AN INSTITUTIONAL ECONOMIC RECONSTRUCTION OF SCIENTIFIC MANAGEMENT: ON THE LOST THEORETICAL LOGIC OF TAYLORISM

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I argue that Taylor was a pioneer in theorizing principles of institutional economics, and I challenge conventional preconceptions that scientific management is theoretically unsophisticated and aimed at disadvantaging certain organization members. I identify in Taylor’s writings the institutional economic ideas of dilemmatic interaction conflict regarding capital contributions and capital distributions, conflict resolution through incentives management, mutual gains as the outcome of conflict resolution, and the model of economic man, and I suggest that Taylor’s behavioral concept of hearty cooperation deviated from the economic principles he had espoused regarding worker opportunism.

Academic interest and managerial interest in scientific management have not waned since Taylor proposed it in the late nineteenth century. This may reflect a kind of reverence for Taylor as one of the founding fathers of management studies (Roper, 1999: 52–55). However, it might indicate a high and continuing relevance of Taylor’s ideas for contemporary management theory and practice, as Locke (1982) has argued and others have implied (Guillen, 1997; Nyland, 1996, 1998). Here I develop this latter argument through institutional economic reconstruction, arguing that Taylor was an early pioneer of institutional economics. The article is connected in certain respects to Nyland’s (1996, 1998) historic economic research, putting his analysis of mutual gains into institutional economic perspective.

The paper challenges conventional wisdom about the purpose and nature of scientific management. I question widespread views that scientific management lacked theoretical, social science foundations (e.g., Nadworny, 1955; critically reviewed by Roper, 1999); that the key analytic units of scientific management were individuals and actions (Burrell & Morgan, 1979; Guillen, 1994, 1997; Jones, 2000; Knowles & Saxberg, 1967; Morgan, 1986; Waring, 1991); that it was a physiological organization theory (Casey, 2002; Derickson, 1994; March & Simon, 1958; Simon, 1976); that it was a mere collection of engineering and coordination techniques, such as functional foremanship (as traced by Roper, 1999); or that it aimed at exploitation and deskilling (Braverman, 1974; Morgan, 1986; Pruitt, 1997; Waring, 1991).

The institutional economic reconstruction of scientific management hints at answers to puzzles that still engulf scientific management (Nelson, 1992a: 15; Wrege & Greenwood, 1991: 255). The article explains why, on institutional economic grounds, scientific management ran into implementation problems in 1911, which led to strikes and to Taylor’s being summoned by the U.S. Congress. I argue that subsequent revisions of scientific management remedied early implementation problems by bringing it further in line with institutional economic theory.

TAYLOR’S SEARCH FOR INSTITUTIONAL ECONOMICS

Nonbehavioral institutional economics approaches organizational behavior as conflict-laden interaction processes regarding capital contributions of organization members (skills, work time, financial assets, etc.) and capital distributions to organization members (salary, free time, fringe benefits, goods, etc.). Institutional
structures are conceptualized as incentive structures. Incentive structures are to be intervened in so as to resolve interaction conflict. The goal of conflict resolution is to generate mutual advantages. In a methodological perspective, the organization member is modeled as economic man, and organizational interactions are modeled as a dilemma structure, as abstractly illustrated by the prisoner’s dilemma. This understanding of institutional economics emerged from the works of Buchanan (1975, 1987a), Williamson (1975, 1985), Becker (1976, 1992, 1993), Coase (1984), North (1993a,b), Homann (1994, 1997), and Vanberg (1994). (For a fuller exposition, see Wagner-Tsukamoto [2001b, 2003, 2007]). I apply this new view to scientific management and uncover, in this way, institutional economic principles of scientific management. This approach to organization and organizational behavior and how it differs from behavioral organization theory are further outlined in the following.

A simple “map” for the institutional economic reconstruction of scientific management includes the ideas of two research heuristics, which are of a preempirical and quasi-tautological nature in economic analysis—namely, “dilemma structure” and “economic man.” Ideas regarding incentive structures and interactions over capital contributions and distributions reflect theoretical(-practical) elements, which are to be subjected to empirical analysis and intervention. The idea of mutual gains reflects the practical-normative goal of economic intervention. The idea of mutual gains reflects the practical-normative goal of economic intervention. Subsequently, these ideas are discussed in turn when scientific management is reconstructed in institutional economic terms. For reasons of flow of argument, the discussion only returns to the idea of economic man in the final section of the first part of the paper. This directly links the first part of the paper to the second, where I discuss limits to the institutional economic reconstruction of scientific management.

