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## **Value-Free Economics in Management and Engineering Education**

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### **Abstract**

In arguing that “economic analysis is *wertfrei* (value free)” Robbins contributed to the long-developing separation of economics from its parent discipline of moral philosophy. In the decades that followed publication of *An Essay on the Nature and Significance of Economic Science*, economics became, in the words of Amartya Sen, “self-consciously non-ethical”. Sen and others believe that there have been significant costs associated with this growing divide between economics and ethics, and it is conceivable that adherence to an extreme form of the *wertfrei* concept may have had unanticipated and negative consequences in related fields.

We see some of these consequences in management and engineering education. Before his untimely death, Sumantra Ghoshal provided a withering critique of management education, focusing on the role that economics played in fostering an “ethically blind” approach to management. In engineering education, the value-free approach in economics threatens to further marginalize economics in current curricular initiatives related to engineering ethics.

In this paper, I review the nature of the value-free doctrine and argue that Robbins’s influence on the ethos of economics, specifically his strident advocacy of value-free analysis and a strict separation of ethics and economics, contributed to the development of an ethically blind approach in economics. Ultimately, and in homage to Sen, unintended consequences associated with this approach may impoverish not just economics and ethics, but other fields such as management and engineering education.

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## 1. Introduction

In the decades following the publication of Lionel Robbins's *An Essay on the Nature and Significance of Economic Science*<sup>1</sup>, economics became, in the words of Amartya Sen, "self-consciously non-ethical" (Sen, 1987, 2). Although the movement in this direction had been going on since the early 19<sup>th</sup> century, there can be little doubt that Robbins's *Essay*, with its focus on the German concept of *Wertfreiheit* – the separation of value judgments from analysis, or the conscious pursuit of ethical neutrality – was influential on the subsequent development of economics. Many years after the publication of the *Essay*, Kenneth Boulding, in his presidential address to the American Economic Association, lamented the path economics had taken as it evolved into a social science distinct from moral science and consciously introduced *Wertfreiheit* terminology with its historical baggage:

"We are strongly imbued today with the view that science should be *wertfrei* and we believe that science has achieved its triumph precisely because it has escaped the swaddling clothes of moral judgment and has only been able to take off into the vast universe of the 'is' by escaping from the treacherous launching pad of the 'ought'" (Boulding, 1969)

Even though many professional economists today have probably never read Robbins's *Essay*, they would recognize in it an outline for an institutionally acceptable approach to economics that is heavy on deductive analysis and mimics the disinterestedness that is part of the ethos of science in general. And while the debate over the relationship of economics to ethics continues in some corners of the discipline, in general mainstream professional economists assiduously avoid any trappings of value-influenced analysis. For example, in a recent op-ed piece on fairness debates involving the U.S. tax code, Greg Mankiw writes "Fairness is not an economic concept. If you want to talk fairness, you have to leave the department of economics and head over to philosophy" (Mankiw, 2007). Comments such as Mankiw's are testament to Robbins' polemical success and to the continuing influence of the value-free approach he espoused in the *Essay*. They may, however, reflect an overzealous application of the *Wertfreiheit* doctrine. There is a difference between ethical neutrality in pursuit of scientific credibility and being "self-consciously non-ethical." As Sen suggests, economists have in general adopted the second of these approaches in their work. Yet, this overly-strict interpretation of *Wertfreiheit* may have had some unexpected consequences.

I would like to argue that Robbins's influence on the ethos of economics, specifically his strident advocacy of value-free analysis and a strict separation of ethics and economics, contributed to the development of an ethically blind approach in economics that ultimately became associated with negative consequences. Some of these consequences become obvious when we consider the role of economics in the training of both managers and engineers. In these fields, an institutional adherence by economists to ethical blindness has had unintended and indirect consequences. In the first case, the development of economic theories and models under the guise of *Wertfreiheit* has contributed to an ethically blind management science that has become the subject of harsh criticisms. In the second case, an interpretation of *Wertfreiheit* as a ban on ethical considerations threatens to marginalize economic considerations in engineering as engineering educators seek to broaden the ethical content of their curricula. In both cases we are considering second order effects, so a necessary part of the discussion involves consideration of the extent to which we may construct a line leading from strident advocacy of *Wertfreiheit* and construction of models by practitioners who profess value neutrality to the use of those models in ways that generate pernicious effects.

