

CSLS Conference on the State of Living Standards and the Quality of Life in Canada

October 30 - 31, 1998 Château Laurier Hotel, Ottawa, Ontario



*Centre for the
Study of Living Standards
Centre d'étude des
niveaux de vie*

Competing Paradigms in the Development of Social and Economic Indicators

Clifford Cobb
Redefining Progress

Craig Rixford
Redefining Progress

Session 2: "Indicators of Well-being"
October 30 10:30 AM - 11:30 AM

Competing Paradigms in the Development of Social and Economic Indicators

Prepared for the Centre for the Study of Living Standards conference:
"The State of Living Standards and the Quality of Life in Canada"
Ottawa, Ontario, October 30-31, 1998

Clifford Cobb, Senior Fellow, Redefining Progress*
Craig Rixford, Research Associate, Redefining Progress*

October 1998

* The views represented in this paper are those of the authors and not necessarily those of Redefining Progress.

I. INTRODUCTION

A movement to develop better social and economic indicators has developed in the last few years among social analysts and local communities.¹ It is based on the belief that a detailed, statistical description of social problems will make possible intelligent reforms. According to this view, the value of improved and widely disseminated indicators is self-evident: more public awareness of social and economic conditions will produce better policies.

This relationship is seldom questioned. Since the efficacy of indicators cannot be tested, they are presumed to have value. Their very existence is taken to be a measure of their worth.

The connection between indicators and reform is, however, far subtler and less direct than the advocates of better indicators may realize. It is our contention that better indicators per se provide no guidance about how to reduce poverty, homelessness, crime, and other social problems. Indicators can improve social conditions only when they are used to test a priori theories or models.² This view runs directly counter to those who regard indicators as instruments for social change. Based on historical evidence, we believe a misplaced faith in indicators will lead not only to wasted intellectual resources but also to the social tragedy of basing programs on unworkable premises.

In this paper, we examine two distinct frameworks or paradigms for understanding social phenomena. We have assigned the label "historicism" to the descriptive approach and "positivism" to the analytic approach.³ These two approaches constitute different worldviews. They are based

¹. We use the term "indicator" rather broadly in this paper to include statistics that are deemed worthy of collection and reporting as measures of social and economic conditions. Technically speaking, an indicator is a single variable that represents the status of a complex system or a measurable proxy for an unmeasurable phenomenon. However, for reasons that will become clearer in this paper, an indicator has come to mean almost any measurement of social phenomena. We use the term in that broader sense.

². There are two exceptions to that principle. One is when an indicator makes the public aware of conditions that would otherwise be invisible, such as a warning sign of chemical or biological contamination of what appears to be pure water. In the second case, the mere publication of an indicator automatically causes behavior to change. Judith Innes (1990) points to human rights and civil rights indicators as examples in that latter category: the mere threat of publication shames people into less abhorrent behavior. However, those cases are relatively rare. In general, public knowledge about the existence of a problem does not lead to a solution unless someone has a theory about what causes it.

³. Historicism is generally understood as belief in universal principles or laws that govern history, particularly ones that determine a general pattern of social development. We are abstracting from that belief system and focusing on the inductive method of the German historical school. In their efforts to discover historical laws, the adherents of that philosophy sought to construct a detailed record of events from which patterns might be discerned. They eschewed the use of a priori models to guide research. Their aim was to be inductive instead of deductive: gather facts first, then generalize (develop theories) from them.

We also use positivism in a specialized sense. The term was coined by Auguste Comte in the nineteenth century, based on certain ideas of Francis Bacon in the seventeenth century. As Bryant (1985) shows, the French, German, English, and American uses of the terms have varied considerably. We do not wish to associate ourselves with that whole range of ideas. Specifically, we do not endorse the narrow forms of empiricism, the reductionist bias, or the assumptions about ordinary language as a tool of philosophical inquiry associated with logical positivism. We use the term to mean an approach to indicators based on the priority of theory over data, analysis over description, and problem solving over consciousness-raising.

on different epistemologies: direct observation in the case of historicism and statistical inference in the case of positivism. They serve different purposes. The historicist describes; the positivist prescribes.

The historicist methodology yields information that explains the meaning of a situation.⁴ Historicist indicators are useful for raising consciousness and understanding the significance of events. They are intended to answer the question, "What are the present circumstances or conditions?"

Positivism provides knowledge that can be used to predict and manage conditions.⁵ Indicators developed using this method are useful for analyzing policies and solving problems; they respond to the question, "What are the key elements in the social system that can be adjusted to restore its balance?"

When indicators are developed using historicist principles, attempting to use them as problem-solving tools can lead to confusion and frustration. That is precisely what has happened again and again, not only in the development of indicators, but in social research more generally. Researchers, journalists, and citizen groups who use the historicist method are content to describe problems in great detail, without offering any theoretical analysis of how or why a specific set of conditions arose. They are then frustrated when their purely inductive or descriptive methodology does not lead to the development of a theory that advances social reforms.⁶ For example, a leading figure in

In contrast to historicism, it derives theories deductively rather than inductively. Both the historicist and the positivist rely on facts, but the latter emphasizes the importance of deductive reasoning and experimental evidence. Indicators are relevant in the positivist framework as part of a process of testing hypotheses to determine valid relationships. Those relationships can then be used to predict the effects of policies put in place to remedy problems.

We do not share the utopian hopes that some positivists have displayed historically. Nevertheless, we regard this analytic, problem-solving approach as more fruitful than the purely descriptive approach of the historicists. The historicist approach to social science research in the United States began at the turn of the century as a reaction to the armchair theorists who were searching for universal laws (e.g., Herbert Spencer). Their insistence on grounding theory in empirical evidence was a very important step in moving social science theory forward. When we refer to positivism, we are not referring to grand theory or "theory without measurement" but theory grounded in and evaluated by empirical evidence.

4. Historicism is guided less by a search for causal relationships than by an interest in how people perceive events.

5. The confusion over the definition of indicators described in footnote 1 is symptomatic of the issues we address in this paper. A historicist regards an indicator as useful if it meaningfully and accurately describes a condition. A positivist, by contrast, is interested in whether an indicator can assist in making accurate predictions or diagnosing and solving a problem. Since historicism dominates social thought, it is not surprising that the historicist definition of indicators is regarded as the norm.

6. It appears that C. Wright Mills used the term "abstracted empiricism" to mean something closely related to the descriptive use of statistics that we are calling historicism. (His term for what we are calling positivism is "classic social science.") His analysis of abstracted empiricism is similar to our view of historicism: "The policy for progress of abstracted empiricists is very specific and quite hopeful: Let us accumulate many microscopic studies; slowly and minutely, like ants dragging many small crumbs into a great pile, we shall 'build up the science'" (Mills 1959, 127). Mills devotes an entire chapter (chapter 3) to explaining why the "building block" methods of social inquiry employed by Paul F. Lazarsfeld, the most sophisticated spokesperson for abstracted empiricism, cannot form a coherent theoretical framework. Mills proposes that the underlying

the social indicators movement of the 1960s and 1970s revealed a bit of that frustration in 1983 at the time of the closing of the Center for Coordination of Research on Social Indicators:

We have not evolved a conceptual statement, an overarching framework [of social change]. We have moved only a short distance in achieving the grand concept. . . *I had hoped that in time data collection would be less ad hoc and that measures would take on interconnected meanings. But this requires a middle-range theory that has yet to be developed.* In its absence, it is less possible to provide cumulative knowledge of social change, let alone monitor it. [emphasis added] (Sheldon et al. 1983 , 81)

The failure to develop a theory that would guide future work was no accident. This quandary inevitably arises from an anti-theoretical approach to the gathering of facts, when researchers repudiate the formulation of deductive hypotheses. The historicist approach can not generate a theory from the accumulation of facts. The tragedy is that many indicators groups and other social theorists are continuing to follow that path.

We predict that those who try to solve social problems through the use of the descriptive or historicist method will fail in their endeavors.⁷ The historicist approach is simply not designed for that purpose. By the same token, positivism fails when it is used to understand the meaning of events. One would not ask a positivist researcher to assist in collecting information to write a novel. In our view, confusion arises not because one method is "right" and the other "wrong" but because each method is useful for different purposes.

Ideally, social indicators research would draw on both the historicist and positivist methods. That does not mean, however, that they should play equal roles. In our view, the positivist or problem-solving approach should take precedence, and the historicist or descriptive approach should play a subordinate role. That would reverse the way in which indicators have been approached throughout this century.

Despite what the names may suggest, we wish to make clear from the outset that historicism is not more historically oriented than positivism. At least in the case of indicators, the reverse is true.⁸ The positivist practice of hypothesis testing requires an examination of historical events. Since it is generally impossible to perform experiments on whole societies, one must look to the past for examples of "natural experiments" with which to test hypotheses.

principle of abstracted empiricism is psychologism: "an explicit metaphysical denial of social structure" that treats individuals, not social systems, as the key to understanding social phenomena (Mills 1959, 67). Mills summarizes his key idea succinctly: "Social research of any kind is advanced by ideas; it is only disciplined by fact" (Mills 1959, 71). That could stand as the slogan of the approach we are calling positivism.

⁷7. Based on Leon Festinger's analysis of cognitive dissonance, we would also expect that the failure of the historicist approach would lead them to redouble their efforts to gather information rather than admit failure.

⁸8. This is not to say that historicists generally ignore the past. In economics, for example, Institutionalists have often paid more attention to history than the more positivist Neoclassicists have. In anthropology at the turn of the century, historical particularists concentrated on understanding the unique cultural history of a given people, whereas unilinear evolutionists only drew on the history of Western Civilization. Mills, however, makes a much stronger generalization that conforms with our experience of the historicist approach to indicators: "Abstracted empiricists are systematically a-historical and non-comparative" (1959, 68).

II. CATEGORICAL DIFFERENCES BETWEEN THE TWO APPROACHES

In section III of this paper we examine historically how positivism and historicism arose and influenced the development of social and economic indicators. Before turning to that developmental process, we first wish to explain conceptually how the two paradigms differ.

Table 1. Categorical differences between positivism and historicism

	POSITIVIST	HISTORICIST
Theory formation	Deductive or a priori (prior to experience)	Inductive: based on collected data
Theory testing	Is there evidence that it works? (Practicality)	Does the theory make intuitive sense? (Plausibility)
Evidence cited	Indirect, inference from statistics about causes	Reliance on direct observation, focus on symptoms
Role of theory	Explicit theories about social causes guide data collection	Implicit reductionism, individual causes
Purpose of data gathering	To determine which policies will actually work, problem solving	To determine the extent of a problem, create support for action
Role of values	Concerned with means, not ends; Value judgments contingent on facts	Regards facts as value-neutral, values are fixed
Bias in data collection	Conscious, purpose avowed, upsets status quo	Unconscious, pretense of neutrality, supports status quo
Origins	England, classical liberalism; France, public health	Germany, institutional economics, human sciences
View of social system	Holistic, exhibiting mathematical regularity, self-regulating	Complicated, diverse causes, demanding detailed analysis
Desirable role of government	Minimal involvement to manage key system variables (macromanagement)	Welfare state, detailed management, comprehensive plan (micromanagement)
Obstacle to good policy	Knowledge about causal relationships, resistance to counterintuitive solutions	Political will to do what is already known to be right
Indicators: significance for politics	Not useful; technical tools	Symbolic value, displacement of goals, promotes participation

Table 1 gives an overview of the differences between historicism and positivism. Since not all of the cells in the table are self-explanatory, we describe each of them below:

1) Theory formation: The issue here is how theories are developed initially. The distinction between deductive and inductive analysis is a bit too crude. Positivists rely on feedback from data to modify intuitive hunches into theories. Historicists believe that theory derives from generalization or abstraction, not from raw data. Nevertheless, the difference between the two

approaches is based on competing conceptions of the source of ideas. The positivists are, practically speaking, Platonists: they believe that ideas or theories are independent of sense experience.⁹ The historicists, by contrast, are closer to Aristotle's view that ideas are simply generalizations from experience. The positivist cannot imagine the possibility of collecting useful data in the absence of a theory, if only an implicit one. The historicist cannot imagine how one could possibly have a meaningful theory without having immersed oneself in the data.