Dilemmatic Conflict Among Organization Members

Taylor pointed out that potential dilemmas threatened cooperation. On the one hand, organization members had a common interest to cooperate: “By joining together and pushing into the same direction instead of pulling apart, they can so enormously increase this surplus [profit] that there will be ample for both sides to divide” (1912: 151; also 1911: 10, 138–39, and 1912: 40). On the other hand, this common interest in cooperation was undermined by conflicting interests, organization members trying to increase their own gain at the expense of others. Taylor here spelled out two specific dilemmas—the “worker condition” and the “managerial condition” (1903: 22–23; see also 1895: 33; 1903: 37; 1911: 13, 19–20, 32, 72–73, 95; 1912: 118–119). The worker condition referred to a cooperation dilemma among workers, one worker attempting to disadvantage other workers, for example, by working less than others but receiving the same rewards. Taylor reasoned that such worker opportunism—he spoke of “soldiering” behavior—ultimately made other workers lower their performance, too: “Why should I work hard when that lazy fellow gets the same pay that I do and does only half as much work?” (1903: 31). The managerial condition referred to opportunistic rule-setting behavior of managers that aimed to disadvantage workers, either by making them do more work while not raising rewards or by reducing rewards while keeping work loads unchanged. Taylor specifically discussed, in this respect, the permanence of reward increases. He reasoned if reward increases for workers who had raised their work performance were taken back, workers could be expected to lower their performance in turn (1903: 21, 23; similarly, 1911: 53, and 1912: 152). Hence, productivity would decrease.

Taylor argued that worker opportunism and managerial opportunism instigated dilemmatic interest conflicts—specifically, “antagonism” in organizational behavior (1911: 53; also 1903: 63, 131, 137, and 1912: 38, 128), which would lead to “loss for both parties” (1903: 23; also 1911: 53). In abstract terms, the idea of a dilemma structure, as illustrated by the prisoner’s dilemma or the dilemma of the commons (Hardin, 1968; Luce & Raiffa, 1957), here shines through in Taylor’s reasoning. These dilemma scenarios model the simultaneous occurrence of common interests and of conflicting interests and imply “loss/loss” outcomes for rational, self-interested decision makers (Homann, 1994, 1997, 1999; see also Hayek, 1960: 270; 1976: 70, and Popper, 1957: 62, 158). Institutional economics speaks of the “contracting dilemma” (Williamson, 1985: 61–63, 76; also 1975: 135–136), the “punishment dilemma” (Buchanan, 1975: 136–142; also 1987b: 42–44, 157,
and 1995: 142–147), or the “confiscation dilemma” (North, 1993a: 14). In the terminology of behavioral economics, one could speak of “rational foolishness” (Sen, 1990: 35–37). However, this overlooks that (institutional) economics applies the idea of the dilemma structure “merely” in a heuristic perspective but not in a theoretical, empirical, or practical-normative perspective. As a methodological tool, the concept “dilemma structure” organizes economic theory building and practical intervention that aims to overcome dilemmas and ensure mutual gains as an interaction outcome (Homann, 1994, 1997; Wagner-Tsukamoto, 2003).

The Systemic Analysis of Dilemmatic Conflict in Contribution-Distribution Interactions

Taylor analyzed worker opportunism and the dilemmatic consequences it had for organization members, first, as a problem of inadequate incentive structures; second, as a problem of inadequate training systems; and, third, as a social condition and interaction problem.

Incentives management. Taylor approached organizational conflict that was instigated by worker opportunism not in behavioral terms but in situational, systemic terms. This distinguishes him from behavioral organization researchers who approach organizational conflict and performance problems as a problem of human nature and the human condition—for example, as “psychic pathology” (Herzberg, 1966: 170; also Herzberg, Mausner, & Snyderman, 1959: 130–133; similarly, Ackroyd & Thompson, 1999; Etzioni, 1988; McGregor, 1960; Sen, 1990; Simon, 1993; Tomer; 1999). Here, Taylor’s concept of “systematic soldiering” geared scientific management toward situational, systemic analysis—“systematic” analysis in Taylor’s words (1903, 1911). He argued opportunistic worker behavior and its undesirable outcomes should be examined for the “logic of the situation” (1903: 31).

Taylor was particularly critical of a reward and distribution system that did not take into account levels of individual contributions of organization members and rewarded individual overperformance or underperformance in the same way: “Under this plan [uniform standard rate of pay by the day] the better men gradually but surely slow down their gait” (1903: 31; see also 1895: 33, 36; 1903: 30–34, 37, 45, 48; 1911: 13, 19–23, 32, 72–73; 1912: 113–21). To resolve this problem, Taylor recommended changing “the system of management, so that the interests of the workmen and the management should become the same, instead of antagonistic” (1911: 53; also 1903: 185, and 1911: 142–143).