Given the theoretical hegemony that economics exerts on other fields and the degree to which its conclusions and models are pervasive *outside* of economics, the consequences of taking a value free approach *within* economics would seem to be an important consideration as we evaluate the continuing influence of Robbins's *Essay*. With this broad goal in mind, my purpose here is to consider the nature and some effects of adherence to the *Wertfreiheit* doctrine – to review the genealogy of the ideas that informed Robbins's position, and then to consider some of the consequences of that position (or an overly strict adherence to it) on the subsequent evolution of economics, with particular emphasis on current curricular discussions in management and engineering education.

## 2. The origins and nature of *Wertfreiheit* in economics

Almost from its birth, modern economics, in pursuit of status as a “true” science, seems to have been preoccupied with separating itself from its roots in moral philosophy. Albert Hirschman has noted that “modern social science arose to a considerable extent in the process of *emancipating* itself from traditional moral teachings” (Hirschman, 1981, 294). In economics, this process of emancipation is usually thought to have begun with David Ricardo and Nassau Senior, who actively facilitated the separation of economics from ethics and narrowed the focus of the developing discipline (Flubacher, 1950). Regarding issues related to distribution, for example, Senior was unequivocal:

“... all these are questions of great interest and difficulty, but no more form part of the Science of Political Economy, in the sense in which we use that term, than Navigation forms part of the Science of Astronomy.” (Senior, 1938, 2)

Later in the 19<sup>th</sup> century the first and second generation marginalists seemed consciously aware of the implications of the growing distance between economics and ethics. Almost uniformly, they opened their treatises with extended discussions about the relationship of economics to philosophy and science, often expressing a desire to establish economics on an epistemological par with the physical or natural sciences.

Despite this long history, economics, at least as it was practiced in English-speaking academic circles in the early 20<sup>th</sup> century, had not yet fully divested itself of its holdings in moral philosophy. Although Keynes identified Marshall with the process of “building up the subject as a separate science” (Keynes, 1925), Marshall, who epitomized the British economic tradition at the turn of the century, does not seem to have contemplated a complete severance of economics from ethics (Coats, 1990). Keynes himself, while lauding the evolution of economics as a distinct discipline, nevertheless always remained a complicated mixture of deductive scientist and moral philosopher. Thus, by the early 1930s, the dominant strand in British economic thought still could be characterized as one that accepted economics as a complex mixture of pure science and moral reasoning.

Into this established tradition, Robbins introduced an Austrian-influenced view of social science with a Weberian-inspired *wertfrei* leitmotif. In the *Essay*, Robbins was unyielding in his view that ethics and economics were logically distinct, and that if economic knowledge was to be held in the same esteem as other scientific knowledge, economists may adopt different methods but must eschew value judgments:

“... it does not seem logically possible to associate the two studies in any form but mere juxtaposition. Economics deals with ascertainable facts; ethics with valuations and

obligations. The two fields of enquiry are not on the same plane of discourse.” (ENSES, 148)

Robbins’s methodological axiom that economic analysis must remain free of value judgments had its origins in the German *Methodenstreit* of the 19<sup>th</sup> century and the more recent *Werturteilsstreit*, or value judgment dispute between Max Weber and Gustav Schmoller, which had occurred in the early years of the 20<sup>th</sup> century (Vickers, 1997, 62 – 64; Ciaffa, 1998, 13 – 18). Schmoller and others had argued that social sciences should develop judgments concerning the desirability of institutions and policies. In opposition, Weber argued for an “intrinsically simple demand” that investigators should maintain an unconditional separation between the establishment of facts and the evaluation of those facts as satisfactory or unsatisfactory (Weber, 1949, 11). Robbins was clearly influenced by Weber’s arguments, and constructed his own arguments around a careful and clear demarcation of the proper subject matter of economics that also seems to have been influenced by Weber. His means-ends definition of economic science (ENSES, 16) mirrored another of Weber’s hypotheses:

“All serious reflection about the ultimate elements of meaningful human conduct is oriented primarily in terms of the categories “end” and “means.” (Weber, 1949, 52).