2) Theory testing: The positivist must test hypotheses drawn from theory using historical or experimental evidence. The hypothesis is either validated or falsified according to a very practical test: does it work? The historicist does not think in terms of hypothesis testing. The purpose of generalization (which is what the historicist means by theory building) is simply to deepen understanding. The test of a good theory in the historicist paradigm is whether the theory makes sense and is intuitively plausible.¹⁰ The idea of eliminating faulty intellectual constructs by means of careful testing does not enter into the historicist framework.

3) Evidence cited: When judging the validity of a theory, the positivist and the historicist use different sorts of evidence. The positivist (like Plato) is wary of appearances and (unlike Plato) prefers the evidence derived from statistical inference. The results of models developed by positivists may at times defy common sense. The historicist relies on evidence that is directly available—immediate sense impressions. The indicators developed by historicists almost always sound like common sense because they simply generalize from what is obvious.

4) Role of theory: To the positivist, theory explicitly guides research. There is no point in collecting data until a theory has been formulated. To the historicist, the role of theory is the Holy Grail. It is something to be sought endlessly, but which may never be found. Yet the historicist is guided by an implicit theory. In this case (drawing on C. Wright Mills), it seems that historicists have a theoretical predisposition toward reductionism: the belief that wholes can be explained by parts. Thus, historicism implicitly gives precedence to individual behavior over social or structural factors.

5) Purpose of data gathering and indicators: Positivists collect information to test whether a theory has practical significance: will a particular program actually do what it professes to do? In order to increase the problem-solving capacity of managers, the positivist seeks to find indicators that reveal causal relationships and predict the outcome of interventions. The positivist seeks answers to the question, "What works?" Positivists believe they understand a system only when they have found the most significant variables, most of which are hidden.

Awareness of social or economic conditions are the goals of historicist indicators projects. Historicists gather data to demonstrate the symptomatic features of a problem, i.e., to answer the question, "Where are we?" They believe that widespread knowledge of the existence of a housing crisis, the number of homeless people, or the frequency of farm foreclosures will help to alleviate

⁹. This view, of course, is directly opposite that of the logical positivists who had (or have) a purely nominalist view of ideas or universals.

¹⁰. This plausibility criterion is equivalent to taking a vote. If a majority of people believe the earth is the center of the universe (as was true for many centuries), then the geocentric theory would have been plausible and thus "true" by the standards of the historicist.

the problems they depict. Thus, there tends to be an assumption among the historicists that descriptive information is inherently valuable: If more data are available, society will be better off. Historicists believe they understand a system when they have the equivalent of a detailed photograph of it.

6) Role of values: Positivism treats broad social norms or values as given and the means of achieving them as the contentious issue. (For example, most people in our society believe in the value of education, but they dispute the best methods of providing it.) Conflicts arise not over general values, but over the trade-offs that arise in judging alternative policy instruments. Values are conditional, not absolute: They are contingent upon the context created by new facts that come to light through hypothesis testing.

Historicists study the complex texture of events in order to reveal their meaning. Values, like theories, are expected to emerge as generalizations from the details. That, at least, is the logic of historicism. In practice, historicists tend to treat values as trans-historical, relatively fixed, attitudes to be discovered "inside" people. (They talk of people "having" values, as if they were objects that could be possessed.) Contexts may change, but values endure. Thus, indicators projects seek to determine the "values" of a community, as if such values existed independent of the context surrounding particular issues.¹¹

7) Bias in data collection: Positivists assume that all data-gathering is done with a purpose and thus reflects some bias. The bias need not be ideological. The point is simply that data are collected to answer a particular question. It is helpful if researchers avow their theoretical purpose and make it explicit. Nevertheless, the issue is never whether data collection is unbiased, but whether the theory behind it is conscious or not. Historicists, by contrast, tend to assume that it is possible to collect information in a pure and unbiased manner. They see data as neutral "facts" that become biased only by the way in which they are used. This pretense of neutrality by historicists causes their work to serve the status quo, because the data they collect can only describe conditions; it cannot point toward alternative policies. By contrast, positivist analysis tends to challenge the status quo by showing explicitly how change is possible.

8) Origins: The two schools of thought can be traced back three hundred years to competing concepts of knowledge that arose in England and Germany. We speculate that the roots of positivism might lie in the revival of Neoplatonism in the seventeenth century in England, since Sir Isaac Newton was secretly an adherent of that view. The more evident sources of positivism can be found in an English scientific tradition (later developed in Belgium and France) that expected to find mathematical order underlying social phenomena as well as physical events. This approach was also more oriented toward problem solving. It collected information that could test hypotheses about causal relationships. The historicist approach began in Germany with an effort to provide an encyclopedic description of events, with the hope that meaningful generalizations would emerge

¹¹. Renowned pollster Daniel Yankelovich (1991) has discussed the vapidness of the idea that people's values are unrelated to a knowledge of facts. In *Coming to Public Judgment*, he argues that there is little stability to opinions or value judgments on issues about which the facts are still in question. Values are only formed in relation to facts over a prolonged period of deliberation about specific policy options, not in relation to broad, generic values.

from the details. It arose from a distinction between natural science and "human sciences." It has been carried forward in this century by Institutional economics.

9) View of social (and other) systems: Whereas historicism conceives of systems as excruciatingly complicated phenomena, the English positivist tradition looks for an underlying simplicity.¹² The historicist is burdened by trying to understand the myriad interacting causal factors in the social system. "Everything affects everything else," might be the slogan of the historicist.¹³ Detailed analysis of the functioning of the components or sub-systems (the historicist task) can narrow the range of relevant variables to a few hundred. Those can then be mapped onto a schematic diagram which could be used to make decisions. One can claim to understand the social system only after hundreds of detailed studies have been synthesized.

A positivist, by contrast, might agree with the historicist that the social system is comprised of a blooming, buzzing confusion of events (to paraphrase William James). Paying attention to those details is, however, distracting rather than enlightening.¹⁴ In order to understand how the system functions, one should not dissect it to explain all of the intricate interrelationships between sub-parts. One should instead seek mathematical regularities that underlie the confusing details. Thus, a positivist is interested only in complex biological or social systems that exhibit emergent properties. Those properties express themselves in rather simple patterns, and it is the job of the positivist researcher to uncover those patterns.

10) Desirable role of government: To a positivist, government intervention is not inherently wrong. However, since it is impossible to understand the myriad linkages in a society, micromanagement to achieve symptomatic relief is likely to cause more problems than it solves. The logic of positivism is to modify a small number of key elements in any system in order to manage the effects on society as a whole or on large sub-groups, but not to control the effects on individuals. Thus, for example, a positivist might support public health measures (sanitation measures or large-scale vaccination) that improve the health of entire populations on a statistical basis, but the same person might question the validity of state involvement in clinical interventions to assist individuals.

Historicists believe that social pathology results from a multiplicity of specific causes. When government tries to improve a situation, proponents of this approach believe that it should try to

¹². A biological or social system may be thought of as either "complicated" or "complex." Those who see it as complicated seek to map out the millions of interacting variables, one by one, in order to build a model containing all of them. Those who see it as complex, by contrast, assume that knowledge of only a few variables will enable the observer to make accurate predictions about the behavior of the system. Thus, complexity is actually simplicity. The simplifying concept of equilibrium in microeconomic theory is based on an understanding of market behavior as a complex system. The English (positivist) advocates of free trade in the nineteenth century were arguing, on that basis, that the economy is a complex (i.e., simple) system that is self-regulating. The German (historicist) opponents of free trade were arguing that the economy is a complicated system and must be managed.

¹³. In statistical terms, the historicist wants to take into consideration all of the points within a distribution, not just the mean or central tendency. Since truth lies in the details (*all* of the connections), statistical analysis is not particularly important to the historicist.

¹⁴. In statistical terms, the positivist focuses on the central tendency and the variance, not the entire distribution.

collect as much data as possible, develop a comprehensive plan, get feedback about how particular individuals will be affected, and to take as much of that information into account. Consequently, many programs, each targeted to a particular set of symptoms, are required to respond to the diversity of problems. This is the essence of the interventionist welfare state.

11) Chief obstacles to good policy: The positivist believes that there are many problems without any known solution and that, if there is a solution, it may be counterintuitive. Therefore, the main obstacles to solving social problems lie in a) ignorance about which remedies will actually work and b) unwillingness to accept the counterintuitive solutions discovered through the positivist methodology. In contrast, the historicist believes, above all, that experts know what to do to solve problems: break down larger problems into their components and solve each of them. To the historicist, that is the easy part. The difficulty lies in gathering the political will to act. Accordingly, widespread dissemination of social indicators will lead to greater public understanding of problems, which will strengthen political will to apply known remedies.

12) Significance of indicators for politics: The positivist is at a severe disadvantage in the political realm. Effective indicators, from this perspective, are technical tools that guide action. They are not easily understood by the public. Statistical inferences about causality have little symbolic significance. They cannot be used in political debate, unless the relationships that are uncovered happen to fit people's emotional predispositions. For the positivist, indicators are relevant in guiding substantive policies that affect the distribution of resources, not merely gestures of that sort.

For historicism, indicators fulfill the need to identify symptoms of social pathology. Since historicists regard appropriate policies to be self-evident, the challenge lies in building political coalitions in support of them. Under those conditions, the symbolic uses of politics (spending on visible, but ineffective, programs) dominate the substantive aspects (the actual distribution of resources and power). That is, indicators can promote the displacement of goals from substance to symbolism. In some cases, the mere publication of indicators can be taken as a symbolic gesture of concern for an issue. If a large number of people are involved in the development of indicators, the participatory process can also become an end in itself.

III. TWO STRANDS OF INDICATOR DEVELOPMENT

Having summarized the differences in concepts and methods between historicism and positivism, we now turn to a survey of the development of each approach.

A. Historicist Approach

The German historical school of thought can be traced back to the concept of *Staatenkunde* in the seventeenth and eighteenth centuries (Lecuyer and Oberschall 1968, pp. 40-41). That term, which is the origin of the modern term "statistics," referred to the comparative description of states: the gathering of facts that would "illustrate the condition and prospects of society" (Eyler 1979, 18).¹⁵ From our point of view, it is ironic that the first people to label themselves statisticians were not

¹⁵ The foremost representative of this discipline in the eighteenth century was Gottfried Achenwall, Göttingen professor of law and politics (Eyler 1979, 18).

interested in numbers at all. In nineteenth century Germany, a split took place between Tabellenstatistik (the use of tables) and Staatswissenschaft (the study of the state). The former became political economy and the latter became political science and public administration. Both, however, remained highly descriptive in orientation.

