included in the discourse on a particular issue. Whether this will result in a partial response to the query of Victor Fuchs and will allow better use and more influence of economic analysis remains to be seen. And whether policy will be better made, is yet another question that is far from being answered.

References

- Covino, William and D. Jolliffe. 1995. Rhetoric: Concepts, Definitions, Boundaries. Boston: Allyn and Bacon.
- Crowley, Sharon. 1994. Ancient Rhetorics for Contemporary Students. New York: MacMillan College Publishing Company.
- Degler, Karl. 1991. In Search of Human Nature: The Decline and Revival of Darwinism in American Social Thought. New York: Pantheon Books.
- Friedman, Milton. Essays in Positive Economics. Chicago: University of Chicago Press, 1953.
- Fuchs, Victor. 1996. Economics, Values, and Health Care Reform. The American Economic Review 86#1(March

1996): 1-24.

Glenn, John. 1993. Opening Statement of Senator Glenn. In NAFTA Job Claims: Truth in Statistics, S.Hrg. 103-386. Washington, DC: United States Government Printing Office.

Goldberger, Arthur and C. Manski. 1995. Review Article: The Bell Curve by Herrnstein and Murray. The Journal of Economic Literature 33(June 1995):762-776.

Gould, Stephen Jay. 1994. "Curveball." The New Yorker (November 28, 1994):139-149.

Herrnstein, Richard and C. Murray. 1994. The Bell Curve: Intelligence and Class Structure in American Life. New York: Free Press, 1994.

Hufbauer, Gary Clyde, and Jeffrey J. Schott. 1992. North American Free Trade: Issues and Recommendations. Washington, DC: Institute for International Economics.

Maki, Uskali. 1995. Diagnosing McCloskey. The Journal of Economic Literature 33(September 1995): 1300-1318.

McCloskey, D. 1983. The Rhetoric of Economics. The Journal of Economic Literature. 21(June, 1983): 481-517.

Neisser, Ulric et.al. 1996. Intelligence: Knowns and Unknowns. American Psychologist 51#2(February 1996): 77-101.

Orme, William A. Jr. 1993. Continental Shift. Free Trade & the New North America., Briefing Book. Washington, DC: The Washington Post Company.

Rorty, Richard. 1987. Science as Solidarity. In John Nelson, et. al., eds. The Rhetoric of the Human Sciences: Language and Argument in Scholarship in Public Affairs. Madison:The University of Wisconsin Press.

Sayre, Kenneth, ed. Values in the Electrical Power Industry. Notre Dame, Ind.: University of Notre Dame Press, 1977.

Sims, Christopher. Macroeconomics and Methodology. The Journal of Economic Perspectives 10#1(Winter 1996): 105-120.

Wilson, Anne. 1996. "Legislature Fudges Facts in Justifying Club Ban." The Salt Lake Tribune. (May 12, 1996):A1,A5.

Endnotes

1. Paper presented at the IASSIST/Computing in the Social Sciences Conference, Hotel Radisson, Minneapolis, MN, May 1995.

K. P. Jameson, Department of Economics, BUC 308, University of Utah, Salt Lake City, Utah 84112. Email:

jameson@econ.sbs.utah.edu Tel: 801-581-4578 FAX: 801-585-5649.

My thanks to David Plante for his assistance, and to the members of the "Rhetoric in the Disciplines Study Group" at the University of Utah for continuing stimulation and support, especially to Chris Oravec, Susan Miller and Mary Reddick.

2. The earliest controversy I worked on was the safety and desirability of nuclear power. We organized a multidisciplinary team to examine its various dimensions, work which resulted in a book.(Sayre, 1978) The subsequent decimation of that industry indicates that we had a better sense of the complexity of the issue than the firms involved in the industry at that time.

3. There are no criteria for differentiating "positive" statements from "policy-value" statements. Indeed, there often seems little distinction, aside from the level of agreement among the economists.

4. Purcell(1973) convincingly traces the late nineteenth creation of modern social science and our social science disciplines to the intellectual ferment created by Darwinian's evolutionary theories.

5. Karl Degler(1993) provides an excellent history of social darwinism and its demise, and then the recent resurgence of biology which again opened the door to social darwinism.

6. Purcell's(1973) treatment of the relation of democracy and social science in the early twentieth century is an excellent point of reference on this important issue.

7. One current case in point comes out of "medical science," which used the statistical experimental techniques also used in social science. A drug test of "bio-equivalence" of four thyroid drugs was suppressed by the contracting company which apparently did not like the results and therefore raised a series of objections.(Wall Street Journal, April 25, 1996)

8. There are a number of Internet Web sites related to this issue. Much of the external information for this section was taken from them.