diversity. In either case, it will not succeed in controlling a sociopolitical situation, since human beings always may act in unknowable ways. Nevertheless, across societies and historical periods there is considerable variation in the degree to which the hope of perfectly knowing the social world is upheld, in the ends toward which this hope is entertained, and in the intellectual, institutional, and political means that are used to realize this ambition.

31

MANAGING THE ECONOMY

Alain Desrosières

Since the eighteenth century, economic science has been punctuated by debates on the relation between state and market. Its history has been marked by a succession of doctrines and political constellations, more or less interrelated. They have usually been understood historically in relation to dominant ideas and institutional practices: mercantilism, planism, liberalism, the welfare state, Keynesianism, and neoliberalism. Whatever their dominant orientations, the various states gradually constructed systems of statistical observation. Yet the development of these statistical systems has generally been presented as a sort of inevitable and univocal progress, having little relation to the evolution of the variegated doctrines and practices of state direction and guidance of the economy. The historiography of economic thought, or more precisely, historical works dealing with the reciprocal interactions between the state and economic knowledge, has placed little emphasis upon the modes of statistical description specific to various historical configurations of state and market.[1] In a word, these two histories, that of political economy and that of statistics, are rarely presented, much less problematized, together.

The reason for this gap in economic historiography is simple. Statistics has historically been perceived as an instrument, a subordinate methodology, a technical tool providing empirical validation for economic research and its political extensions. According to this "Whig" conception of the progress of science and its applications, statistics (understood as the production both of information and of the mathematical tools used to analyze that information) progresses autonomously relative to economic doctrine and practice. It is for this reason that the historical specificity of statistics is neglected in the

[1] Mary O. Furner and Barry Supple, *The State and Economic Knowledge: The American and British Experiences* (Cambridge: Cambridge University Press, 1990); Michael J. Lacey and Mary O. Furner, *The State and Social Investigation in Britain and the United States* (Cambridge: Cambridge University Press, 1993).

historiography of economic science, and left unproblematized. "Statistics" is here taken to mean the production, recording, and analysis of quantitative data, in the form of series, indexes, econometric models, and many other tools today available in computerized packages.

The history of conceptualizations of the state's role in economic affairs provides a guiding thread for analyzing the relations between statistical tools and their social and cognitive contexts. In what follows, I will present, in a very simplified fashion, five typical historical configurations. *Direct intervention* encompasses a wide variety of perspectives, from mercantilism and Colbertism to socialist planned economies. The French *Etat ingénieur* (engineering state; also, a state administration by engineers) is one of its modalities. At the other extreme, *classical liberalism* minimizes such intervention and extols the free operation of market forces. The *welfare state* (*l'État providence*) seeks to protect salaried employees from the consequences of the extension of this market logic to their own work. *Keynesianism* assigns responsibility to the state for the macroeconomic guidance of society, without challenging its reliance on the market. Finally, *neoliberalism* conceives of the state as seeking to influence microeconomic dynamics, which it endeavors to affect through systems of incentives based on the theory of rational choice. The five configurations just outlined are not meant to describe successive stages in a historical progression, nor are they historically or logically exclusive. In concrete historical situations, they are often mixed together. They have been idealized in this way only to provide a grid on which to arrange the history of the statistical tools employed by each.[2]

L'ETAT INGÉNIEUR: PRODUCTION AND PEOPLE

This configuration has a long history. According to its logic, the state assumes many responsibilities associated with the domain of private enterprise. In seventeenth-century France, for example, Colbert set up royal installations for shipbuilding and tapestry weaving. Peter the Great likewise established industries in Russia. In France, beginning soon after the Revolution, the *Ecole polytechnique* trained engineers in such fields of interest to the state as mining, bridges and highways, and armaments. Polytechnicians became accustomed to overseeing large segments of the French economy from a technical rather than a market point of view. In the tradition of the engineering state, their function as planners had a legitimacy never attained by public engineers