The influence of Weber seems to have been both direct and indirect through the Austrians whom Robbins had come to know personally, especially von Mises (Caldwell, 1994; Robbins, 1971, 105 – 107).

Questions concerning choice among ends deal with ethical matters of subjective value, and Robbins took these to be exogenous facts, or at the very least decisions beyond the scope of economic inquiry. Economists were to take ends as data points, ascertainable facts of the landscape. As Robbins conceived of economics, it was “incapable of deciding as between the desirability of different ends” (ENSES, 152). This demarcation of appropriate subjects for study allowed Robbins to authoritatively claim that “economic analysis is *wertfrei* in the Weber sense” (ENSES, 91, *italics* in the original).

Looking back from an era in which it is common for economists to delegate normative questions to other disciplines, one may mistakenly see in the *Essay* the swagger of a discipline that had finally and decisively moved from the realm of moral philosophy to true science, and which was comfortable in leaving questions with moral dimensions to other fields. But this interpretation would be a mistake. In declaring this clean break with ethics, Robbins was “taking a position that was quite unfashionable then, though extremely fashionable now” (Sen, 1987, 2). At the time, Keynes for one had serious misgivings on this issue, commenting in a letter to Roy Harrod that “as against Robbins, economics is essentially a moral science and not a natural science. That is to say, it employs introspection and judgments of value” (Keynes, 1938).

In the wake of Robbins’s *Essay* and in the name of good social science, economists seem to adopt an extreme form of *Wertfreiheit*, moving beyond ethical neutrality towards ethical blindness. In this version of the doctrine, Robbins’s own suggestion that economists speculate “long and widely” on ethical questions (ENSES, 150) seems to have been forgotten. It is useful to remember that neither Weber nor Robbins, in arguing for “ethically neutral” or “value free” social science, required that social scientists take a vow of abstinence from making policy pronouncements. As Blaug (1992, 116 – 117) has pointed out, *Wertfreiheit* requires only that economists be clear about the basis of their pronouncements and not attempt to give them “scientific” validation. Weber himself put it this way:

“...it can never be the task of an empirical science to provide binding norms and ideals from which directives for immediate practical activity can be derived ... What is the implication of this proposition? It is certainly not that value-judgments are to be withdrawn from scientific discussion in general simply because in the last analysis they rest on certain ideals and are therefore “subjective” in origin. (Weber 1949, 52)

Similarly, in distinguishing between pure scientific analysis and postulates about “different judgments of value”, Robbins concludes:

“Our methodological axioms involve no prohibition of outside interests! All that is contended is that there is no logical connection between the two types of generalization, and that there is nothing to be gained by invoking the sanctions of one to reinforce the conclusions of the other.” (ENSES, 150)

It is also worthwhile to remember that, despite his strident advocacy of a value-free approach, Robbins certainly could never have been accused of pursuing a disinterested approach to policy. He made his position on the proper place of value judgments in economics very clear throughout his career, most notably perhaps in his Ely lecture to the American Economic Association in 1981. Perhaps sensing that the planes of discourse for economics and ethics might not be so distinct after all, he argued there for a revival of the term Political Economy to cover “that part of our sphere of interest which essentially involves judgments of value” (Robbins, 1981, 8). Figure 1 summarizes his views.

Nevertheless, a broad acceptance of an extreme form of *Wertfreiheit* in the years following publication made it easy to look back at the *Essay* as “a rather successful attempt to eliminate from economic analysis the last vestiges of ... any reference to normative ideas” (Pibram, 1988, 420). In that other famous methodological essay of the 20<sup>th</sup> century, Milton Friedman argued that “positive economics is in principle independent of any particular ethical position” (Friedman, 1953, 181), and Ronald Meek, in discussing the evolution of economics in the late 1950s and early 1960s into an engineering-like discipline, would proclaim that “the days of the intrusion of value-judgments into ‘positive’ economics are numbered” (Meek, 1964, 95). Such methodological pronouncements are one thing, but the theoretical developments of the 1950s and 1960s, pursued with elegant mathematical formality, illustrate even more clearly the evolution of economics as not just a value-free science, but as an amoral science. William Letwin put it this way:

“...economic theory owes its present development to the fact that some men, in thinking of economic phenomena, forcefully suspended all judgments of theology, morality, and justice, [and] were willing to consider the economy as nothing more than an intricate mechanism, refraining for the while from asking whether the mechanism worked for good or evil” (Letwin, 1963, 147 – 148).