In the latter part of the nineteenth century, the Verein für Sozialpolitik (Social Politics Union) emerged as a reaction in Germany against the philosophy of laissez faire liberalism (Bryant 1985, chapter 3). The Verein hoped to assemble vast quantities of empirical data from which it would be able to draw conclusions about the management of the economy. This was precisely the approach favored by Bismarck, who established the first model of a paternalistic welfare state. The assumption of Bismarck and his bureaucracy was that the state needed to intervene constantly in the economy to promote the well-being of citizens. Since they aimed to micromanage the economy and various institutions, they required a detailed knowledge of how they function.

This connection between the welfare state and the historicist approach to social indicators is of great significance. Most conservative economists have been unsympathetic to any political movement that favors the compilation of social indicators. The official reason for their opposition is usually methodological. Without theory, they point out, numbers are useless. But methodology is tied to ideology. The opponents have discerned intuitively that the historicist approach to social indicators amounts to a defense of the welfare state.

1. Objectivity, reform, and the development of labor statistics

None of that was obvious one hundred years ago, when the historical approach to indicators was just getting under way in the United States. Although one might find earlier traces of this approach in the United States, a good place to begin is with Carroll Wright and the origins of labor statistics (Leiby 1960). Actually, Wright, as the son of a Universalist minister in Massachusetts, drew upon the moral statistics tradition that we will discuss later.¹⁶ He believed in the goodness of all people as long as they had good information. That liberal theology taught him to consider only the outward appearance of things and not to question too deeply. Later in life, Wright distrusted any effort to use statistics to theorize about the causes of social conditions (Leiby 1960, 21). His faith was in the numbers themselves, not in some subtle meaning that might be derived from them. This rationalistic belief that the knowledge of social statistics would solve problems was a specific example of a more generalized faith in education as the panacea for society's ills. That was the basis of the common school ideal, another New England invention that was Protestant in spirit, yet imposed in the name of universalistic principles of tolerance and rationalism.

Carroll Wright's focus on numbers as the commissioner of labor statistics, first for Massachusetts and later for the federal government, allowed him to avoid taking sides in ideological disputes. When Wright took over as commissioner in Massachusetts in 1873, he replaced a labor advocate who had used the office to gather statistics to prove theories about the exploitation of labor. Wright rejected that approach. He was determined, like his mentor, Francis A. Walker, the director of the U.S. Census in 1870, to stick to the facts and leave interpretation to others.

¹⁶ It is significant that theological disputes had as much bearing on the development of indicators in the United States as philosophical and political issues had in Europe.

The underlying political philosophy of Carroll Wright and of those who followed in his footsteps in the indicators movement is captured by his view of the condition of working people in his own day. As James Leiby says, referring to Wright's theory of social problems: "While there was no fundamental problem, there were inevitably many specific and occasional difficulties. . . . The bureau's function, therefore, was not to solve one big problem, but to furnish a factual basis for the discussion of a lot of incidental ones" (Leiby 1960, 67-68). Wright self-consciously eschewed any theoretical explanation of social conditions. He was content to record them and to leave theorizing to others, as if the two activities could be clearly separated.

In the midst of the labor turmoil of the time, Wright's moderate view was an essentially conservative one. Wright won support for the continuation of his bureau and later appointment as federal commissioner of labor by convincing business groups that the publication of facts had quelled agitation (Leiby 1960, 68).¹⁷ In effect, Wright recapitulated in the U.S. what the German historicists did through their alliance with Bismarck: He promoted incremental micro-level reforms that would obviate deeper structural changes.

In contrast to Wright, whose ideas merely converged with the German historicists, the new American school of economics called Institutionalism was directly shaped by them. Richard Ely, for example, studied with Knies at Heidelberg and became one of the most prolific and influential American economists of his day (Gaffney 1994, 84-87). He touted an inductive approach to economics. Thorstein Veblen and John R. Commons, two students of Ely's, focused attention on the historically conditioned details of institutions rather than formal theory. Although historicism underwent some changes as it crossed the Atlantic and influenced the formation of Institutional economics, it retained its bias against deductive formulation of theory and in favor of a micromanagerial style of governance.

2. Inductive description and the development of business cycle indicators

The influence of historicism became especially evident in the work of Wesley Mitchell, one of Veblen's best students. Mitchell made his reputation with the publication of *Business Cycles* in 1913. He founded the National Bureau of Economic Research (NBER) in 1920 and directed it for 25 years (Oser and Blanchfield 1975, 391). The focus of NBER was the compilation of mountains of data. It produced business cycle indicators that are still used today (such as leading and lagging measures). However, to the extent that the work of NBER was not guided by theory, it did not produce any useful policy recommendations.

¹⁷. The conservative nature of statistical work that describes problems rather than analyzing their causes can best be seen in comparative perspective (Lecuyer and Oberschall 1968, 48). In France, in the early 1840s, the moderates rejected a national survey of social problems. But in 1848, when the socialists demanded a Ministry of Labor, the moderates proposed the same survey. The socialists, however, opposed the gathering of statistics as a bourgeois exercise. A study of textile workers had been conducted earlier that had been used to show that the conditions of workers had improved. Although liberals had also attacked the study because it revealed workers' miserable conditions, it had had little impact on law. In principle, a statistical study that merely describes events may show a horrible state of affairs, but it does not suggest a course of action. Because it encourages the treatment of symptoms, not causes, it is conservative.

Reacting to armchair theories of the business cycle that existed around the turn of the century, Mitchell sought to ground analysis of business cycle in empirical evidence.¹⁸ He wanted theories to be tested by the empirical record, not by logic. Rather than developing an a priori theory and testing it, however, Mitchell set out to collect and assess thousands of economic time-series, and to slowly build an understanding of the interrelationships. Eventually, he hoped that general guiding principles would emerge from the data. However, faced with the intricate interwoven nature of the business indicators, he noted that although the business cycle repeats itself there are always differences which preclude an accurate generalized theory (Seligman 1990, 185).

Mitchell never explicitly articulated his theory of the business cycle. In the culminating work of his career, Mitchell (along with Arthur Burns) published *Measuring Business Cycles* in 1946. It summarized in great detail their empirical analysis of historical U.S. business cycle data. Although replete with detailed descriptions of method and intricate analysis of the indicators movements in relation to the general cycle, it offered no hypotheses that explained the business cycle.

Their approach came under attack from econometricians such as T.C. Koopmans because of its lack of emphasis on theory. Although Koopmans thought it was important to describe regularities and irregularities of the system under evaluation, he felt it was equally important to search for the laws or principles governing them. In his famous critique, "Measurement without Theory," he suggested that with the Burns and Mitchell volume "everything had been tossed into the statistical hopper, so that the possibility of identifying the really significant relationships had been obscured" (Seligman 1990, 199). Were leading indicators the cause and lagging indicators the effect? Were the coincident indicators affected by the same forces that create the general cycle? Burns and Mitchell offered no explanation of these cause and effect relationships.

At the time, econometrics based on Neoclassical theory was an emerging force in economics. Keynesian theory, which offered a "simple" causal explanation of the business cycle, was being used to organize the national income accounts and to help formulate general economic policy. Koopmans and other critics felt that work on business cycles needed to have some sort of analytical underpinnings to generate and test hypotheses that could be useful in understanding the business cycles.

Institutionalists responded that it is all well and good to test hypotheses, but one must first have a hypothesis to test. Mitchell and Burns, according to their defenders, were searching out patterns that could generate reasonable hypotheses. Their work was not atheoretical in nature, but was a necessary precursor to testing hypotheses. It was simply premature to generate theories since the empirical basis of the business cycle was too skimpy (Klein 1997, 41).¹⁹

Phillip Klein, an institutional economist, describes Mitchell's approach: "... business cycles are inherently complex and there is, a priori, no reason why any reasonably accurate—and therefore

¹⁸. Critiques of abstract theories are appropriate if the theories are not put to the test. Those who create models with ungrounded and untested economic axioms should be called to task. This should not lead to an abandonment of theory but to an insistence on testing theories and assumptions.

¹⁹. They also argued that Neoclassical economists would attack any quantitative analysis not based on the principles of that doctrine.

useful—theory attempting to explain them would not be similarly complicated" (Klein 1997, 44). Klein then goes on to give the example of a simple causal explanation given at the turn of the century by Henry Moore, that "attributed the modern business cycle to periodic meteorological changes that produce sunspots" (44). This, for Klein, is an example (albeit exaggerated) of a "simple theory." Historicists had initially set out to combat that type of armchair theorizing. But the argument against armchair theorizing had no bearing on the debate with positivists who favored the use of empirical observation and who noted that a simple theory need not be simple-minded.

Institutionalists continued to identify and classify leading, coincident, and lagging indicators, work that eventually culminated in the well-known Index of Leading Economic Indicators. Klein notes that the timing relationships between the "short list" of currently used indicators can be understood in terms of a number of business theories (46-48). Although true, it is noteworthy that the theories themselves were not derived from the study of the indicators. And even though leading indicator series have been shown to lead turning points in economic activity, they do not speak to the amplitudes of the swings nor the duration. They also tend only to be useful for prediction in the short term (six months out) and are therefore less useful for policy.

The work of Kuznets (a student of Mitchell's and a coworker at NBER) in setting up the national income accounts was similarly driven by a desire to present facts without theory. However, in this case, the national income accounts came to have special significance in policy formation because they were relevant in testing the hypotheses of John Maynard Keynes.

3. Recent social trends

The 1920s was not only the decade in which economic indicators gained popularity, it was also the period when the idea of social indicators emerged. Herbert Hoover, first as secretary of commerce and later as president, was the chief proponent of the collection of data that could be used for social measurement (Anderson 1988, 161). Immediately upon taking office in the Commerce Department in 1921, he created the Conference on Unemployment. Hoover's own thinking on this subject appears to have been shaped by the historical school, particularly by the work of Mitchell. He commissioned detailed descriptions (but not the development of theories) of unemployment.²⁰ He believed that they showed the cause of cyclical unemployment to be the waste and extravagance that arose during boom years. Hoover imagined that this was a problem that could be solved by employers, since he assumed their inefficient management practices were to blame.

Another initiative at this time was the President's Research Committee on Social Trends, which was appointed by President Hoover. In 1933, in the last days of his presidency, the committee published its report entitled *Recent Social Trends*. This work, supervised by William F. Ogburn, a sociologist at the University of Chicago, marked a milestone in the social indicators movement in the United

²⁰. As commerce secretary, he commissioned a study in 1921-22 that relied on a methodology that was similar in concept to the German "statisticians" of the seventeenth and eighteenth centuries. That is, the study consisted of detailed descriptions coming from hundreds of cities around the country. The reports described who was unemployed, for how long, how businesses were responding, and whether any labor unrest had resulted. This amounted to "thick" historical research and extremely "thin" abstract theory. The intent here is not to single out Hoover for criticism. He was following the best advice of his day. The key point is that historicism so dominated statistical thought in the 1920s that no alternative seemed imaginable.