[2] Margo Anderson, *The American Census: A Social History* (New Haven, Conn.: Yale University Press, 1988); Joseph Duncan and William Shelton, *Revolution in United States Government Statistics, 1926–1976* (Washington, D.C.: U.S. Department of Commerce, 1978); for Great Britain, see Roger Davidson, *Whitehall and the Labour Problem in Late Victorian and Edwardian Britain: A Study in Official Statistics and Social Control* (London: Croom Helm, 1985); for a comparative perspective, see Alain Desrosières, *The Politics of Large Numbers: A History of Statistical Reasoning* (Cambridge, Mass.: Harvard University Press, 1998).

in the United States.[3] The role of state engineers was theorized by Claude Henri de Saint-Simon (1760–1825), whose name is associated with a school of industrial thought based on science and technology. This was an important influence on Marxist economics and on centralized planning in the eastern bloc – though Lenin also admired Frederick W. Taylor's campaign to organize labor in capitalistic industries on the basis of quantified time-and-motion studies.

Certain historical circumstances were particularly favorable to direct state organization of the economy. The two world wars entailed, for all of the belligerent nations, a greater centralization and systematic standardization of resources, especially in the armament industries. The Manhattan Project was typical of such state intervention, especially in a nation noted for its reluctance to intervene directly in the economy. Likewise, the resources allocated to the U.S. space program in the 1960s are comprehensible only in light of the Cold War. Even those countries most disposed to practice market economics have experienced, in certain historical circumstances, direct economic intervention on the part of the state.

The Great Depression of the 1930s was commonly viewed at the time as a crisis in the classical market economy. It occasioned serious reflection leading to new doctrines concerning the role of the state. These may be divided into two groups: central planning and Keynesianism. Economic planning was, of course, pushed to an extreme in the Soviet Union; yet in western Europe in the 1930s it was discussed by economists and political philosophers across the political spectrum, from the corporatist right to the socialist left, and equally by Christian reformers, both Catholic and Protestant. These currents of thought, in other respects very different, were at one in opposing economic liberalism, whether for nationalist, humanist, or Marxist reasons. Keynesianism was a less radical alternative, since it did not aim to replace the market economy. Since 1945, planning and Keynesianism have in practice been mixed, in varying proportions, in countries such as France, the Netherlands, and Norway. The analytic distinction, however, is useful for understanding the development of statistics and economic models utilized during the period from 1940 to 1980.

To this end, it helps to consider a saying that gained currency among the economists who laid the foundations of national accounting during the 1940s.[4] "One may think of the economy of a country as like that of a single large firm." Leaving aside its pedagogical uses, this saying points to a technical conception of economics and of national accounting, whose principal tool was input-output analysis, following Leontief's table of industrial exchanges.

[3] Theodore Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, N.J.: Princeton University Press, 1995).

[4] John W. Kendrick, "The Historical Development of National Income Accounts," *History of Political Economy*, 2 (1970), 284–315.

Its format was like that of the charts that track the flow of materials between the workshops of a single enterprise. The economists behind national accounting defended their methods as free of ideological association, equally applicable to capitalist and socialist economies. What mattered to them was the production and circulation of goods and services, whose monetary representation, deriving from a system of prices, was nothing but a means for calculating macroeconomic aggregates. The essential quantities for the engineering state were production and consumption of each commodity. Here the state was directly responsible for the satisfaction of human needs, just as the technical manager of an enterprise must keep on hand adequate supplies of components in order to maintain continuous production.

This example reveals the historical specificity of the statistics required by the *Etat ingenieur*, which are comparable to the information needed by the general of an army. One measures quantities produced and consumed, supplies and equipment, and, not least, manpower. Demographic variables, such as rates of birth and immigration, are among the concerns of such a state, of which France, with its long-standing population anxieties, forms an exemplary case. On the other hand, information more directly related to the market aspect of the economy has not been central to this statistical program. This was the aspect criticized most vocally by liberal economists of the 1930s and 1940s who followed Friedrich Hayek's opposition to the planned economy. How was it possible to arrange for the optimal allocation of resources without the information revealed by market prices? Certain socialist economists, such as Oskar Lange, attempted to envision a system of planning capable of "mimicking" the market, thereby combining the presumed advantages of both systems.[5] The organization of statistical knowledge in such a hybrid system would have been tremendously complex. In the case of actual socialist countries before 1989, prices were, in effect, mostly arbitrary. Their statistical systems consisted essentially of accounts measured in units of production, which were transmitted to a central office charged with executing the economic plan. In the French case, on the other hand, planning never existed in a pure form, and beginning in the 1950s had a self-consciously Keynesian program tacked onto it.[6]