Ethical neutrality became ethical blindness.

There are important criticisms of the *Wertfreiheit* approach, which apply to both in its simpler and more extreme forms. The first is the “value basis” argument (Ciaffa, 1998), which is usually associated with Gunnar Myrdal’s agnosticism concerning the “existence of a body of scientific knowledge acquired independently of all valuations” (Myrdal, 1953, vii; 1970). In general, this line of reasoning argues that value-free analysis is not possible in the social sciences because the researcher and model builder always approaches his or her project with valuations, hidden or not. This criticism comes in many forms from many quarters, including philosophers:

“While economists like to present themselves as disinterested scientists, they function today more typically as ideologists for our political and economic ‘elites’ – much like most theologians did in an earlier age.” (Pogge, 2004)

For some, this issue is unavoidable, because humans are unavoidably driven by ideology, and the pretense of disinterest is just that – a pretense. As one historian of economic thought put it, “... the very decision to be ethically neutral may be related to one’s ideology” (Maloney, 1985, 203). It seems that in some quarters, adherence to a value-free approach exposes economists to charges of masking their ideologies.

The best one can hope for, according to this view, is that social scientists are meticulously explicit in setting forth their biases. Moral Philosophers often initially sketch out the “ethical perspective” being taken before proceeding to their actual arguments. This seems to be akin to the laying out of assumptions that economists often use as a preamble to their arguments. As an out-of-the-mainstream economist commenting on the possibility of ethical neutrality in economics 30 years before Robbins’s essay said simply “open bias is better than veiled bias” (Devas (1892).

We may also consider a second criticism of the *Wertfreiheit* approach that focuses not on the *possibility* of ethical neutrality, but on the *consequences* that flow from it. Theories and models that are developed under the guise of ethical neutrality (or ethical blindness) get applied in environments that are anything but value free. The conclusions that economists reach within their rarified scientific domain often become the basis for normative recommendations despite the protestations of economists that their work has no normative implications. To say that economics is “incapable of deciding as between the desirability of different ends” (ENSES, 152) overlooks the influence of economic analysis on individual and social choices concerning ends. It is not necessarily true that questions concerning selection of means for the attainment of a pre-ordained end have no ethical dimensions. This becomes apparent when we look at how economic “knowledge” gets used in various realms of human activity.

Of course one could easily respond to this criticism that economists cannot be held responsible for the uses to which their positive tools of analysis are put. We might call this the “models don’t kill people, people kill people” argument.<sup>2</sup> Even the physical sciences, however, in dealing with issues such as weaponry, genetic engineering, or nanotechnology, offer examples where it is difficult if not impossible to disentangle scientific research from its ethical implications, whether they are anticipated or not. While economists may never convene an Asilomar conference,<sup>3</sup> there are nevertheless valid arguments to be made that economists should include ethical considerations in the feedback loop of their scientific method (Figure 2). To argue differently is to argue that the consequences that follow from the acceptance of a theory are irrelevant to the evaluation of the theory. Once theories become the basis for action, such a stance seems problematic. Furthermore, there are good reasons to suspect that social science theories are fundamentally different from physical science theories in that they tend to change those environments in which they are applied. (Merton, 1948; Ferraro, et al, 2005). Theories about molecule interaction do not change the way molecules interact as those theories become widely accepted. Theories about how people behave in markets, on the other hand, might change the way people behave in markets if those theories are widely accepted.<sup>4</sup> To the degree that the adoption of economic ways of thinking have consequences – intended or not – those consequences may be useful inputs in the evaluation the theories and of the scientific ethos under which those theories are developed.

### 3. Value-free economics in management and engineering education

The use of economic theories in management and engineering education illustrate different aspects of unintended consequences at work. In the first case, the influence of economics on curriculum development has been explicit and, of late, open to stinging criticisms. In the second case, curriculum development is moving toward *more* ethical content, not less, and this threatens to diminish further an already meager role for economics in the education of engineers. With these thoughts in mind, let us consider more fully the influence of value-free economics on management and engineering education.