States. It was the first official document devoted to social measurement. Over 1,500 pages in length, it covered numerous social conditions such as demographics, health, and education. Yet, according to Adolph Berle, a law professor and adviser to President Roosevelt in 1933 when the report was released, *Recent Social Trends* was characterized by "barrenness of quantitative theory and statistical measurement." It was pure description. None of the sections contained any theory about why those conditions existed. Although it was completed during the early days of the Great Depression, there was barely a hint of the extent of the crisis (Smith 1991, 71).²¹

Ogburn, like Wright, believed that social reports should present facts, not opinions, and should present the data and trends but refrain from interpretation and certainly from policy recommendations (Bulmer 1983, 114). He envisioned an annual social report and, in fact, edited an annual issue of the *American Journal of Sociology* from 1928 to 1934 which presented a statistical account of social change in the previous year (Bulmer 1983, p.111). His approach (descriptive, inductive, pseudo-objective) became the dominant approach of academics who worked with social indicators. A number of his students, including Albert D. Biderman, Otis Dudley Duncan, Albert J. Reiss Jr., and Eleanor Bernert Sheldon, were later active in the social indicators movement.

4. Change through enlightenment: the early antecedent of the community indicators movement

The use of the historical method in social analysis was not limited to economists and national surveys. It was also the method of choice by social scientists who were hired by private foundations as well. The Russell Sage Foundation could be said to have initiated the development of what are now called "community indicators" using processes that are remarkably like the ones that have been re-established in the 1990s.

Around 1910, this foundation provided a grant to the Charity Organization Society (of New York) to survey industrial conditions in Pittsburgh. Paul Kellogg, a writer and editor, was hired to carry out the study. "The project lasted eighteen months and produced a six-volume study of Pittsburgh's housing, sanitation, and working conditions. Kellogg and his associates wanted a 'human measure' of social conditions that would prod the government of Pittsburgh to solve the city's problems" (Smith 1991, 40-41). After the study was released in 1914, the Russell Sage Foundation was besieged with requests to fund similar studies in other cities. Since it did not have the funds to do that, the foundation provided technical advice instead. Partly as a result of this initiative, over two thousand local surveys were taken on education, recreation, public health, crime, or general social conditions.

Just as community indicator projects today are often associated with some existing organization, the surveys of this period were "conducted under the supervision of citizens' committees, church

²¹. New Deal "brain trusters" like Berle may have been critical of the report, but they were also locked into a descriptive, rather than analytic, framework. The New Deal programs did not end the Depression, precisely because they were designed to micromanage the economy in the same way that Bismarck's social welfare state had done. Even after Keynes published his theoretical work on the causes of the Depression, the policies of the Roosevelt Administration did not change much. When the economy began expanding in 1936, Roosevelt clamped the lid on it and sent the country into another depression in 1937 and 1938, a fact generally ignored by historians.

federations, chambers of commerce, or civic improvement associations" (Smith 1991, 41). The process by which this information was expected to affect decisionmaking was not much different from today either: "These groups then relayed the findings of the technical experts to the public who, enlightened by the facts, were expected to mobilize public opinion and press for appropriate reforms" (Smith 1991, 41).

The Russell Sage Foundation supported this precursor to community indicators work because it believed the surveys would yield results. Like many others of the day, the officers of the foundation were guided by the metaphors of public health: They wanted to treat root causes, not merely alleviate symptoms. They did not just want to observe society; they wanted to improve it.

Yet the methodology employed was guaranteed to fail: The collection of factual information could *only* yield observations about symptoms. In the absence of theories, the accumulation of facts cannot offer any explanation of causes. Referring to the data gathered by the surveys of living conditions, James Allen Smith notes:

In these and countless other measurements, the professionals presumed that there were causal relationships and, thus, implicit remedies for social problems. But the surveys usually explained much less than met the eye. In reality, they were less an instrument for testing hypotheses and designing reforms than for arousing a community's conscience and "quicken[ing] community forces" for reform, as one staff member of the foundation put it (Smith 1991,42).

That is why "the actual political results [of the surveys] seldom lived up to the organizers' expectations" (41).

This explanation of the failure of the social surveys at the beginning of the century to lead to social change applies with equal force to current social indicators efforts that have their roots in the social indicators movement of the 1960s. Unless the methodology used to develop indicators goes beyond "arousing a community's conscience," it is unlikely ever to lead to reforms.

5. Social Indicators Movement

By the early 1960s, as a result of the increasingly successful management of economic policy, the deductive or analytic approach to policymaking had effectively triumphed over the inductive or descriptive method favored by the students of Ogburn. The success of the Kennedy tax cut of 1964 and the apparent accuracy of econometric predictions of its effect on the economy made positivistic economists quite influential forces in guiding public policy.

Professional economists in government (such as the Council of Economic Advisors) and in policy institutes (such as Brookings) became a model for applying social science to government policy. Critics charged that economic considerations were given undue priority in policy decisions. If social theory and planning were given equivalent institutional support, they surmised that social policy could be rationalized in the way economic policy had been. Thus, the success of economic indicators was one spur to the birth of the social indicators movement in the 1960s and early 1970s. As social crises mounted during the 1960s, some politicians and social scientists began to champion the development of systems of social statistics comparable to the existing economic ones.

The event that signified the launching of the social indicators movement in the United States was the publication in 1966 of *Social Indicators*, a project sponsored by NASA (Bauer 1966).²² Raymond Bauer, Albert Biderman, and Bertram Gross, the primary authors and influential forces in the budding social indicators movement, argued for increased collection of statistics that would be published as a social report. They also advocated the development of a system of social accounts which could help guide policy decisions.

A second influential publication, *Toward a Social Report*, was issued by the Department of Health and Welfare (HEW) in early 1969, on the last day of the Johnson Administration. It called for the establishment of an annual social report of the type advocated earlier by Bertram Gross in *Social Indicators*. This report was representative of the view that by definition social indicators should tell us if we are moving in the right direction, be relevant to setting policy, and help evaluate the effectiveness of social programs.

In the meantime, Senator Walter Mondale and others put forth legislation from 1967 to 1973 calling for the creation of a Council of Social Advisors, comparable to the Council of Economic Advisors (CEA) (Booth 1992, 380-85). The CSA was to issue an annual social report like the *Economic Report of the President*. Underlying this effort was the belief that the creation of the CEA had institutionalized the use of economic information and the power of economists. Creating a comparable institution to address social problems seemed like a logical next step.

Many of these early indicator reports reflected an interest in promoting or evaluating President Johnson's social policy. The Great Society was to provide an economic floor for all and was in many ways a replay of the social welfare programs that were first devised in Bismarck's Germany. For every need, a new program was developed. This way of approaching policy is based on the historicist model: create detailed solutions based on a detailed knowledge of events.

Although the authors of *Social Indicators* and *Toward a Social Report* were historicist in approach, they envisioned indicators as tools of policy analysis. The most profoundly historicist approach was the work sponsored by the Russell Sage Foundation and the Social Science Research Council. The Russell Sage Foundation (which had funded the early "community indicators movement" described above) was also instrumental in keeping alive the historicist tradition in social indicators. In 1968 it published *Indicators of Social Change*, a volume edited by Wilbert Moore and Eleanor Bernert Sheldon (who was a program officer at the foundation). This volume was a successor to the *Recent Social Trends* volume of the 1930s in both content and spirit.

Sheldon and others at the Social Science Research Council (SSRC) opposed the creation of the Modale's council of social advisors or any other premature application of social indicators to social policy. Instead, they argued, the pressing needs were basic research and better data series (Sheldon et al. 1983, 79). Since she was affiliated with the prestigious SSRC (she was president from 1972 to 1979), her views had an impact. Although the Center for the Coordination on Social Indicators was

²². NASA was interested in determining the second-order consequences of the space program for American society.

established at the SSRC, it promoted basic research and advocated against the establishment of even an annual social report.

Following the academic approach she had inherited from Ogburn, Sheldon believed that the development of a theoretical framework for indicators was premature. Social indicators could not follow in the footsteps of economic modeling since: 1) social goals were more ambiguous than economic ones, 2) social problems were less clearly understood than economic ones, and 3) the theoretical foundations of economics were much clearer than those underlying the analysis of social problems (Sheldon and Freeman 1970). Sheldon argued that an inductive approach was needed: First gather descriptive data, then develop the categories that would allow meaningful generalization and eventually work towards analysis of social change (103-5).

Although Sheldon correctly pointed out some of the differences between economic and social indicators (e.g., the lack of a body of social theory comparable to that of economic theory, and the substantially smaller amount of existing social data), she was incorrect in her portrayal of how economic theory came into being. It was not the result of laws emerging after the careful collection and interpretation of data; it was the result of a theory based on prior insights.

The social indicators movement thus entered the 1970s generally united in its historicist approach, but conflicted over the immediate goals of the movement.²³ Work on social indicators flourished in the United States in 1970s with thousands of relevant articles and books being published. In the United States, *Social Indicators, Volumes I, II, and III* were published (Office of Management and Budget 1973; Census Bureau, 1976, 1980). The original intent of the reports was to include critical analysis and judgments about causal relationships. Political forces within the Nixon Administration turned them into "neutral" chartbooks, full of isolated facts, with little to no interpretation (Innes 1990, 99-100). There was accompanying interpretation of the 1976 and 1980 reports, but it was done in the *Annals of the American Academy of Political and Social Science*, an academic journal. Even then, the analysis was highly technical, evoking no political controversy.

The social indicators movement in the United States was effectively over by the early 1980s, although it continued in the form of annual statistical reports issued by government agencies. Some data series that were started in part because of the movement (for example, the National Criminal Victimization Survey) also continued to be collected. Numerous explanations have been offered that account for the early demise of the movement (e.g., Johnston 1987; Andrews 1989; Bulmer 1989 and Noll and Zapf 1994). The most compelling of these reasons is the limited use of the indicators to policymakers and the paucity of instances where indicators brought about some reform. It was not simply the lack of political will (which the indicators were supposed to help create) or the inadequate theories of social change (that the inductive study of trends would help elucidate) that caused the demise of social indicators. It was the inability of the advocates of social indicators to offer causal explanations of social trends that would help formulate social policy.

²³. As Sheldon says, comparing the work funded by Russell Sage with the Bauer volume: "The Foundation's program was somewhat different in that its primary motivation was to establish a theoretical base, data, and measurement techniques for understanding social change. It was not that we eschewed the importance of 'policy analysis' but rather that we considered our effort as parallel—or even a precursor—to it" (Sheldon et al. 1983, p. 79).

While the U.S. government worked on social indicators sporadically during the 1970s, several European nations, notably Great Britain, France, Germany, and the Netherlands, went further than the U.S. and institutionalized social reporting. Examples of European reports include *Données Sociales* in France, the *Social and Cultural Report* in the Netherlands, and *Social Trends* in the U.K. Among the preconditions that enabled this were "an articulated welfare-state program of social policy, an interventionist orientation of government, innovative statistical agencies and geographical centrality" (Noll and Zapf 1994, 5).

The excitement generated by the social indicators movement also had effects on international agencies who began developing indicators as a part of their mission (Rothenbacher 1993). In the early 1970s, the Organization of Economic Co-operation and Development (OECD) established a program in social indicators which continued work until the publication of *Living Conditions in OECD Countries* in 1986. At the United Nations, the relationship between economic development and human development was explored via the Human Development Index. The World Health Organization (WHO) emphasis on human health led to the healthy cities movement which developed indicators to assess improvements in public health broadly construed (Waddell 1995, 213-5).