Game theory, when analyzing ways to resolve the prisoner’s dilemma, proceeds similarly, the argument being that the “irrational” [interaction outcome of the prisoner’s dilemma] is inherent in the situation“ (Luce & Raiffa, 1957: 97; see also von Neumann & Morgenstern, 1944: 13). This mirrors the intervention strategy of institutional economics, where conflict resolution focuses on “incentive-compatible” organization structures, which are to “equilibrate” individual (self-) interests of organization members (Williamson, 1985: 29, 33–34, 76; see also Luce & Raiffa, 1957: 97).

Taylor’s key intervention maxim was this: “In the past the man has been first; in the future the system must be first” (1911: 7; also 1903: 62). His discussion of incentive systems, and the distributions they allocated to the organization member “worker,” covered various types of rewards and fines. He discussed pay-related, financial incentives but also nonfinancial ones, such as shorter working hours, educational facilities, sports facilities, housing facilities, and so forth (1903: 21–25, 141–142, 190, 199; 1911: 33–34, 53, 83, 95). This is contrary to the suggestion that Taylor intended to “use financial (and only financial) incentives” (Arnold, Cooper & Robertson, 1998: 457). Regarding his proposals on nonfinancial incentives, Taylor was not far away from the proposals of later behavioral organization research, but he discussed them as part of an economic approach to incentives management. Empirical findings from human resource management (HRM) research, game theoretic research, and institutional economic research support Taylor’s systemic, incentives-based approach to handling conflict that was instigated by worker opportunism (e.g., Douma & Schreuder, 1998; Flannery, Hofrichter, & Platten, 1996; Laffont, 1999; McKenzie & Lee, 1999; Ockenfels, 1999; Thorpe & Homan, 1999; Williamson, 1975, 1985; Wilson, 1999; Zingheim & Schuster, 2000).

1 The idea of the organization member covers any “stakeholder” of the firm. In this paper, “workers” and “managers” are the focus.
Training systems and skills management. Taylor analyzed not only distribution issues but also contribution issues in systemic, economic terms. He examined individual behavior for the quantity and quality of skills contributions in the course of work performance. He argued that training systems were to support the individual in developing and applying skills: “Our opportunity lies in systematically cooperating to train and make this competent man.... The remedy for ... inefficiency lies in systematic management, rather than in searching for some unusual or extraordinary man” (Taylor, 1911: 6–7; also, 1903: 45, and 1911: 27, 39, 101, 114). In this connection, the critique of Taylor that he viewed “personnel as a given rather than as a variable in the system” (March & Simon, 1958: 29; similarly, Knowles & Saxberg, 1967: 32) is untenable.

Problems of skill formation and skill application were of a comparatively simple nature in the factory around 1870 to 1910. Taylor discussed skill development by means of standardization and functional specialization. Skill contributions were highly measurable. This made the offering of incentives for skill contributions easy. In this respect, Taylor’s skill formation problem reflects an extreme scenario of Becker’s and Williamson’s analyses and how a firm can effectively utilize human capital through different types of incentives structures (Becker, 1962, 1975, 1993; Williamson, 1985). Williamson pointed out that, with the rising sophistication of skills (rising “human asset specificity”), a simple premium wage system, as favored by Taylor, becomes economically inferior to other reward systems (1985: 62–63, 242–243; see also Williamson, 1985: 77). Input monitoring and process sanctioning are then more effective and efficient (1985: 244–245).

As simple as Taylor’s skill formation problem may have been, the suggestion of deskilling intentions of scientific management (Braverman, 1974; similarly, Morgan 1986, and Pruijt, 1997) may be difficult to uphold. As discussed, Taylor argued for skill formation. The important question here is who was recruited for factory work in Taylor’s time. Historic evidence is that the typical factory worker of the time was an unskilled immigrant, former slave, or farm worker, but not a craftsman (Outerbridge, 1895; Phillips, 1929; Wells, 1926).2 Scientific management is, in this respect, best interpreted as a skill formation program that was less ambitious than craftsmanship (Wagner-Tsukamoto, 2003: Chapters 5 and 7).