In one sense, the form of statistics allied to planning constitutes its historical core. Attached originally to a mercantilist system, this "science of the state" began by producing information of immediate use to the prince for the purpose of raising armies and levying taxes. Questions of population and of agricultural and industrial wealth formed the initial subject matter for the eighteenth-century founders of political arithmetic. During this same period, however, a different conception of state–market relations was developed in

[5] Bruce Caldwell, "Hayek and Socialism," *Journal of Economic Literature*, 35 (December 1997), 1856–90.

[6] François Fourquet, *Les comptes de la puissance: Histoire de la comptabilité nationale et du Plan* (Paris: Encres, 1980).

France by Turgot and the physiocrats, and in Great Britain by Adam Smith. In time, a different form of statistics would arise, adapted to the new system of economic liberalism.

THE LIBERAL STATE: EXCHANGE AND PRICES

In its most abstract formulation, the pure theory of the market renders statistics superfluous. Prices, made known through merchant exchange and competition between producers, convey all of the information required by this form of economic organization. Given its doctrinaire rejection of central, directing institutions, liberalism had no use for many kinds of statistical information. Statistical institutions, even a permanent census administration, were long resisted in the United States by opponents of the economic role of the state. Theorists of the market economy, such as Jean-Baptiste Say, Augustin Cournot, and Léon Walras, were reluctant to support their hypothetico-deductive reasoning with economic statistics.[7] While statistical knowledge is central for the engineering state, its very existence is paradoxical for the pure liberal state, if such a thing can even be imagined.

Still, many institutions and their statistical operations have been directly justified by the needs of a merchant economy. The first such statistics pertained to international commerce – customs duties, rates of exchange, and management of the currency. The Bureau of Statistics of the English Board of Trade was created in 1833, at just the moment when a series of political and economic reforms liberated the capitalist market from various impediments handed down from the past (such as the 1795 Speenhamland Act on poor relief). The Corn Laws were vigorously debated during this period: Should grain imports be freed from all duties? Industrialists were generally favorable, because free trade in grain would reduce food prices, thereby permitting a reduction of wages. But landholders and their industrial allies were hostile to repeal of the Corn Laws. Their debates prompted ad hoc statistical inquiries into prices and wages. Thus, in contrast to purely theoretical liberalism, "real" liberalism implied for the state a role as organ of economic intelligence, gathering and disseminating information needed by economic agents in order to act in the market.

Another paradoxical example of the need for state intervention so that the full advantages of competitive markets might be realized is to be found in U.S. debates at the end of the century over the problem of industrial concentration. Here again, precise statistical information on the functioning of markets was necessary in order to compose and then apply antitrust legislation. The legislative philosophy deployed against the cartels was radically

[7] Claude Ménard, "Three Forms of Resistance to Statistics: Say, Cournot, Walras," *History of Political Economy*, 12 (1980), 524–41.

different from that of the *Etat ingénieur.* The latter aimed to lower the costs of production through economies of scale resulting from the standardization and concentration of production. The liberal state, on the contrary, anticipated a similar drop in costs of production resulting from competition between enterprises, none of which could dominate the market. To these opposing philosophies corresponded very different statistical systems. The engineering state operated on the basis of technical coefficients and functions of production and, more generally, the internal analysis of firms. The liberal state was centered upon market exchanges themselves, and on the effects of variations in price on the behavior of buyers and sellers. This last example makes plain the *co-construction* of a political economy and a cognitive system of statistical information. Statistical systems must not be seen as purely technical or exogenous in relation to specific questions arising within a precise historical context.