In a similar way, the development of environmental indicators was inspired by the social indicators movement. In the United States, the Council on Environmental Quality and the Environmental Protection Agency both began to develop indicators to monitor and publicize environmental trends. Similar work was begun at OECD in the 1980s. In addition, policy institutes such as WorldWatch and World Resources Institute began producing annual books describing and analyzing environmental trends. With the notion of sustainable development as highlighted by the Brundtland report and later by the Rio conference, a new framework for indicators was developed in the early 1990s. Sustainability indicators attempt to describe the interrelations of economic, environmental, and social concerns. These frameworks or sets of sustainability indicators offer conceptual models that illustrate those interrelationships, but they don't necessarily offer an analytical understanding of them.

Attempts to create indexes of social welfare that can be used as alternatives to the GDP are also characteristic of the last decade. Examples of indicators of this variety include the Index of Social Health, developed by Marc Miringoff of the Fordham Institute, and the Genuine Progress Indicator (GPI) developed by Redefining Progress. Although the GPI is useful as a rhetorical tool to point out the limitations of the GDP as a measure of well-being (and demonstrates the difficulty and arbitrariness of developing any such general measure), it does not lead to any specific policies. This is the crucial distinction between descriptive and analytical work.

The social indicators movement has experienced a revival in the 1990s. The sources of that renewed energy are perhaps somewhat different than in previous decades. There is far less impetus from federal agencies or major national institutions like the SSRC. Instead, the focus in the 1990s has been on community indicators, similar to the work catalyzed by the Russell Sage Foundation around 1910. It is also characterized by consideration of economic, social, and environmental conditions. However, it is similar in a critical way—it is dominated by the historicist approach.

Those who have worked for years to develop better indicators have been frustrated by the lack of success at achieving social change or even institutionalizing social reporting. Much emphasis has

been placed on the agenda-setting role of indicators and how descriptive indicators can be used effectively in the public debate. Our concern is that advocates, especially at the community level, then wonder what comes next: How can they actually effect change in what they are describing? There may be an important rhetorical or persuasive role to be played by descriptive indicators in raising awareness but one can not expect those same indicators to effect change in the conditions. It is our belief that if indicators are to be a tool in bringing about change in conditions, one must approach the indicators work with a positivist perspective.

B. The Positivist Approach

Positivism, by which we mean here simply a theoretical and analytical approach to the use of indicators in problem solving, has a tradition as long as the historicist or descriptive approach.²⁴ Whereas historicists have assumed that change will automatically result from publicizing facts about social conditions, positivists have been concerned with *how* effective policies can be formulated. (From the positivist perspective, many of the policies formulated by historicists are merely symbolic expressions that are directed toward symptoms rather than causes.) Positivists are interested in developing theories or models that specify causal relationships. Those models, if correctly specified, can provide relatively accurate predictions about the consequences of policies. They can, thus, be used to solve problems.

The ultimate test of whether a model is positivist or not is the extent to which it is used to make predictions. The use of numbers or algebraic analysis does not necessarily qualify work as positivist. Statistical analysis is positivist if it is based on the testing of deductive hypotheses about relationships that are not directly observable. The key difference is this: Historicist methodology seeks to understand by examining relationships that can be seen; positivist methodology seeks to predict by drawing inferences from relationships that are unseen.

1. Petty's deductive, problem-solving approach

In social analysis, one of the first applications of the positivist methodology was made in England by William Petty in the late 1600s (Studenski 1958, 26-30). Petty's innovation was to bring theory and data together in understanding social and economic conditions. Before him, writers had believed that economic health depended on increasing exports of goods and imports of gold because that increased the national treasury. (They assumed that what helped the government also improved the nation.) Petty developed a theory that reversed that relationship. He argued that wealth derived from production, not from hoarding gold, and that trade should therefore be taxed and regulated lightly. To help the crown, one must first improve the economic conditions of society.

This first example reveals an important feature of positivism: analysis often starts with startling or even paradoxical hunches that are a reversal of expected relationships. The positivist intuits (or posits) a relationship that can only be discovered through inference and experimentation. By contrast, historicism appeals to observable relationships and thus conforms to common sense.

²⁴. See footnote 3 for a discussion of our use of the term "positivism."

Petty also theorized that England had the capacity to fight a war with France, but that Holland was rapidly growing in its capacity to wage war (due its liberal trade policies). In order to test his hypotheses, he made calculations of the populations of France, England, and Holland and of England's national income. (Gregory King estimated the national incomes of all three countries after Petty's death, using generally similar methods.) Petty estimated that France had a larger population than England, but that England's higher productivity made the two countries equally matched in wealth (and war potential). He determined that an income tax could be levied in England that would meet the needs of the state in peace and in war. Finally, Petty used vital statistics, which he also originated along with John Graunt, to disprove the theory circulating in his day, that England's population was declining.

2. The search for natural laws of society

Petty is generally remembered for his initiation of national income accounting and for his testing of hypotheses about society with statistics rather than pure reason.²⁵ It is especially important to understand that, unlike the German statisticians of the seventeenth century, Petty saw statistics as a scientific enterprise involving a search for hidden causes. Petty was guided by the prevailing expectation at the Royal Society (England's preeminent institution, of which Petty was a founding member) that society, like the stars and planets, would operate in harmony with natural law.²⁶ Thus, all of Petty's work was shaped by deductive hypotheses rather than being an inductive attempt to generate theories. He made predictions based on general principles, then sought the evidence to confirm or deny his hypotheses.

Although efforts to apply "political arithmetick" to economic issues lay dormant throughout the eighteenth century, efforts to look for underlying patterns in social phenomena continued as a search for "divine order" or natural law in human affairs (Westergaard 1932, chapters 2 and 3). Astronomers (Halley and Wargentín) and other European scientists (Huygens, Neumann, and Süßmilch) were drawn into the investigation of demographic questions such as population size and distribution by the search for mathematical order.²⁷ One question they particularly wanted to

25. "Petty was in fact the most significant theorist of social statistics in Britain, at least until the heroic decade of the 1830s, and even then no single figure stood out with his overall vision" (Cullen 1975, 5).

26. German intellectual traditions, in contrast to English ones, have been shaped by a strong belief in the dichotomy between the study of physical phenomena (Naturwissenschaften) and the study of human society (Geisteswissenschaften).

27. It is interesting to compare the work of Petty and statistically oriented scientists with the later work of Adam Smith, Thomas Malthus, Jean Baptiste Say and other classical economists. The economists were rationalists, who promulgated a theory of social equilibrium, which they were not especially interested in testing. The political arithmeticians (to use Petty's phrase to describe his work) were interested in how well theory conformed to facts. Thus, whereas Malthus (an early classical economist) asserted that life expectancies had been relatively constant throughout history, the political arithmeticians considered that a testable hypothesis. The conclusion about the merits of this idea were of great practical significance at the end of the eighteenth century. The economists of the day (or at least Malthus and Say) were content to ignore public health issues. Say also opposed efforts to improve social conditions in early nineteenth century France on the same grounds. They believed that whatever health or social improvements took place would be counterbalanced elsewhere, preserving the general condition of misery. The statisticians, on the other hand, thought that the smallpox vaccine and other public health measures could save lives on balance and that they should be introduced.

answer was the degree of imbalance in population of men and women. Another idea circulating at the time was that the human body was in danger every seven years and that human infants were in peril during weeks that were multiples of seven and nine. Thus, some of the hypothesis testing of early statisticians was to quell superstitious folk beliefs. They did so by contrasting population statistics with false inferences drawn from anecdotes. (The fact that legislatures still draw more on anecdotes than statistics shows that the early scientists were not entirely successful.)

By offering tantalizing conclusions based on the limited evidence available through parish records, these scientists convinced the leaders of a number of nations to initiate a national census. Sweden undertook the first modern census in 1748. In its reports, the Tabullar Commission of that country not only reported the data on population size, it also offered an explanation for the low fertility rate that was causing what they regarded as underpopulation. When the United States began the first regular (decennial) census, it also did so to answer questions of practical importance: How were representation and taxes to be apportioned among the states.

Another eighteenth century development that permitted the later creation of social statistics was the refinement of life tables for the insurance business. The great regularity of mortality in large groups of people demonstrated to the mathematically-skilled scholars of the time (of which there were few) that social phenomena operated within the bounds of fixed laws that were not evident in the behavior of individuals. A life table made it possible to make predictions about the number of men and women who would die in a given year, even though it was not possible to predict the fate of particular individuals. This observation gave rise, in turn, to the belief among some statisticians that analysis of unseen regularities in society would permit leaders to shape the broad outline of the future, but not the details.

3. Public health and statistical inference in the 1830s

The positivist approach to social indicators became much more focused in the period from 1830 to 1850 in France, Belgium, England, and the United States. The interest in using statistics to reform society during this period arose in response to the strains and disruptions caused first by the Napoleonic wars and the consequent reductions in trade and later by industrialization and large-scale urbanization. In addition, the concept of public health emerged during this period, both as a product of statistical thought and as a catalyst for it. Much of the technical work on social indicators was carried out by physicians and then used by social reform groups. Applications of the theory of probability to large populations were refined during this period, so that it became possible to make more precise inferences about social phenomena. That is to say, analytical tools advanced considerably, without which useful inferences would not have been possible. In the 1830s, statistics came to be thought of in its modern sense as the science of society rather than as compilations of numbers.

Adolphe Quetelet, a Belgian mathematician, was perhaps the most important pioneer in the application of probability and statistics to social issues.²⁸ He was not only instrumental in

²⁸. The intellectual ancestry of Quetelet can be traced to Poisson, Laplace, and Fourier, the French mathematicians who had already been working on the application of probabilistic concepts to social events (Landau and Lazarsfeld 1968, p. 248). Quetelet was sent by his government's minister of education to Paris in the 1820s to meet with scientists and mathematicians in order to learn from them how to establish an

developing a new way of understanding society in statistical terms, he also set up the first International Statistical Congresses starting in 1853 that brought together researchers in this field from various countries.

One of the reasons Quetelet and others were attracted to statistics in the early nineteenth century was that it seemed to offer a way of understanding society that was beyond ideology. Statistics revealed an underlying order in society that persisted through periods of political instability and revolution. In addition, the nineteenth century marked an era of increased availability of data, although much of the growth in data collection was in response to the demands of social reformers.

Quetelet hoped to understand society and its subgroupings (especially as defined by social class) by the use of statistical means, "the average person," and variance around those means.²⁹ The statistical understanding of behavior gave birth to a new mode of thought that Quetelet called "moral statistics" or "social physics."³⁰ The former term simply referred to statistics dealing with socially significant behavior, while the latter referred to the similarity between the order in society and the order found in the natural world.

Quetelet began this course of social investigation after examining the first French judicial statistics in 1827. He was surprised by the regularity of age-specific crime rates. He was later struck by the relative constancy of marriage and suicide rates from year to year. These regularities in behavior convinced Quetelet that human behavior is governed by laws that transcend individual choice, despite appearances to the contrary. In effect, he was arguing that crime (or suicide or alcoholism) is "a property of the community, not of the malevolence of certain individuals" (Gigerenzer et al. 1989, 47). Quetelet understood that the attribution of the causes of pathology to social forces reduced personal responsibility. He did not deny the existence of free will, but he believed it operated within a much narrower framework than a more purely individualist philosophy allowed. Although everyone's freedom is constrained to some extent, social reformers and political leaders were not so limited by the statistical regularities. They were relatively free to determine the conditions that would either raise or lower the frequency of social pathology.