Characterizations of scientific management as a “physiological organization theory” (March & Simon, 1958: 136–139; similarly Casey, 2002: 73–74; Derickson, 1994; Simon, 1976: 38) are unjustified, too. They undervalue Taylor’s interest in skill formation and the way he integrated skill formation with institutional economic principles of incentives management and mutual gains as an interaction outcome. The critique of scientific management as a physiological organization theory also undervalues Taylor’s interest in nonphysiological skills—planning skills of certain functional foremen, for example (Locke, 1982)—and his anticipation of certain behavioral organization concepts, in his idea of “hearty cooperation” (discussed below) or his idea of “insufficient mental capacity,” for instance (Taylor, 1911: 26, 41, 59). The latter compares to advances in bounded rationality in behavioral economics (see also Wagner-Tsukamoto, 2003: Section 5.1).

Interaction analysis. Taylor embedded his discussion of opportunistic behavior and organizational conflict in an interdependence model. Individual organization members were thought to codetermine—unavoidably, intentionally, or unintentionally—outcomes for each individual and for the organization as a whole. Importantly, for institutional economic reconstruction, Taylor suggested that organization members made capital contribution-distribution assessments on a comparative, relational, interdependent basis. His concept of “systematic soldiering” implied that worker opportunism and the breakdown of cooperation it caused reflected a social condition: “Better men gradually but surely slow down their gait to that of the poorest and least efficient” (1903: 31; see also 1903: 30–38, 47; 1911: 18–23, 72, 76; 1912: 119). Taylor even admitted that during his employment as a shop floor machinist, he himself had been unable to escape these “antagonizing” interaction dynam-

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2 Also, there is historic evidence that the number of craftsmen dramatically increased in Taylor’s time (Outerbridge, 1895: 229; Wagner-Tsukamoto, 2003: 111–112). This further discounts the deskilling thesis.
ics that were driven by systematic soldiering (1912: 113–114; also 1903: 35, 137, and 1911: 21).

Regarding this interest in interaction analysis, Taylor’s ideas were more insightful than those of Simon, who conceptualized “inducement-contribution equilibriums” for organizational behavior (1976: 110–222) but neglected issues of distributive justice and interaction analysis.

Interaction analysis is of crucial importance to institutional economics. Institutional economists are not interested in individual action as such (Becker, 1993; Coase, 1984; Vanberg, 1986; Williamson, 1985). Heuristically, the interaction logic of dilemma scenarios, such as the prisoner’s dilemma, drives the economic analysis of interdependence effects among actors (Homann, 1994, 1999). Taylor’s studies of individual action, such as time-and-motion studies and his studies of organizational ergonomics and work specialization, have to be interpreted as fragments of his interaction analysis of contribution-distribution conflicts and opportunism in organizational behavior. This qualifies the criticism that scientific management was an individualistic concept as suggested by Burrell and Morgan (1979: 126–127), Guillem (1994: 79, 1997: 688), Jones (2000: 632, 648–649), Morgan (1986: 30–38), or Waring (1991: 11–12).

**Mutual Gains As Desired Interaction Outcomes**

Nyland (1996, 1998) has analyzed how Taylor applied the idea of mutual gains as the goal of conflict resolution (also hinted at by Locke, 1982: 15, 18–19; Pugh & Hickson, 1996: 102; Wrege & Greenwood, 1991: 255). Taylor argued that profit increases achieved by scientific management were to be shared among all who had contributed to generating them. Otherwise, cooperation could not be expected to materialize and to prevail over time: “Prosperity for the employer cannot exist through a long term of years unless it is accompanied by prosperity for the employee, and vice versa” (1911: 10; also 1903: 21, 72; 1911: 10–12, 138–139; 1912: 40). Many commentators on scientific management (e.g., Bluedorn, 1986; Merkle, 1980; Morgan, 1986; Pruijt, 1997; Waring, 1991) overlook this normative ideal of mutual gains.

Taylor’s suggestion of mutually beneficial interaction outcomes reflects a non-zero-sum model of social exchange. A non-zero-sum model of organizational interactions implies that succeeding cooperation yields win/win outcomes, whereas failing cooperation yields loss/loss outcomes. The generation of mutual gains reflects the normative intervention dictum of scientific management—and also of institutional economics. Buchanan speaks in this connection of “Pareto superiority” (1987b: 8, 16), and Williamson points out that the idea of mutual gains is subscribed to by both “old” and “new” institutional economics (Williamson, 1998: 5; see also Hodgson, 1993; Ramstad, 1986; Vanberg, 1989; Wagner-Tsukamoto, 2001a, 2003, 2005, 2006; Williamson, 1991; Zald, 1987; Zingler, 1974). Suggestions by the very early economists on the “wealth of nations” and “public benefit” as desirable outcomes of economic intervention can be similarly interpreted.