In recent years, U.S. business school academics have engaged in serious bouts of introspection about how well they are doing their job (Mintzberg and Gosling, 2002; Donaldson, 2002; Pfeffer and Fong, 2002), or even if management education as currently practiced is detrimental to the “art” of management in general (Augier and March, 2007; Bennis and O’Toole, 2005; Ghoshal, 2005). Many of these criticisms, coming as they do during and after a period of notable ethical lapses in American business, have focused on an apparent lack of ethical sensitivity among business school graduates.<sup>5</sup> For present purposes, Ghoshal’s critique is the most prescient, focusing as it does on the role that economics played (as Ghoshal sees it) in fostering an “ethically blind” approach to management. In castigating the influences of academic research on management pedagogy, Ghoshal laments:

“...the incorporation, within the worldview of managers, of a set of ideas and assumptions that have come to dominate much of management research. More specifically, I suggest that by propagating ideologically inspired amoral theories, business schools have actively freed their students from any sense of moral responsibility” (76).

Arguably the three sets of ideas from economics that have exerted the greatest influence on management education in the past generation are agency theory, transaction cost economics, and game theory. Ghoshal cites all three in what might be called a summary statement of his indictment:

“Combine agency theory with transaction costs economics, add in a standard versions of game theory and negotiation analysis, and the picture of the manager that emerges is one that is now very familiar in practice: the ruthlessly hard-driving, strictly top-down, command-and-control focused, shareholder-value-obsessed, win-at-any-cost business leader of which Scott Paper’s ‘Chainsaw’ Al Dunlap and Tyco’s Dennis Kozlowski are only the most extreme examples” (85).

During the 1970s and 1980s, all these economic theories became new tools in the economist’s toolbox for explaining the inner workings of business firms, and economists were not shy about proclaiming their contribution to the development of management science:

“The last decade has been marked by a growing interest in organizations within the economics profession ... The science of organizations is still in its infancy, but the foundation for a powerful theory of organizations is being put in place.” (Jensen, 1983, 324)

Collectively, agency theory, transactions cost economics, and game theory provided the theoretical hardware for the new sub discipline of organizational economics:

“Until recently ... economists had little to offer on what might be called “sub-micro” level issues, e.g., internal organization, management systems, and contracting arrangements. The growth of transaction cost economics, principal-agent analysis, and related extensions of game theory promises to change that. The economics of organization is emerging as an important new field of study.” (Dees, 1992, 25)

In business schools, where a transformation had been going on from collecting and transmitting best business practices to developing and disseminating theories about phenomena connected with management of complex organizations, strategy specialists greeted the new tools with open arms (Rumelt, et al, 1991). Here were models, forged in the respected realm of economics, which went inside the black box of production and ultimately offered managers practical guides to behavior.

The integration of agency theory, transaction cost economics, and game theory into the curriculum of management education is a great illustration of economic hegemony. In each case the theories came to business schools with behavioral assumptions that claimed to be workable, if not realistic, and with policy prescriptions justified on efficiency grounds. Over time, the models became ubiquitous in modern MBA texts (Milgrom and Roberts, 1992; Brickley et al, 1997), and were used to promote practical rules for managers. Often these rules ended up having normative implications despite the fact that the underlying theories were developed under the auspices of value free positive science.

In his critique of management education, however, Ghoshal argues that some of agency theory’s key assumptions – in particular the existence of alternative markets for the agents’ services and the value of the principals’ human capital input relative to that of the agents – undermine the normative prescriptions for which the model is often used as justification. A second and more general aspect of Ghoshal’s withering critique is that the business schools’ amoral theories (principally inherited from economics) were “ideologically inspired.” Specifically he identifies classical liberalism as the ideology that underlies theoretical developments in economics, and maintains that it embodies an overly pessimistic vision of human nature.<sup>6</sup>

Ghoshal’s criticisms are not the only charges that have been leveled against agency theory. Ethicists have argued that principal-agent analysis is vulnerable to abuse and inappropriate application (Dees, 1992). Further, the possibility that an agent serves multiple principles introduces complicating factors that undermine normative prescriptions that practitioners often take from agency theory (Bowie and Freeman, 1992). Finally, it also can be argued that through its singular focus on incentives as an inducement to action, agency theory implicitly introduces an ethical dimension into the discussion of organizational efficiency (Grant, 2002).