According to Quetelet, statistical laws showed that order was universal, that irrationality had its reasons, that even crime was subject to law. The findings of statistics implied that antisocial acts

astronomical observatory in Brussels. As in the eighteenth century, those interested in celestial harmonies were again the leaders in thinking about social harmonies that could be discovered mathematically.

²⁹. The concept of the average person represented a sharp break from the traditional concept of "the rational person," which had previously been understood as the norm for thinking about society. Whereas one might ask what the rational person would do in a given situation, one could ask what the average person actually does.

³⁰. Auguste Comte, often credited as the originator of positivism, "was annoyed because that 'mere' statistician Quetelet had appropriated his 'social physics' and obliged him to coin a new term, sociology . . ." (Gigerenzer et al. 1989, 46). In addition, Comte opposed quantification of social phenomena, although most later positivists did not share that prejudice. Comte believed in natural laws of historical development, which presumably were hidden from "mere" statistics. "Quetelet's statistical approach was the purest form of positivism, . . . too positivistic . . . for the founder of positivism himself, Auguste Comte" (Gigerenzer et al. 1989, 42).

were products of the social condition, and that these social maladies could be cured, or at least alleviated, by the scientific reformer (Gigerenzer et al. 1989, 41).

The analysis of statistical regularities would enable a benign government to intervene successfully in solving social problems—but only if the government focused on the condition of society, not the behavior or background of particular individuals. The state could not change which choices individuals would make, but it could (in principle) change social conditions and thereby influence outcomes on a statistical level.

Louis-René Villermé independently came to many of the same conclusions as Quetelet, perhaps because they were also derived from the mathematical ideas of Laplace and Fourier. Villermé, a physician, sought the cause of differential mortality in Paris in the 1820s (Coleman 1982, 149-180). Like Quetelet, he discovered that social conditions were to blame.³¹ By combining data from a survey of vital statistics with information on the distribution of wealth, he showed that there was a statistical correlation between poverty and high death rates. He showed the poor had higher birth rates, higher infant mortality rates, and lower average age of death. He also discovered that the rich abandoned unwanted infants more often than the poor did. In other words, he found not only differential mortality, but differential morality as well.³²

In England at the same time, a reform movement arose that was based on the idea that statistics could guide the development of policy. William Farr, one of the leading figures of this movement, developed a statistical approach to social problems that was similar to the models used by Quetelet and Villermé (Eyler 1979, chapter 1). That is due, in part, to his study of medicine in Paris starting in 1829.³³ In Paris, Farr acquired the image of public hygiene as the model of social improvement. Farr became aware from military records that clinical interventions with individual patients had virtually no effect on their death rates, but that public hygiene measures did reduce mortality substantially. This background in public health had a life-long influence on his work in statistics and social reform. Many of the other men who were active in social reform through statistical analysis in Victorian England were also physicians, in part because medical conditions and mortality were easier to quantify than many other social conditions.

³¹. In the case of medicine, the alternative explanation was not so much individual behavior as physical causes in the surrounding environment. Villermé was first able to disprove the long-standing assumption (based on Hippocratic theories) that illness was caused by environmental factors such as dampness and bad air (Latin: *mal aria*). He also found no statistical correlation between death rates in different sectors of Paris and the density of population, contrary to another popular theory at the time. Thus, he proved, by the standards of his time, that nature is not the cause of differential mortality. In doing so, he was as much responsible for the development of public health as William Farr and Edwin Chadwick in England. It is important to recognize, however, that physicians interested in public health were in a minority at this time. The statistical approach to medicine was considered an affront to the ethics of caring for each individual as a separate case.

³². Villermé also later pioneered the statistical study of working conditions through his analysis of textile workers.

³³. Farr was also influenced by "the British empirical medical tradition, a tradition represented by Thomas Sydenham and the latter's eighteenth century descendants" (Eyler 1979, 10). The British physicians, including Farr, were not as far advanced in statistics as the French.

Farr belonged to the first generation of career statisticians in England.³⁴ Although he maintained a very practical view of statistical work, he was, nevertheless, concerned with theory (Eyler 1979, 28-29).

He rejected the mindless garnering of numbers and had nothing but scorn for the "empiric who throws heaps of tables in our faces. . . ." In a medical editorial in 1837 he wrote: "Facts, however numerous, do not constitute a science. Like innumerable grains of sand on the sea shore, single facts appear isolated, useless, shapeless; it is only when compared, when arranged in their natural relations, when crystallized by the intellect, that they constitute the eternal truths of science" (Eyler 1979, 29).

Thus, like other positivists, he eschewed mere numerical description in favor of testing hypotheses and theories. Without theories, it is not possible to solve problems. This became the standard view of the statistical societies of the time. "Statistics . . . was to serve as a link between the other sciences and practical affairs. . . . The statistician, or 'statist,' as he was called, was to be the scientific expert in matters of policy, the one who spoke from a knowledge of facts, not from mere conviction" (Eyler 1979, 16). The key point is that statistical inference played a special role that was relevant for public policy. There was an implicit recognition that conclusions drawn from direct experience (with individual criminals or patients in a hospital) might be contradicted by statistical inferences. The latter were held to be more reliable as a basis for public health and other policy measures.

It would be wrong to infer that the positivist-historicist distinction was clear to anyone at the time or that it corresponded in a simple way with the differences between England and Germany. Influenced by German studies, English statistical societies conducted social surveys of English cities to measure social welfare. They were trying to answer the "condition of England question" with descriptive statistics (Eyler 1979, 17). Nevertheless, some English thinkers saw that it was possible to go beyond description. Farr and others with a background in public health used the data in the surveys not simply to write a detailed report, decry existing conditions, or create programs aimed at symptomatic relief (the response of academicians, social reformers, and bureaucrats, respectively). Instead, they laid the groundwork for a new kind of scientific understanding, reform, and government policy by analyzing causes and pointing to systemic remedies. They were particularly interested in determining the causes of epidemics and other threats to social well-being.³⁵

³⁴. Farr himself was both the chief statistician of the General Register Office from 1837 to the 1870s and an active member of the Statistical Society of London (later the Royal Statistical Society), as well as the statistical section (Section F) of the British Association for the Advancement of Science. Some of the other professional statisticians were Poor Law Commissioners.

³⁵. The prevalence of the statistical philosophy in solving social problems in the 1830s does not mean that all of the supporters of the statistical movement were competent in the use of statistics. Nassau Senior, a member of the House of Lords and the head of the Poor Law Commission, prevented an alteration of the Poor Law Amendment Bill in 1834 in the following manner: "Lord Ellenborough wished to make it possible for the authorities to grant relief at their discretion to those over 60. This would, in Nassau Senior's opinion, turn the aged into paupers, so he looked up John Rickman's life-tables for Essex in the period 1813-30. They showed that out of those who survived to age 20, nearly half survived to age 60. Hence, concluded Senior, nearly half of the adult population were over 60" (Cullen 1975, 84). On the basis of that confusion, he convinced Ellenborough to withdraw his proposal.

Statistical work has never been neutral. The biases of the statistician inevitably play a role in formulating hypotheses and in choosing which facts to gather. In early Victorian England, the reformers who used statistical techniques to analyze cause and effect were shaped by the interests of their social class.³⁶ The Manchester Statistical Society and other provincial societies argued that the suffering of the working class was due more to urbanization than to working conditions in factories (Cullen 1975, 106-108, 128).³⁷ The statisticians sought to deflect industrial reform measures and other potential attacks on property by channeling reform efforts into education and sanitation. Farr's conclusion (contradicted by Quetelet and especially by Villermé) that disease is caused by environmental factors (miasma) more than by social factors (such as income differentials) was almost certainly affected by his laissez-faire ideology and middle class background.

4. Hygiene and temperance: moral statistics in the U.S.

There were no individual figures in the United States at this time comparable to Quetelet, Villermé, or Farr who offered intellectual contributions to the development of the positivist approach to indicators. Nevertheless, there were physicians in the U.S. who were also intrigued by the new ideas about public health. From the 1830s onward, reform groups in the U.S. adopted both the metaphors and the statistical orientation of the public health movement and applied them to various social ills.

Reformers in the United States were primarily intent on purifying the morality of the nation. This was a concern of reformers in Victorian England as well, but it was a more pronounced theme in the United States than hygienic reform, which dominated the Old World. As a result, the statistical movement in America concentrated on studies of alcohol consumption, crime, and prostitution. (The pro- and anti-slavery forces also used statistics in their arguments.) In some cases, these studies involved gathering statistics that were intended to shock; in other words, they were descriptive indicators.³⁸ Still, many of the studies went beyond description and formulated a hypothesis.

³⁶. Francis Galton, independently wealthy cousin of Charles Darwin and the person who coined the term "eugenics" in 1883, took over the chair of the Anthropometric Committee of the British Association for the Advancement of Science from Farr in 1880 (Eyler 1979, 28; Gould 1981, 75). Galton represented the conservative school of thought that all characteristics were inherited. Farr and the other liberals believed that most observed characteristics were caused by environmental factors. Social reform ultimately lost out because of the dominance of the hereditarians who believed that social reforms would not help those they were intended to improve.

³⁷. It may in fact be true that urbanization was a worse culprit than the factory system since those working at home (in "cottages") also had high mortality rates. In retrospect, it would appear that the Enclosure Movements, which had forced millions off their land, was the underlying cause of the misery of many members of the working class.

³⁸. For example, the movement to eliminate prostitution used statistics in an attempt to alarm the public. A publication of the New York Moral Reform Society claimed that there were 12,000 brothels in the U.S., 75,000 to 120,000 prostitutes, and 500,000 licentious men. They also said that 20,000 women died each year from prostitution (Cohen 1982, 207-08). These statistics were not aimed at increasing understanding of the causes of prostitution. They were merely intended to shock the sensibilities of small-town readers.

The most common theory in mid-nineteenth century America was that alcohol was the source of social evil. Almost every vice in American society was traced to "demon rum" and affiliated liquids. In particular Samuel Chipman concluded in 1836 from his surveys of poorhouses and prisons that heavy consumption of alcohol was a major factor in both poverty and crime (Davis 1972, 172; Cohen 1982, 211-12).³⁹ The desire to analyze statistically the consequences of intemperance was not isolated to a few individuals. In 1833, a national temperance convention passed a resolution calling for the collection of accurate statistics on alcohol consumption and on "the number of deaths, paupers, and crimes attributable to drink" (Cohen 1982, 171).

5. Race: the enduring shadow in American society

The temperance debate was overshadowed from 1840 to 1860 by the national debate over slavery. After the census of 1840 the debate shifted from the intrinsic morality or immorality of the "peculiar institution" to its statistically verifiable consequences. That census marked one of the world's first efforts to gather national social statistics, including data on insanity and "idiocy" (Anderson 1988, 28; Cohen 1982, 176-78).⁴⁰ When the data became available in 1842, Edward Jarvis, a Massachusetts doctor specializing in the study of insanity, discovered major anomalies: "the returns showed that the black population in the North suffered from insanity at a rate more than ten times greater than blacks in the South" (Cohen 1982, 192). They showed that the rate of "idiocy" and insanity among free African-Americans in the North was higher (1 in 162) than among the slaves in the South (1 in 1,558). The rates ranged from a high of 1 in 14 in Maine to a low of one in 5,650 in Louisiana. The farther north one went, the higher the rate of insanity among African-Americans. (The rate for whites was fairly constant: 1 in 970 in the North, 1 in 945 in the South.) John C. Calhoun and other proponents of slavery cited this as evidence that slavery was indeed a beneficial institution for those who were enslaved. (The figures also suggest that whites in the South would have benefited from being enslaved as well, but no one seems to have drawn that inference.)