Taylor’s analysis of how to ensure mutual gains was instructed, as discussed above, by the model of a dilemma structure, which (heuristically) assumes loss/loss outcomes. Taylor only investigated loss/loss outcomes in order to develop proposals that could prevent such dismal outcomes. For worker opportunism, he here argued for the (re)design of incentive systems and training systems. He thus aimed at the situational, systemic prevention of loss/loss outcomes. Taylor explicitly dismissed, in this connection, a zero-sum model of organizational behavior and the confiscatory interaction strategies it implies as a “fallacy” (1911: 27). This implies that zero-sum interactions, if encountered, were to be developed into non-zero-sum interactions that yielded win/win outcomes.

**Modeling Organization Members As Economic Men**

Taylor modeled organization members as self-interested, for instance, when he related antagonistic outcomes of organizational behavior to worker opportunism caused by individual greed and systematic soldiering. Taylor also modeled organization members, at least at times, as optimizing decision makers, referring to “maximum prosperity,” “maximum efficiency,” or “maximum productivity” (1903: 18, 21; 1911: 6, 9–12). In these respects, Taylor’s portrayal of human nature appears quite unrealistic and incomplete. It closely mirrors the model of economic man and its unrealistic “twin as-

Not surprisingly, Taylor has been attacked for his apparently inadequate theory of human nature (Casey, 2002: 72–73; Herzberg, 1966; Mayo, 1990: 357; Morgan, 1986: 31–34; Mullins, 1999: 49–52; Perrow, 1983: 90; Wrege & Greenwood, 1991: 257–258). Similar behavioral criticisms have been directed at institutional economics. For example, Barney (1990), Donaldson (1990, 1995), and Simon (1993) have criticized Williamson (1975, 1985) for modeling organization members as mere opportunists. However, such behavioral criticism of the model of economic man is likely to miss an important methodological point. Taylor’s references to self-interested and optimizing behavior, like the ones of (institutional) economics, first and foremost have to be interpreted in heuristic perspective. Research heuristics are just preempirical, subtheoretical, and quasi-tautological concepts, which are required in any research program for initiating and organizing research. Lakatos’s and Popper’s philosophy of science detailed this issue (Wagner-Tsukamoto, 2003; see also Hayek’s work [1949] on “methodological individualism”).

Understood in this way, the model of economic man, like the idea of the dilemma structure, is instrumentally useful for the theoretical analysis and practical resolution of interaction conflict in economic terms—that is, as a matter of organizing capital exchange through incentive management with the aim of ensuring mutual gains. In this interpretation, economic man, as such, is beyond empirical-behavioral and moral-behavioral scrutiny—but not so economic theory and intervention developed with the economic man tool (Becker, 1976, 1993; Buchanan, 1987b, 1991, 1994; Homann, 1994, 1997; Homann & Suchanek, 1989; Suchanek, 1993; Wagner-Tsukamoto, 2001b, 2003). The functional purpose of economic man (and also of the idea dilemma structure) can be illustrated through the simple analogy of the accident simulation setting of the car crash test and the use of crash dummies. Accidents are empirically rare and undesirable, and crash dummies do not have much in common with “real” human beings. But, still, crash simulations and the use of dummies are highly useful (Wagner-Tsukamoto, 2003).

As far as Taylor actually made empirical-behavioral, psychological references to self-interested and optimizing behavior, not dissimilar to Williamson, this has to be read as a “mere” self-misunderstanding of an organizational economist (Wagner-Tsukamoto, 2003; see also Homann, 1997). Behaviorally oriented organization researchers (e.g., Herzberg, 1966; Mayo, 1990; McGregor, 1960; Tomer, 1999; Zey, 1998), behavioral economists (e.g., Sen, 1990; Simon, 1976, 1993; also Donaldson, 1990, 1995), and economic sociologists (e.g., Etzioni, 1988), in this respect, fundamentally misunderstand scientific management and the (institutional) economic approach. Only when organization researchers aim to intervene with organizational interactions in behavioral terms—for example, through sociological concepts of organization development—do the model of economic man and other heuristic and theoretical concepts of economics have to be replaced. Economic models are then given up because of a different theoretical and practical purpose of behavioral research as compared with the economic one, but not because of the claimed “unrealism” of the model of economic man and other concepts of economics.

**TAYLOR’S ENTRY INTO BEHAVIORAL ORGANIZATION THEORY AND IMPLEMENTATION FAILURES OF SCIENTIFIC MANAGEMENT**

Regarding Taylor’s behavioral concept of the heartily cooperative manager, the institutional economic reconstruction of scientific management does not succeed. This concept has been interpreted as a noble philosophy and behavioral ideology of the scientific management approach. However, Taylor’s attempt failed to resolve problems of managerial opportunism through the concept of hearty cooperation. The following reconstructs the idea of hearty cooperation and the implementation failures it caused as a conceptual deficit of scientific management—namely, Taylor’s omission to analyze the “managerial condition” in institutional economic terms.