Eventually, the social and economic regulation of markets was judged to be impossible without the regular and intense production, and wide diffusion, of statistical data. Such was the case with agricultural statistics in the United States beginning in the late nineteenth century. This project involved collecting, centralizing, and then diffusing as rapidly as possible the latest information on harvests. The knowledge provided by agricultural statistics, when shared among buyers and sellers, allowed for more homogenous and less erratic agricultural prices to be established across the territory of the nation, so that, as much as possible, the revenues of producers would be guaranteed. Elaborate systems, such as sample inquiries to forecast harvests, were set up during the 1920s and have been developed ever since. As before, the essential objective of statistical information was to make the market transparent. This development, however, may also be read in another way, as aiming to provide economic protection for farmers, especially the weakest ones, against the consequences of blind and savage competition. It displays the rise, toward the end of the nineteenth century, of another modality of state intervention in economic affairs. The *welfare state* (*l'Etat providence*) sought to guarantee, in Karl Polanyi's words, the "self-defense of society"[8] against the ravages brought about by a free market in labor, land, and money.

THE WELFARE STATE: PROTECTING WORKERS

During the 1880s and 1890s, after a century of debates on the proper remedies for poverty, nearly all of the industrial nations of Europe created new offices of labor or "bureaus of labor statistics." Rapid industrial growth led to the concentration in cities of workers of rural origin. In the American case, many were immigrants from Europe. The extreme poverty of urban industrial

[8] Karl Polanyi, *The Great Transformation* (New York: Farrar, 1944).

environments had traditionally been the responsibility of local charity and assistance organizations. By the end of the century, the greatly increased magnitude of urban impoverishment inspired a radical rethinking of the problem and of possible solutions. Spurred by the economic crisis of the years 1873–95, this reconfiguration developed in two very different directions, both of which would have important and irreversible consequences for statistical methods. The first of these currents, drawing inspiration from Darwinian evolution, was the eugenics of Francis Galton and Karl Pearson. They sought the cause and remedy for poverty in a biological theory of individual ability, conceived of as innate and hereditary. The quality of a population could be improved, they thought, through a process of selection, comparable to the breeding of animals. Apart from the thinking of a few marginal groups, these ideas have practically disappeared from public discourse. Yet the first formulation of mathematical statistics, with its correlations, regressions, and tests, took place within the frame of this eugenicist "biometrics."[9] Beginning in the 1910s, these statistical formalisms were taken up by economists, such as Henry Moore in the United States and Marcel Lenoir in France, and used in what would become, by 1930, econometrics.[10]

The second current of thinking on the subject of poverty, by contrast, located its causes and remedies not in biology but in society and law. There was a market for labor, whose price was the wage level. Without specific protections and regulations, the life of labor would continue to exhibit the instability and poverty characteristic of nineteenth-century capitalism. The state alone was deemed capable of protecting workers, through laws guaranteeing pensions and insurance for unemployment, sickness, and accidents. The bureaus of labor created between 1880 and 1900 explored and implemented this new form of the state, what eventually would be called the welfare state or *l'Etat providence.* By 1920, this movement had taken on international dimensions with the creation of the International Labor Office, which gathered and coordinated statistical and juridical information provided by various industrialized states.

During the period between 1880 and 1930, labor statistics drove the regeneration of official statistics, in terms of both values studied and methods of investigation. Wages, employment figures, unemployment rates, levels of prosperity according to trade, worker budgets, and cost of living indices were henceforth matters of public interest and subject to state intervention, especially through legislation. They were placed on the agendas of statistical bureaus, which set about inventing new forms of inquiry based on representative samples so that they could be measured. Previously, exhaustive surveys and administrative records of governments were the only sources of statistical

[9] Donald Mackenzie, *Statistics in Britain, 1865–1930: The Social Construction of Scientific Knowledge* (Edinburgh: Edinburgh University Press, 1981).

[10] Mary Morgan, *The History of Econometric Ideas* (Cambridge: Cambridge University Press, 1990).

information. Probabilistic sampling, implying the notion of approximation, had been seen as incompatible with the rigor and certainty of official statistics, and so lacked public legitimacy.