In a similar vein, transaction cost economics (TCE) has been criticized for promoting obvious normative conclusions (Pfeffer, 1994; Ghoshal and Moran, 1996). In opening their criticism of TCE, Ghoshal and Moran argue:

“All positive theories of social science are also normative theories, whether intended or not. The normative implications of TCE, in particular, are inescapable” (14).

In making this argument, Ghoshal refers in particular to the use of TCE to prescribe specific directives for internal organization and management practices within firms, and quotes a prominent proponent of TCE analysis as saying “transaction-cost economics aspires to influence as well as understand behavior.”

These criticisms arise in spite of the contention that TCE was originally conceived as a positive theory to explain the efficient boundaries of a firm (Coase, 1937; Williamson, 1979, 1985, 1991). Using concepts of asset specificity, opportunism, and incomplete contracting, TCE has been promoted as a tool for delineating between transactions that will most efficiently occur in markets and those that will most efficiently occur within the hierarchical structure of firms. Opportunism – defined by Williamson as “self-interest with guile” – is a stronger form of the self-interest assumption usually employed in economic analysis. The concept often seems to imply extreme self-interest unencumbered by ethical considerations. In their popular MBA textbook, Milgrom and Roberts (1992) continually describe opportunism as an endemic problem that necessitates managerial and contractual responses. In the TCE framework, organizations supplant markets because hierarchical controls within organizations are more effective in curbing opportunism.

This story of the infiltration of economic theories into management education, and of the unintended effects that became associated with it, describe a much different path than that which Alfred Marshall had envisioned for the influence economics would have on business. Speaking in his inaugural lecture at Cambridge in 1885 about the need to professionalize the field of economics and to attract the best minds to the cause, Marshall had expressed a hope that through the study of economics “just and noble sentiments might be introduced into counting-house and factory and workshop” (Marshall, 1885). Instead, many management theorists today argue that there have been both positive and negative consequences to the influence of economics on their discipline. In evaluating the ethos of the economics discipline, it may at least be prudent to consider the possibility that theories developed with a greater sensitivity to ethical concerns may have emerged differently from the foundry of economics. If they had been delivered out of that foundry with product warning labels, economic theories might have been used differently in the construction of management science, and the consequences of their use might have been much different.

But given the direction in which the science of economics was moving in the post-war years, it’s difficult to see how such an alternative path could have emerged. For those unacquainted with the strict methodological prescriptions then evolving in economics, the neglect of ethical concerns seemed puzzling:

“A strange characteristic of social thinking in recent times has been the lack of contact between ethics and economics. It is strange because in the same period we have in fact been typically and dominantly concerned with business, so that one would hardly have expected moralists to ignore the problems of conduct arising there. And, especially recently, we have become so sensitive as to the morality of our business behavior that it is equally odd to find ‘scientific’ economists ignoring the ethics of business” (Macfie, 1953, 57)

In engineering education a different problem is developing. While the role of economics in engineering curricula has been minimal – often limited to the provision of frameworks for cost-benefit and risk analyses – current trends in engineering education offer opportunities for other fields to influence the ethical training of engineers. Engineering educators today, especially in the United States and to a lesser degree in the U.K., are increasingly concerned with the ethical dimensions of their trade. The aim of recent curriculum initiatives in engineering, spurred by accreditation agencies, is not only to instill a sense of ethical responsibility via traditional code-based approaches, but also to make ethical reasoning a pervasive component of engineering pedagogy.<sup>7</sup> The evolving curricular approach is sometimes referred to as “ethics across the curriculum” (Herkert, 2007; Lincourt and Johnson, 2004), and in engineering schools non-engineering disciplines are being asked to consider the issues involved in teaching engineering

ethics (Rudnicka, 2005; Kline, 2001). In part, this increased emphasis on ethics among American and British engineering educators may stem from a realization that technical proficiency is a minimum expectation in the engineering job market, and that if American and British engineering schools are to maintain a competitive advantage in the engineering labor market their graduates must be prepared to deal broadly with complex issues relating to technology and society.