**Taylor’s Awareness of Managerial Opportunism**

Taylor knew that not only worker opportunism but also managerial opportunism could cause antagonism and the breakdown of cooperation in social interactions: “Employers are just as
tricky as workmen are tricky" (1912: 38). He referred to this problem as the managerial condition (1903: 21, 23; 1911: 53; 1912: 152; for further references, see above). One specific aspect of the managerial condition captivated Taylor. Managers were in charge of making and changing rules on performance contributions and reward distributions, deciding working hours, wage levels, fines, and so forth (Taylor, 1903: 103–105, 107, 119; 1911: 33–35, 72, 74, 83, 94–95, 121, 125). A special type of opportunism could occur here that was different from worker soldiering: managers could change incentive structures in a way that made employees do more work for the same pay or the same work for less pay—thus, in effect, confiscating and redistributing gains to themselves or to other organization members.3 This type of opportunism has been of central interest to institutional economists (e.g., Buchanan, 1987a; Vanberg, 1994; Williamson, 1985).

It is to Taylor’s merit that he realized, three decades before Berle and Means (1932) and long before similar advances in institutional economics, that problems of managerial opportunism (more generally, “managerialism”) needed to be addressed and resolved. In particular, managers needed to be prevented from confiscating gains that had been allocated to other organization members: “The workman must... be fully assured that this increase [of gains] beyond the average is to be permanent” (1911: 121; similarly, Taylor, 1903: 26, 132, and 1911: 10). Otherwise, mutual loss would result: “The employer would kill the goose that lays the golden eggs” (Taylor, 1912: 152). Williamson (1985: Chapters 7, 8, and 12) discussed, in this connection, the economic enactment of “credible commitment” of managers. North (1990, 1993a) might speak of the “ruler condition.” He reasoned that cooperation is undermined over time when a ruler can change incentive rules at will. Then, “the constituents face the dilemma that the ruler may at some point renge on his promises and confiscate the accumulated wealth of his constituents” (North 1993a: 14).

Taylor’s Attempt to Prevent Managerial Opportunism Through Behavioral Intervention

Regarding the “employee condition,” Taylor, quite exemplarily, followed an institutional economic approach, arguing for intervention with incentive structures and training systems. But he did not do so regarding the managerial condition. In the outline of scientific management as it existed up to 1911, Taylor put forward the behavioral concept of “hearty, friendly cooperation” of managers with workers. It implied a “great mental revolution” of managerial attitudes (1911: 36, 115, 131, 143; also 1903: 131, and 1912: 26–31, 77, 151–152). In this way, managers should be prevented from changing incentive structures in a confiscatory, exploitative manner. Taylor appealed to managers to perceive it as their moral duty to share impartially and fairly gains generated by scientific management (1903: 68, 96–98, 132, 198; 1912: 28, 38, 145–150). As Copley noted, “Taylor could not make this too emphatic. Over and over again he said that employers must undergo a change of heart like unto that of a religious conversion” (1919: 8–9; similarly, 1919: 15).

Like a behavioral scientist, Taylor thus focused on the human condition, drawing on behavioral intervention with social predispositions. In this respect, he interpreted institutions and institutional regulation in a way that anticipated later advances in organization psychology, organization sociology, and behavioral economics. Here, scientific management is close to McGregor’s (1960) “theory Y” of the good-natured manager (similarly, Tomer, 1999). Herzberg’s (1966) suggestions on cooperative organization man “Abraham,” Simon’s behavioral economic proposals on “value indoctrination” and “altruism” (1976: 103; also 1976: 71–73, 149, and 1993), Donaldson’s (1990) concept of the “ethereal hand” of managers, and some of Williamson’s behavioral economic proposals (Wagner-Tsukamoto, 2003). Taylor even detailed pedagogic suggestions on reeducation programs for managers, which should make them heartily cooperative (Taylor, 1912: 153; see also Goldberg, 1992: 44–45, 53). Especially regarding his model of managerial behavior, accusations are unjustified that Taylor cherished a behaviorally incomplete, too negative image of human nature (e.g., Barley & Kunda, 2000; Casey, 2002; Herzberg, 1966; Knowles & Saxberg, 1967; McGregor, 1960; Morgan, 1986; Nadworny, 1955).