The very idea of the welfare state, however, is based on the notion of *insurance*. Protection against risk was assured by statistical calculations of probabilities (measured in terms of frequency) of the various events described by the new labor statistics. The welfare state was thus bound up with probability. It put to work the central intuition of Adolphe Quetelet (1796–1874): that the statistical mean of aggregate values displays stability and predictability absent at the level of individuals. This is the theoretical foundation of insurance. Its method was applied at the level of the national population, which, by this logic, could be thought of as a probabilistic urn from which samples are drawn. These measures could be extrapolated to the entire population, taking into account the uncertainty, or "confidence interval." Thus, political philosophy and the cognitive schemes of the welfare state were tightly imbricated. This new type of state and the new way of doing statistics were constructed at the same time.

THE KEYNESIAN STATE: DECOMPOSING GLOBAL DEMAND

As a consequence of the economic crisis of the 1880s, the protection of wage labor and the statistical investigations by which it was known were inserted onto the agenda of state power. Thus arose the first forms of the welfare state, most notably in Germany under Bismarck. The crisis of the 1930s had similar consequences for the macroeconomic equilibrium between "global supply" and "global demand," the sum of goods and services. Crucially, the notion of centralized regulation of economic equilibrium by the state not only was formulated in theory (by Keynes in 1936) but also was rapidly made operative through national accounting tables and statistical series describing the relations among various components of supply and demand. Here again, state and statistics were co-constructed. As the state gained this new responsibility to preserve macroeconomic equilibrium without sacrificing the market economy, there arose a new mode of description and analysis – national accounting and macroeconometric modeling, such as the system developed beginning in the 1930s in the Netherlands by Jan Tinbergen (1903–1994).[11]

What was most crucially new in the Keynesian perspective was the presentation of the economy as a whole, developing through several macroeconomic flows that could be measured and joined together within theoretically coherent and exhaustive tables of accounts. Directly associated with a form

[11] Don Patinkin, "Keynes and Econometrics: On the Interaction between the Macroeconomic Revolutions of the Interwar Period," *Econometrica*, 44 (1976), 1091–123.

of political economy, this model stimulated a complete reorganization of statistical variables and their modes of production beginning in the 1950s. The coherence of the Keynesian model and its double constraint – that tables of accounts be in equilibrium whether arranged according to agents or to operations – drew attention to gaps and contradictions in existing statistical sources. More profoundly, changing the uses of statistical sources also changed their character. For example, there had been inquiries into family budgets since the nineteenth century. They had aimed above all to describe the needs and expenses of working families in relation to wages. This was typical of the statistics of the welfare state, which was concerned above all with wage labor. During the 1950s, these became statistics of consumption for the entire population. Now they described markets for all goods and services and no longer merely the labor market, as had the smaller-scale surveys carried out before 1940. It should be clear from this example that a statistical inquiry is inseparable from its context of use. This point is often forgotten, obscured by the institutional and cognitive division of labor between the producers and consumers of information.

The distinction here between the welfare state and the Keynesian state is, of course, a simplification. It corresponds to two distinct stages in relation to the history of the state, its role in shaping the economy, and the statistics associated with these interventions. The first stage, the protection of wage labor, took shape between 1880 and 1900. The second, macroeconomic piloting, emerged between 1930 and 1950. But since the 1950s, these two forms of action and of knowledge have been closely linked, at least in Western Europe (France, Germany, and Great Britain). Social benefits such as pensions, medical and unemployment insurance, and family allocations provide a major component of worker income, and thus also of the global demand posited by the Keynesian model. For this reason, the crisis of the 1970s and 1980s had different social consequences from that of the 1930s, and unemployment assumed different forms. This is also why the two crises were interpreted in nearly opposite ways. The Depression of the 1930s, interpreted as a crisis of market economics and of laissez-faire, led to an expansion of the role of the state and of social protection. By contrast, the downturn of the 1980s was interpreted as a failure of the very solutions invented fifty years earlier in the form of Keynesianism and the welfare state. These latter were challenged by the ascent of neoliberal ideologies, symbolized by Ronald Reagan and Margaret Thatcher, each of whom cut funding for official statistics in the name of reducing state direction of the economy.