In general, however, engineers are problem solvers who exhibit little interest in theory. Historically, engineers have accepted value-free economics without suspicion, seeing it as a credible source of pragmatic tools of analysis that can be used in the application of technology and design principles to their projects. Courses in “engineering economics” – which for some engineers are the only economics they learn – reflect this pragmatism, focusing mainly on cost behavior and capital budgeting techniques. To the extent that the social science aspect of economics can be said to have exerted any broader influence on the training of engineers, it has been through the provision of an understanding of the capitalist system in which engineers usually end up finding employment. One overarching theme is that of an historic tension between the demands of economic efficiency and the demands of technical professionalism (Layton, 1969).

This tension can become more apparent when the ethical sensitivities of the engineering discipline bump into the ethical blindness of economics. Engineers may sometimes feel as if they have to choose between their ethical responsibilities and the dictates of respectable economic analysis. Consider this explanation of a “degree of harm” criterion in a popular engineering ethics textbook:

“When pollutants pose a clear and pressing threat to human health, they must be reduced below any reasonable threshold of harm. *Cost should not be considered a significant factor.* Insofar as substances pose an uncertain (but possible) risk to health or when the threshold of danger cannot be determined, economic factors may be considered. If a harm is irreversible, it should be given higher priority” (Harris, et al, 2000, 219, *italics added*).

This criterion circumscribes traditional cost-benefit analysis based on economic considerations. As engineering educators debate and formulate such criteria, an amoral science of resource allocation is unable to participate in the discussion.

As it stands, what ethical lessons, if any, could engineers take away from economics? One lesson, primarily learned in case studies of what is derisively called “disaster ethics”, is that amoral cost-benefit calculations sometime lead to disastrous or morally repugnant outcomes. In studying the Ford Pinto case<sup>8</sup>, for example, engineers are often left with an unsatisfactory view of the sterile way in which economics balances benefits and costs. Another case study in engineering ethics deals with the implications of dumping unsafe electrical products in developing markets. The ethical issues in this case parallel those associated with the well-documented Lawrence Summers World Bank Memo<sup>9</sup> which has been used to argue that economists cannot avoid moral issues in their analyses (Hausman and McPherson, 1996). In this case, the application of economic logic to the topic of optimal asset ownership is straightforward – ownership of assets should migrate to agents who value them most highly. Unfortunately, and as both cases demonstrate, the implications of “straightforward” economic logic sometimes can be ethically troubling.

Another lesson that engineers might pick up from their study of economics is that discounting future benefits and costs at a constant and positive rate can support ethically troubling

recommendations. This is particularly relevant in discussions about large-scale public projects and sustainability. In evaluating large-scale public projects of the sort that often involve civil engineers, cost-benefit analysis unavoidably involves discounting monetary values over very long time horizons, with significant (and unavoidable) issues surrounding assumptions about the preferences of future generations. As long ago as 1928, Frank Ramsey argued that the use of a social rate of discount greater than zero was “ethically indefensible” (Ramsy, 1928).

With regards to sustainability, in his wonderfully ambiguous discussion of the subject, Solow (1992) points out that sustainability is essentially about intergenerational distributional equity. This is a perspective that clearly introduces ethical considerations into the discussion. In making such observations without delving into the messy questions of what is “right”, economists can seem little more than the provocateur who poses interesting questions but leaves others to wrestle with the details of an answer. If economists maintain an ethically neutral perspective, will their contributions have any exchange value in the marketplace of ideas about sustainability?

In prognosticating on the future of microeconomic theory, Beth Allen saw “vast potential for economists to learn from engineers” (Allen, 2000, 149). Her primary interest was the possibility of interdisciplinary knowledge transfer – she speculated that economists could enhance their theories of production by studying the ways in which engineers deal with problems of technology selection and design. It may also be fruitful to consider if economists can learn anything from the ways in which engineers wrestle with ethical issues in an attempt to pursue a unified approach to their design problems. More than this, a broader conception of economics as a moral science could conceivably allow economists to contribute in meaningful ways to the discussions of complex and vexing issues that often arise in engineering. In this way, both fields could be enriched.