The only way to refute the conclusions was to engage in esoteric debates about methodology. Jarvis found some errors in the raw census results that helped explain what had gone wrong.⁴¹ Yet, neither he nor anyone else at the time was able to discover the true cause of the error, in particular the simple fact that the larger number of African-Americans in the South (the denominator of the proportions) diluted the effects of enumeration errors more than in the North.⁴² No official investigation was made because Southern senators had no desire to determine the truth.

³⁹. The same (incorrect) inference has been drawn in the 1980s and 1990s that "drugs" are a primary cause of poverty and crime.

⁴⁰. Cohen (1982, 178) explains that statistics on insanity were collected in 1840 at the behest of "physicians who had been making assiduous private efforts to find correlations that would explain the rising insanity rate . . ."

⁴¹. Jarvis was able to determine that there were large populations of whites in the asylums of Massachusetts who had been recorded on the census as black. He also discovered counties in Maine that contained not a single African-American, yet which were listed in the census as having several insane blacks.

⁴². The error was caused by several factors (Cohen 1982, 202-204): the confusing manner of printing the census forms; the likelihood of classifying older, white, senile people as lunatic blacks; and the much larger population of African-Americans in the South, which raised the denominator when calculating the rates of insanity among blacks in those states. Ultimately, the problem stemmed from a badly designed census form, not a conspiracy. As Cohen explains, "Each schedule contained seventy-four columns, with headings in

The truth, we are told, is the first casualty of war. It does not survive political conflict very well either. The misuse of statistical evidence by all sides has been a mainstay of politics ever since the census of 1840. Descriptive statistics are commonplace in politics because they are more malleable and evocative. But when a positivist model of causality fits the ideology of one side or another in political debate, it is an even more powerful tool.

The conflict over race since the Civil War has been heavily influenced by positivist statistics and indicators. In the nineteenth century and much of the twentieth century, the racist use of statistical models was the norm. Stephen Jay Gould has traced that sad history. In the 1840s, Samuel George Morton provided "evidence" of the intellectual inferiority of various people of color by demonstrating that their cranial capacity was smaller than that of Indo-Europeans. The errors that Morton made that biased his estimates were not conscious. As Stephen Jay Gould says about Morton, "All I can discern is an a priori conviction about racial ranking so powerful that it directed his tabulations along preestablished lines" (Gould 1981, 69). Robert Bennett Bean published similar brain-size measurements in 1906. His mentor at Johns Hopkins, Franklin P. Mall, demonstrated the error in Bean's procedures, "but not before a leading journal had recommended that blacks be barred from voting as a consequence of their innate stupidity" (82). This pattern begun by Morton and Bean continued for decades in the work of respected scientists. As recently as 1951, the Hall of Man at the American Museum of Natural History still displayed the characters of human races by linear arrays running from apes to whites. Standard anatomical illustrations, until this generation, depicted a chimp, a Negro, and a white, part by part in that order—even though variation among whites and blacks is always large enough to generate a different order with other individuals: chimp, white, black (88).

Gould (1981, 192-233) also shows how a confused hereditary theory, combined with misuse of test scores as true measures of general, innate intelligence, led to continued pseudo-scientific validation of racist and nativist theories. In 1923, C. C. Brigham published *A Study of American Intelligence*, drawing on a report by Robert M. Yerkes on the results of testing thousands of army recruits.⁴³ Brigham used the flawed data and incorrect inference to conclude that Jews and other recent immigrants were of subnormal intelligence and that immigration of certain nationalities or ethnicities should be restricted on eugenic grounds. Cornelia James Cannon argued in the *Atlantic Monthly* in 1922 that the test results also demonstrated the wisdom of "separate but equal" schools in the South. Thus, the indicators of intelligence that were devised by a few scientists destroyed the lives of millions of people, including many who died in the Holocaust—because Jews were denied entry into the U.S. As Gould concludes: "The paths to destruction are often indirect, but ideas can be agents as sure as guns and bombs" (233).

By the 1930s, however, the tide began to turn. Anthropologists provided statistical evidence countering the earlier assessments of differences in intelligence by race. As a result of that work,

microscopic type printed across the tops of two pages" (1982, 186). Under those circumstances, mistakes were inevitable.

⁴³ In 1930, Brigham publicly modified his views, pointing out the biases in the tests from which he had drawn his conclusions, but by then it was too late. The country was in the throes of a nativist spasm, and his recantation was little noted.

the Supreme Court declared in 1954 in *Brown v. Board of Education* that laws imposing "separate but equal" schools were unconstitutional. The court explicitly cited the work of Kenneth Clark (1950) and others, which showed the deleterious effects of segregation on school performance among African-American children. More than a century after the first statistical justifications of racism had appeared, a universalistic approach had been given legal status.⁴⁴

Racist uses of statistical analysis continue to plague us. The serious treatment of *The Bell Curve* (Herrnstein and Murray 1994), which treats group differences in intelligence test scores as evidence of innate differences in ability, demonstrates that the issue will not go away. It might seem, therefore, that positivist statistical analysis has little value if it enables pernicious ideas to maintain credibility. Yet, consider that in the early nineteenth century, many abolitionists were convinced that Africans were innately inferior to Europeans, whereas a minority of people in America believe that today. Analytic, not descriptive, uses of statistics were largely responsible for that paradigmatic change in an entire culture. Because the debate was over the status of groups, not of individuals, the defeat of pseudo-scientific racism depended upon statistical arguments.

6. The negative income tax and the welfare reform debate of the 1970s

The demonstration research projects conducted in the United States in the 1970s are an interesting application of the positivist approach to analyzing social problems. In the 1960s and 1970s, concern about the rising costs of the welfare system led to a number of proposals to reform welfare. One proposal, the negative income tax, was favored by some within the Nixon Administration.⁴⁵ A negative income tax essentially allows those on welfare to work and retain a certain percentage of their welfare benefits based on their earned income.

Rather than focus only on overall trends of inputs (such as welfare costs) and outputs (such as changes in household income or poverty levels) to assess the overall effects of the welfare system, the demonstration research project used indicators to measure the effectiveness of a particular policy proposal. While it is true that a descriptive approach might analyze the overall effects on subgroups in order to make more accurate generalizations, the positivist approach employed in the research project used indicators to test a specific hypothesis about welfare reform.

The research project designed to test the idea of the negative income tax was formulated during the Johnson Administration and carried out during Nixon's. The first demonstration project took place in New Jersey. Subsequent studies took place in Denver and Seattle. Advocates of the negative income tax believed that the policy would increase the incentive to work for those on welfare and

⁴⁴. It might seem that the "Coleman Report" (Coleman et al., 1966) and later follow-up statistical analyses perpetuated the justification of segregation by finding that school integration, by itself, made no significant difference in the educational outcomes of African-American children. These studies also found that changes in school spending had little effect on school performance, contrary to conventional wisdom (Jencks 1972, 194). But those studies did not confirm racial inferiority. Instead, they demonstrated that schools cannot carry the entire burden of equalizing opportunity and that segregated job and housing markets are greater obstacles to equality of opportunity than segregated schools. Over 30 years later, Americans are still resisting the clear implications of the statistical results.

⁴⁵. Meanwhile, in California, Governor Ronald Reagan was developing the "conservative" vision of welfare reform (simply eliminate benefits) that culminated in the recent welfare reform in the United States.

decrease the overall cost of welfare. By allowing people to retain a percentage of their welfare benefits while they worked to earn additional income, they would increase their total income and decrease their welfare receipts. The catch was that it was possible for someone maintain their current income level by working less and obtaining an additional part of their income from welfare payments. The question, therefore, was whether there would be a net increase or decrease of aggregate welfare payments. Although there is some controversy over the interpretation of results, the general consensus is that the negative income tax does not work to reduce the total cost of welfare (Nathan 1988, 49-60). This surprised many advocates of this approach who had expected the results to be positive.

The "supported-work" demonstration project conducted by the Manpower Demonstration Research Corporation (MRDC) is another example of the positivist approach. Supported-work represents a different hypothesis about how to reform welfare. This approach advocates the use of services (such as counseling, job placement services, vocational training, and education) as a way of helping those dependent on welfare increase their opportunities to work. This "service approach" to reforming welfare, as opposed to the "income maintenance" strategy described above, was not just of interest to those who wanted to reform welfare. Social workers who were trying to increase employment among youth or help ex-addicts reenter the workforce thought the same approach might make their efforts more effective (Nathan 1988, 102-3).

The results from the supported work demonstration project showed some interesting results. The supported work approach was most helpful for single-mother AFDC recipients, as it both increased their income and reduced the total cost of welfare. It did not make as much difference for the other groups in the project (Nathan 1988, 106-10). This implied that the most effective supported-work program would target single mother AFDC recipients and that other ideas were needed to address the problems faced by the other groups in the study. Another interesting finding was that the AFDC "participants with serious problems tended to register relatively larger gains than more experienced and better-qualified workers" (119). This finding is counter to the commonplace notion that such programs tend to be more useful to those who are already at a relative advantage.

Based on his involvement as a user and producer of public policy research, Nathan advocates the use of large-scale demonstration research projects that are interdisciplinary in design, use both quantitative and qualitative methods, and address *how* to do something rather than *what* is to be done.⁴⁶ In his view, applied social science research should move away from the description of conditions and trends (with its implied goal setting) and onto testing whether a policy (based on some causal hypothesis) works to ameliorate the problem (Nathan 1988, 16-17).

A positivist approach to understanding social problems relies on testing hypotheses about what causes problems and what we can do to change social conditions. If the purpose of indicators is to help us improve social conditions and quality of life, we will likely have more success if we employ a positivist approach to the work. Although indicators do not play a pivotal role in demonstration

⁴⁶ Demonstration research amounts to a social experiment to test a hypothesis about whether or not a policy will work. Ideally the projects use random assignment to create a control group to allow comparisons with the test group. The many technical, administrative and ethical difficulties in conducting large scale experiments are discussed at length in Nathan's account of his experience with the Manpower Demonstration Research Corporation.

research projects described above, the studies illustrate the potential benefits of trying to test alternative ideas about what will change conditions and trends, instead of trying to more accurately describe them.

IV. CONCLUSION

Although our brief history might suggest that historicism and positivism have run along parallel tracks, they have intersected frequently and contentiously. In the nineteenth century, a key dispute was over the relative weight to assign social and individual factors in illness. Another debate was about whether to adopt a liberal (*laissez-faire*) approach to economic life or a managerial (welfare state) approach. In the twentieth century, there was a conflict between those who favored the use of Keynesian macroeconomic tools and those who hoped to discover the mysteries of the business cycle by examining it in intricate detail.