THE FRENCH AND DUTCH PLANS COMPARED

The distinction between the engineering state and the Keynesian state is far from absolute. In France from 1950 to 1970, these forms of action and

economic analysis were interwoven. Jean Monnet, later a founder of the European Common Market, established a Commissariat Général du Plan, or general planning board, in 1945. The French plan brought together three elements: forecasts to support large public and private investments in infrastructure and the ad hoc financing that such investments required after the devastation of the Second World War; procedures for consultation and dialogue between economic and social actors, in the form of specialized commissions rather than of parliamentary debates; and, finally, a system of economic analysis and information based on national accounting. This construction combined the *Etat ingénieur* (many former students of the Ecole Polytechnique were involved in it), the Keynesian state, with its national accounting and macroeconomic analyses, and, finally, an increasingly socialized state. This last provided a forum for social groups with a particular interest in reducing social inequalities and thus also promoted such inquiries and the use of social indicators to describe them.

It seems surprising that until 1970, this French social and cognitive network did not include the use of macroeconometric models such as those of Jan Tinbergen and those of Lawrence Klein and Arthur Goldberger.[12] In the Netherlands, such models had been in use since the 1930s. Still, France and the Netherlands had much in common. Each created in 1945 a bureau of economic planning as a response to the occupation and severe destruction of the war, an idea rejected by the other Western powers. The Germans, British, and Americans regarded this idea as contrary to market principles and contaminated by totalitarian associations, both Nazi and Soviet. Two charismatic individuals gave shape to these bureaus, Monnet in France and Jan Tinbergen in the Netherlands. Tinbergen devised the first econometric model in 1936, and his personality helps to explain the Dutch emphasis on these models, as well as their prominence in social and political debates. In electoral campaigns, Dutch parties allowed their economic programs to be fed into the Tinbergen model and to be judged by its results in terms of growth, inflation, unemployment, and foreign trade.

In France before 1970, planning discussions took place outside the party system and were not tested by any econometric model. Instead, decisions unrolled in negotiations within planning commissions, carried out in the language of engineers and statisticians, who tended to view the economy as one vast enterprise rather than as a competitive market. As members of elite state corps, these engineers were in the position of official experts, and they spoke quite naturally the language of technical rationality symbolized by Leontieff's input–output tables. The Dutch planners, by contrast, were often academics with professional positions outside the state apparatus. Also, their labors were applied to an economy that for centuries had been oriented toward

[12] Ronald Bodkin, Lawrence Klein, and Kanta Marwah, eds., *A History of Macroeconometric Model-Building* (Aldershot: Edward Elgar, 1991).

international commerce. Market dynamics were, for them, a given. The equations of the Dutch model sought to simulate this dynamic, whereas French procedures blended the vision of the engineer with the Keynesians' "comparative statics" – a contrast between a well-documented past and a desired future that provided a basis for discussions within the planning commissions.

The Dutch applied themselves to the dynamic fluctuations of an autonomous market economy, much as one would attempt to mount a galloping horse. Objectives were defined with close attention to the flow of the economy. The procedures of economic planning implied a close articulation between the modeling of objectives and of means, with an emphasis on actual outcomes. The equations in Dutch economic models were designed to mimic the actual path of the economy. The French adopted a more technical and quantitative picture of the economy, leaving the actual dynamic of prices in the shadows. The economic trajectory was reduced to a planned outcome in the target year. French planning arrangements privileged a social procedure, a complex succession of deliberations by experts, national accountants, commissions, and working groups. The French plan mimicked the movement of the economy through negotiations among social groups within the framework of commissions.

THE NEW LIBERAL STATE: POLYCENTRISM AND INCENTIVES

The state forms described here have in common that they are endowed with a center. This applies even to the liberal state, in which the statistics required for antitrust laws or for transparency in agricultural markets must necessarily be centralized. The neoliberal state, by contrast, is conceived as a collection of administrative nodes or distinct territories whose interrelations are negotiated, contractual, and ordered by law. Federated states, or unions of sovereign states like the European Union, provide disparate examples of such modalities. All are based upon notions of subsidiarity, of procedures, negotiation, and networks.[13] The maximum possible liberty is left to the more local levels of society, retaining for higher levels only those powers that lower levels cannot reliably exercise. Established procedures specify structures of negotiation and decision, but do not produce substantive rules. The sites of action and decision, where information is gathered and put to use, are numerous and interconnected. Issues involving collective responsibility have proliferated: the environment, bioethics, child abuse, drug addiction, the prevention of AIDS and other new diseases, the protection of cultural minorities, equality of the sexes, the safety of domestic and industrial environments, and standards of

[13] Robert Nelson, "The Economics Profession and the Ma
Literature, 25 (March 1987), 49–91.

quality in consumer goods. Each case involves the simultaneous negotiation of appropriate statistics, of division of responsibility, and of methods of assessment. Information is produced and utilized at every link of this circular chain of description, action, and evaluation.