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3 One of the Hawthorne experiments (the “bank wiring observation room” experiment; e.g., Buchanan & Huczynski, 1997; Mayo, 1990) can be similarly interpreted: managerial opportunism and the related lack of trust in the permanence of contribution and distribution standards seemed to undermine cooperation.
Relegating the Model of Economic Man and Implementation Failures of Scientific Management

In his analysis of the employee condition, Taylor applied the model of economic man, and, equipped with this idea, he theorized how a single underperforming worker undermined contribution standards of fellow workers. He recommended the prevention of worker opportunism through systemically intervening with the “unanswerable [incentive] logic of the situation” (Taylor, 1903: 31), by means of changing incentive structures and training systems. In contrast, the heuristic and theoretical analysis and the practical enactment of hearty cooperation are not supported by a model of self-interest. To a very considerable degree, early implementation failures of scientific management were caused by Taylor’s not applying the model of economic man in the analysis of managerial opportunism.4 Favoring hearty cooperation, he could no longer test potentially detrimental effects of managerial self-interest.

In the hearing before the U.S. Congress, the chairman of the inquiring committee remanded Taylor in this respect. He pointed out that Taylor should have modeled managers as “lions” (1912: 152–154), rather than as heartily cooperative, when analyzing their interactions with workers. This suggestion can be read in economic terms as the call to model managers heuristically as economic men but not as “good,” cooperative organization men. To underline an important methodological point in this connection, institutional economics heuristically models any stakeholder, not just managers or workers, as prone to opportunism. At least implicitly, much of the organization theory literature, both behavioral and economic, seems to agree on this point when speaking of “soldiering” (Herzberg, 1966; Taylor, 1903, 1911), “myopic greed” (Copley, 1919: 8), “domination” (Hayek, 1960: 270), “opportunism” (Williamson, 1975, 1985), “rational foolishness” (Sen, 1990), and “organizational misbehavior” (Ackroyd & Thompson, 1999).

By 1912, Taylor explicitly admitted that his handling of the managerial condition had been unsuccessful: “Nine-tenths of the trouble comes from those on the management side in taking up and operating a new device [the scientific management program], and only one-tenth on the workmen’s side. Our difficulties are almost entirely with the management” (1912: 153; also 1911: 134). Goldberg (1992: 43) and Nelson (1992a: 13, 1992b: 239) reviewed a number of cases in which managers who operated scientific management actually had retreated from wage promises given to workers. This ultimately led to strikes against scientific management and to Taylor’s invitation to testify before the U.S. Congress.

As far as the concept of hearty cooperation is discussed in the organization theory literature, scholars have taken too uncritical a stance. For instance, some have suggested that Taylor’s concept of hearty cooperation reflected a defense against humanistic criticism, a mere selling and consultancy proposition, or an admirable philosophy and ideology of scientific management (Bendix, 1956: 275; Locke, 1982: 14–15; Nelson, 1992a: 5–6, 1992b: 240; also Drury, 1968; Kanigel, 1997; Kelly, 1982; Merkle, 1980). Although such suggestions cannot be entirely discounted, deeper conceptual reasons why Taylor drew on hearty cooperation reflect his attempt to resolve the managerial condition in noneconomic but behavioral terms. In this connection, it is the failure of hearty cooperation that makes it interesting for institutional economic reconstruction. Had hearty cooperation not failed in practice, the scope for institutional economic reconstruction would decrease and the scope for a behavioral interpretation of scientific management would increase.

The Institutional Economic Revision of the Managerial Condition

The above related the early implementation failures of scientific management to Taylor’s omission of institutional economic concepts for preventing managerial opportunism. To a degree, Taylor seemed to become aware of this in the hearing before the U.S. Congress. He then reasoned that organization structures were needed that ensured that promises of both managers and workers regarding contributions and distributions should be systemically guaran-

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4 Buchanan’s critique of communism and of the communist concept of the new “good” man is instructive here, too, since the communist project, like Taylor’s behavioral ideas, failed a practical test (1987b).
ted: “It becomes the object of both sides jointly to arrive at what is an equitable and just series of standards by which they will both be governed” (Taylor, 1912: 150; emphasis added).

The institutional economic concept of governance, as spelled out by Williamson (1975, 1985), shines through here in Taylor’s thinking. He apparently referred to codetermination schemes between managers and workers and the reallocation of managerial decision-making rights regarding rule change. However, Taylor did not further specify these ideas. Indeed, when questioned by the U.S. Congress, he continued to endorse behavioral pedagogy for making managers heartily cooperative, and he explicitly rejected a role of unions for enacting and safeguarding governing standards regarding wage promises (1912: 149–153). He did not (yet) see that unions could help to establish “joint governance” and, thus, prevent managerial opportunism.