The influence of Keynesian models and of the positivist paradigm grew until the mid-1960s, when faith in them began to evaporate. Since that time, policy has been driven by multi-sector models that rely on masses of data rather than relatively simple models based on theoretical principles. Thus, even within the field of national economic policy, positivism has been largely eclipsed by historicism. (Microeconomic policies are still positivist in orientation, but even there, the historicist framework has crept in through case studies, anecdotal evidence, and the like.)

Much of what passes for analysis today in the social sciences is still only a matter of complex description. A great deal of systems theory now ignores the original positivist, cybernetic models (with a few control variables) and substitutes detailed descriptions of a multitude of interactions.

The reliance on historicist methods is especially true of social indicators. Since descriptive indicators fit more closely with common sense, they have always dominated social indicators research. There would be no harm in that if planners and practitioners expected nothing more from those indicators than impressionistic results. However, many who favor the historicist approach also hope that it will lead to real social change if they try hard enough. They are unlikely to succeed.

A reasonable response to this condition is a displacement of goals. Since descriptive indicators cannot be used as predictive variables, they can become the framework for consciousness-raising and consensus-building processes. Nevertheless, this is not likely to be fully satisfying. Few people want the results of their work on indicators to be purely symbolic or affective.

Yet, if the indicators movement does not transcend the historicist approach to social phenomena, there is a danger that it will flourish once again for a few years and then die. That happened in the 1870s, 1920s, and 1970s when national indicators gained prominence. It also happened in the 1910s when the precursors of community indicators blossomed under the leadership of the Russell Sage Foundation.

Recognition of the contribution offered by positivism could deepen, transform, and sustain the social indicators movement. The analytic and predictive orientation of the positivist approach would improve all aspects of indicators development.

First, it would point toward more fruitful data collection. Data are relevant to social reform only when they help prove or disprove a hypothesis. Historicists begin with data and hope to find a pattern in it. Positivists begin with a hypothesis about what the pattern ought to look like and gather data to test it.

Second, positivism offers causal models for testing. This approach begins with a relevant question about some social relationship that is perceived as problematic. By contrast, the descriptive or historicist approach begins with facts and tries to discover a framework that will make them meaningful. For positivism, meaning is built in, not an add-on. As a result, if an indicators group followed a positivist model in developing social indicators, there is no danger that it would end up by asking, "What should we do with what we have?" or "How can we convince the public that our indicators are significant?" If a group could offer defensible explanations about what causes changes in their indicators and thereby show what sort of program would be effective, the value of the results would be self-evident. What is less self-evident is the value of simply collecting statistics that show how terrible conditions are.

Third, a positivist approach clarifies the relationship between factual disputes and value formation. Whereas historicists think of values as fixed formations that can be applied to changing circumstances, positivists regard values as arenas of conflict that emerge from the discovery of new factual premises. Positivists are interested less in general issues (e.g., "quality health care" as a value) on which there is consensus than in specific issues which are disputed (e.g., single payer vs. managed care vs. health-care vouchers). Indicators are of use to the positivist primarily when they make clear the nature of particular value conflicts.

While descriptive indicators enable a consensus to emerge about the existence of problems, they offer no guidance about how to solve them. Social indicators promote the mistaken notion that to know a problem and have the will to solve it is enough. If those engaged the social indicators are to be part of the solution and not part of the problem, they will need to examine how they might learn from the positivist tradition about the use of indicators as predictive variables.

WORKS CITED

- Anderson, Margo J. 1988. *The American Census: A Social History*. New Haven: Yale University Press.
- Andrews, Frank M. 1989. "The Evolution of a Movement." *Journal of Public Policy* 9(4):401-405.
- Bauer, Raymond A., ed. 1966. *Social Indicators*. Cambridge, Mass.: MIT Press.
- Bryant, Christopher G.A. 1985. *Positivism in Social Theory and Research*. London: Macmillan.
- Booth, Tim. 1992. "Social Indicators and the Mondale Initiative." *Knowledge: Creation, Diffusion, Utilization* 13(4):371-98.
- Bulmer, Martin. 1983. "The Methodology of Early Social Indicator Research: William Fielding Ogburn and 'Recent Social Trends', 1933." *Social Indicators Research* 13:109-130.
- _____. 1989. "Problems of Theory and Measurement." *Journal of Public Policy* 9(4):407-412.
- Burns, Arthur F., and Wesley C. Mitchell. 1946. *Measuring Business Cycles*. New York: NBER.
- Campbell, Angus, and Philip E. Converse, eds. 1972. *The Human Meaning of Social Change*. New York: Russell Sage Foundation.
- Clark, Kenneth B. 1950. *Effect of Prejudice and Discrimination on Personality Development*. Washington, D.C.: Midcentury White House Conference on Children And Youth.
- Cohen, Patricia Cline. 1982. *A Calculating People: The Spread of Numeracy in Early America*. Chicago: University of Chicago Press.
- Coleman, James S. et al. 1966. *Equality of Educational Opportunity*. Washington, D.C.: U.S. Government Printing Office.
- Coleman, William. 1982. *Death Is a Social Disease: Public Health and Political Economy in Early Industrial France*. Madison: University of Wisconsin Press.
- Cullen, M. J. 1975. *The Statistical Movement in Early Victorian Britain: The Foundations of Empirical Social Research*. New York: Barnes and Noble.
- Davis, Robert C. 1972. "The Beginnings of American Social Research." In *Nineteenth-century American Science: A Reappraisal*, ed. George H. Daniels. Evanston, Ill.: Northwestern University Press.
- Eyler, John M. 1979. *Victorian Social Medicine: The Ideas and Methods of William Farr*. Baltimore: Johns Hopkins University Press.

- Friedman, Joseph, and Daniel Weisberg, eds. 1983. *The Great Housing Experiment*. Beverly Hills: Sage Publications.
- Gaffney, Mason. 1994. *The Corruption of Economics*. London: Shephard-Walwyn.
- Gardner, Howard. 1983. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.
- _____. 1993. *Multiple Intelligences: The Theory in Practice*. New York: Basic Books.
- Gigerenzer, Gerd, Zeno Swijtink, Theodore Porter, Lorraine Daston, John Beatty, Lorenz Kruger. 1989. *The Empire of Chance: How Probability Changed Science and Everyday Life*. Cambridge, England and New York: Cambridge University Press.
- Gilmartin, Kevin J., Robert J. Rossi, Leonard S. Lutomski, and Donald F.B. Reed. 1979. *Social Indicators: An Annotated Bibliography of Current Literature*. New York: Garland Publishing.
- Gould, Stephen Jay. 1981. *The Mismeasure of Man*. New York: W.W. Norton.
- Herrnstein, Richard J., and Charles Murray. 1994. *The Bell Curve: Intelligence and Class Structure in American Life*. New York: Free Press.
- Innes, Judith E. 1989. "Disappointments and Legacies of the Social Indicators." *Journal of Public Policy* 9(4):429-432.
- _____. 1990. *Knowledge and Public Policy: The Search for Meaningful Indicators*. New Brunswick, N.J.: Transaction Publishers.
- Jencks, Christopher. 1972. *Inequality*. New York: Basic Books.
- Johnston, Denis F. 1987. "The Federal Effort in Developing Social Indicators and Social Reporting in the United States during the 1970s." In *Social Science Research and Government: Comparative Essays on Britain and the United States*, edited by Martin Bulmer. Oxford: Cambridge University Press.
- Landau, David, and Paul F. Lazarsfeld. 1968. "Quetelet, Adolphe." In *International Encyclopedia of the Social Sciences* 13: 247-257. New York: Macmillan.
- Lecuyer, Bernard, and Anthony R. Oberschall. 1968. "Sociology: Early History of Social Research" In *International Encyclopedia of the Social Sciences* 15: 36-53. New York: Macmillan.
- Leiby, James. 1960. *Carroll Wright and Labor Reform: The Origin of Labor Statistics*. Cambridge, Mass.: Harvard University Press.
- Mills, C. Wright. 1959. *The Sociological Imagination*. London and New York: Oxford University Press.

- Miringoff, Mark L. 1997. *The Index of Social Health 1996: Monitoring the Social Well-Being of the Nation*. Tarrytown, New York: Fordham Institute for Innovation in Public Policy.
- Murray, Charles. 1984. *Losing Ground: American Social Policy 1950-1980*. New York: Basic Books.
- Nathan, Richard P. 1988. *Social Science in Government: Uses and Misuses*. New York: Basic Books.
- Noll, Heinz-Herbert, and Wolfgang Zapf. 1994. "Social Indicators Research: Societal Monitoring and Social Reporting." In *Trends and Perspectives in Empirical Social Research*, ed. Ingwer Borg, and Peter Ph. Mohler. Berlin: Walter de Gruyter.
- Oser, Jacob, and William C. Blanchfield. 1975. *The Evolution of Economic Thought*. 3rd ed. New York: Harcourt, Brace Jovanovich.
- President's Research Committee on Social Trends. 1933. *Recent Social Trends in the United States*. New York: McGraw Hill.
- Rothenbacher, Franz. 1993. "National and International Approaches in Social Reporting." *Social Indicators Research* 29: 1-62.
- Seligman, Ben. 1990. *Main Currents in Modern Economics: Economic Thought Since 1870*. New Brunswick, N.J.: Transaction Publishers. Originally published in 1962 by The Free Press of Glencoe.
- Sheldon, Eleanor Bernert, and Wilbert E. Moore, eds. 1968. *Indicators Of Social Change*. New York: Russell Sage Foundation.
- Sheldon, Eleanor Bernert, and Howard E. Freeman. 1970. "Notes on Social Indicators." *Policy Sciences* 1:97-111.
- Sheldon, Eleanor Bernert, Robert Parke, and Murray Aborn. 1983. "Recollections and Views of Key Figures in the Social Indicators Program." *Items* 37(4):78-89.
- Smith, James Allen. 1991. *The Idea Brokers: Think Tanks and the Rise of the New Policy Elite*. New York: Free Press.
- Studenski, Paul. 1958. *The Income of Nations; Theory, Measurement, and Analysis: Past and Present*. New York: New York University Press.
- Tenenbaum, Ellen, and Aaron B. Wildavsky. 1981. *The Politics of Mistrust: Estimating American Oil and Gas Resources*. Beverly Hills: Sage Publications.
- U.S. Bureau of the Census. Office of Federal Statistical Policy and Standards. 1977. *Social indicators, 1976: Selected Data on Social Conditions and Trends in the United States*. Washington, D.C.: U.S. Government Printing Office.

U.S. Bureau of the Census. 1980. *Social Indicators III: Selected Data on Social Conditions and Trends in the United States*. Washington, D.C.: U.S. Government Printing Office.

U.S. Department of Health, Education and Welfare (HEW). 1969. *Toward a Social Report*. Washington, D.C.: U.S. Government Printing Office.

U.S. Office of Management and Budget. Statistical Policy Division (OMB). 1973. *Social indicators, 1973: Selected Data on Social Conditions and Trends in the United States*. Washington, D.C.: U.S. Government Printing Office.

Waddell, Steve. 1995. "Lessons From the Healthy Cities Movement for Social Indicator Development." *Social Indicators Research* 34:213-235.

Westergaard, Harald. 1932. *Contributions to the History of Statistics*. London: King.

Yankelovich, Daniel. 1991. *Coming to Public Judgment: Making Democracy Work in a Complex World*. Syracuse, N.Y.: Syracuse University Press.