Public action in the neoliberal state involves incentives more than it does regulation. Fiscal incentives, for example, are thought of in terms of microeconomic theory, using a language of individual rational agents, preferences, utility, optimization, and externalities. A typical example of legislation based on microeconomics is the creation of markets in polluting rights, which are viewed as more efficient than limits set by regulation. These procedures can be evaluated by studying the data or by performing quasi-experiments, which aim to measure and model the behavior of actors, including that of public authorities. This last point defines a crucial difference between the neoliberal state and its predecessors. It is closely related to the modern idea of rational expectations. According to this theory, interventionist policies, such as Keynesianism, will be confounded because actors will modify their behavior in anticipation of public decisions.[14] From this perspective, no actor is outside of the game, certainly not the state. Rather, the situation dissolves into several "centers of direction," themselves agents among others, all acting within the parameters of similar economic and sociological models.

The idea of this chapter, that the tools of statistics have evolved in parallel with new forms of the state, may seem to be consonant with the neoliberal sensibility. The realist understanding of statistics, long dominant, treated it as a simple measuring instrument, unaffected by the reality it studied, just as the state, according to the understanding criticized by rational expectations, was external to society. To the extent that production of statistical knowledge is an essential component of economic direction, it is not surprising that regulatory decentralization and endogenization have been accompanied by a similar restructuring of the "centers of calculation" that produce statistics. These are never mere "data," but rather the result of an expensive social process whose economic and cognitive components are parts of the global society that they are supposed to describe.

[14] D. K. H. Begg, *The Rational Expectations Revolution in Macroeconomics: Theories and Evidence* (Oxford: Oxford University Press, 1982); Albert O. Hirschman, *The Rhetoric of Reaction: Perversity, Futility, Jeopardy* (Cambridge, Mass.: Harvard University Press, 1991).

32

MANAGEMENT AND ACCOUNTING

Peter Miller

Accounting is one of the most influential forms of quantification of the late twentieth century. It creates the apparently objective financial flows to which certain Western societies accord such significance, and it makes possible distinctive ways of administering and coordinating processes and people. For a vast range of occupations, from shop floor workers and divisional managers to doctors and teachers, the calculative practices of accounting seek to affect behavior and to constrain actions in a manner and to an extent unimagined a century ago. Yet accounting is also one of the most neglected and least visible of all the quantifying disciplines. While the concepts and practices of the economist, the statistician, and the actuary have received detailed academic scrutiny, those of the accountant have been left in the shadows or relegated to a subsidiary role within a larger story. Only recently has this begun to change.[1]

When accounting does become the object of public scrutiny, this typically concerns the external face of accounting, the reporting of the financial condition of business enterprises to shareholders and other outside parties, and the auditing of such reports. But accounting also has a "hidden" dimension: the financial monitoring, reporting, and evaluating that takes place inside an organization, and is typically treated as confidential even within the firm. This aspect, called management or cost accounting, is made up of practices such as budgeting, costing, and investment evaluation. It is the focus of the present chapter.

By now, management accounting has become almost synonymous with management. Its rise up the corporate hierarchy is intimately linked with what Alfred Chandler has termed "managerial capitalism," the organizing of processes of production and distribution on the basis of large multiunit

[1] See Anthony G. Hopwood and Peter Miller, eds., *Accounting as Social and Institutional Practice* (Cambridge: Cambridge University Press, 1994); see also the journal *Accounting, Organizations, and Society* (founded in 1976). An "outsider's" view on accounting is Theodore M. Porter, *Trust in Numbers:*

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