This was spelled out in institutional economic research on collective bargaining and union involvement in management-worker interactions. Besides union involvement, institutional economics has discussed further economic routes for preventing managerial opportunism and enacting managerial commitment in economic terms—for example, through share option schemes, codetermination boards, joint ownership structures, hostage taking of managerial reputation, or the transformation of managerial commitment into capital (Coleman, 1988; Fama, 1980; Wagner-Tsukamoto, 2005, 2006; Williamson, 1975, 1985; early on hinted at by Commons, 1931, 1961).

Only by 1914–1915 did Taylor begin to reconceptualize scientific management in this respect, now drawing on unions in the organization of management-worker interactions (Nyland, 1998: 524–527). Such moves, however, were cut short by Taylor’s death in 1915. It was then largely left to Taylor’s followers to conceptualize an economic resolution of the managerial condition:

Nadworny (1955: 144–147) argued similarly. From an institutional economic point of view, the practical importance of bringing unions into the organization of industrial relations appears clear. It replaced the failing behavioral program of hearty cooperation and helped to resolve contribution-distribution conflicts among managers and workers in systemic, institutional economic terms. Then, Taylor’s maxim that “in the past the man has been first, in future the system must be first” (1911: 7), as he had discussed for worker opportunism, was also implemented for the prevention of managerial opportunism.

CONCLUSION

This paper has unearthed a distinctive, institutional economic approach of scientific management, previously gone unnoticed: Taylor conceptualized organizational behavior as a conflict-laden interaction process over capital contributions and capital distributions; he suggested the resolution of conflict by intervening in economic institutions; he argued for mutual gains as a practical-normative goal of conflict resolution; and, methodically, he drew on the model of economic man and the idea of a dilemma structure. (Regarding the latter two ideas, I have pointed out the instrumental, heuristic usefulness of economic man and dilemma structure.) In these respects, Taylor can be classified as an early pioneer in theorizing principles of institutional economics. His approach to analyzing and intervening in organizational behavior anticipated the ideas of Buchanan and Williamson.

This paper has made semantic and pragmatic claims, suggesting a sameness of methodical, theoretical, and practical strategies for handling management problems by institutional economics and by scientific management. This qualifies conventional criticism that scientific management was an individualistic, physiological, exploitative, deskilling-oriented management concept that lacked theoretical sophistication.

Only when Taylor gave up an institutional economic approach did scientific management run into problems. Put to a practical test, Taylor’s behavioral concept of the heartily cooperative manager, which compares to similar ones of the human relations school or behavioral empowerment theory, did not resolve problems of
managerial opportunism. It failed to bind managers economically from reneging on wage promises given to employees. This ultimately yielded mutual loss for workers and managers. Here, institutional economic reconstruction succeeded in explaining why scientific management failed and why and how it was later revised, especially regarding the involvement of unions. Many previous assessments of scientific management, even the more balanced ones of Locke (1982), Nelson (1992a), Nyland (1996, 1998), and Guillen (1997), did not uncover such deep conceptual reasons behind Taylor’s proposal of hearty cooperation, nor why it failed and why it was later revised.

This paper points toward a high contemporary relevance of scientific management—and of institutional economics. They can well advise us on organizational problems, especially in “modern” interaction contexts that are defined by diversity and pluralism. Diversity and pluralism were ever-present interaction conditions in Taylor’s time, the workforce of the early factory being ethnically and culturally highly diverse (Gutman, 1976: 22–23; Wagner-Tsukamoto, 2003: Chapter 7). I touched upon this issue when outlining that typical factory workers in Taylor’s time were immigrants, former farm workers, and former slaves. A key reason (institutional) economics succeeds in the face of diversity and pluralism is its heuristic grounding in the ideas of economic man and dilemma structure. These ideas make little behavioral demands regarding common cooperative predispositions and a consensus regarding social values when it comes to conflict resolution. Diversity and pluralism are tolerated as a by-product. Organization theory that is heuristically or theoretically grounded in a model of “good” individual behavior, such as altruism (or hearty cooperation, as Taylor put it), however, appears especially ineffective and inefficient when diversity and pluralism are encountered as interaction conditions.

In general, the moral status of management theory that is grounded in (institutional) economics can be assessed favorably because of its capability to resolve conflict, ensure mutual gains, and tolerate diversity and pluralism as interaction conditions (for details, see Wagner-Tsukamoto 2003). From here, a rather favorable image of human nature emerges for scientific management and for institutional and organizational economics.

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