#### **4. Summary**

The foregoing discussion offers a new perspective for considering the continuing influence of Robbins’s *Essay* and for understanding how an overly strict adherence to the value-free approach Robbins espoused may have led to unanticipated consequences. The argument here is that under the guise of value neutrality, economics actually developed an ethos of ethical blindness, and that management and engineering education offer good venues for studying the consequences that follow from such an approach. In the course of the 20<sup>th</sup> century, the science of economics supplied management and engineering educators with important tools, which for different reasons educators in those fields eagerly put to use. In both instances, however, the influence of economics yields a cautionary tale.

In the first instance, that of management education, adherence to an extreme value-free approach unnecessarily exposes economics to criticisms having to do with the ultimate consequences of its research. There is no more straightforward illustration of this than the debate over chief executive compensation in the U.S. During the 1970s and 1980s, some economists began to argue that American companies were being poorly run because their top managers were not always making decisions with the owners’ best interests in mind. Viewed through the lens of principal-agent analysis, this implied that, as agents hired by stockholder principals, CEOs really didn’t have the right incentives. Two economists closely associated with this view, Michael Jensen and Kevin Murphy, concluded in a 1990 *Harvard Business Review* article that many American CEOs were paid like bureaucrats. By this they meant that CEO pay was not contingent enough on the fortunes of the companies they ran. In response to research such as this, boards began revising the way they paid their CEOs, placing a lot less emphasis on annual salary, and a lot more on stock options. As this trend developed momentum, advocates of stock options began

to make broad claims about their widespread use in CEO pay. Some argued that stock options could actually help explain why the U.S. economy seemed more efficient than, say, European economies, where the practice was not as widespread. In early 1998, *The Wall Street Journal* proclaimed that high CEO pay “helps the U.S. economy thrive” (Kay, 1998). Ultimately, however, this agency-inspired trend generated a backlash against incentive pay, raising important questions about how we are to respond when application of economic analysis is associated with outcomes that offend broader moral sensibilities.

In the second instance, that of engineering education, adherence to a value-free approach satisfied engineering educators’ requirements for credible tools of analysis in much the same way as mathematics provides tools of analysis to the science of mechanics. But a tension exists between economic prescriptions based on a value-free approach and the ethical requirements of the engineering professions, and these tensions are likely to become more obvious as engineering education moves in a more ethically sensitive direction.

In both management and engineering education, adherence to a value-free approach limits the ability of economics to contribute meaningfully to discussions surrounding pedagogy. While economics maintains a pretense of ethical neutrality, important environments within which economics is taught are moving in the opposite direction. In the wake of corporate scandals of the last decade, many business schools have been busily redesigning their curriculum, or introducing new elements such as a first-year course at Harvard that focuses on leadership, ethics and values. In engineering schools an increasing awareness of the need to foster ethical sensitivities has led to an emphasis on “ethics across the curriculum.” In the face of such discussions, it is reasonable to ask how an “ethically neutral” discipline may contribute to these developments?

It is of course also reasonable to argue that the separation of economics from moral philosophy has yielded great benefits. After all, academic specialization is a form of division of labor, and Marshall had laid out the case for a separate path for economics in his inaugural lecture at Cambridge (Marshall, 1895). Economics enjoys a pre-eminent position among the social sciences today, and some would argue that this is due to its methodological rigor and its refusal to make ethical pronouncements, which strengthen its claims of scientific authority. The cost-benefit analysis associated with this methodological evolution seems to have been decidedly one-sided, with little discussion of the costs. Even Adam Smith, however, recognized that there were potential costs to taking division of labor to extremes.<sup>10</sup>

In general, economists have been reluctant to discuss the costs associated with the separation of economics from ethics. Sen (1987), who argued that both economics and ethics had been “impoverished” by the growing distance between the two fields, is the most notable exception. Hausman and McPherson (1996), Vickers (1997), and Dees (1992) echo Sen, each suggesting that both fields could learn a lot from each other. In homage to Sen, the continued exile of ethical considerations from economics threatens to impoverish not just economics and ethics, but disciplines such as management and engineering where economics and ethics have important roles to play. The weighing of benefits and costs in such a matter can be daunting. Would our understanding of markets have progressed as far as they have if economics had not been consciously steered down the road of value-free analysis? Perhaps not. At this stage in its development, however, it may be time to ask whether economics can rediscover its moral philosophic roots without sacrificing too much of its scientific advantage? And whether a loosening of the ethical blinders that we often wear might improve our contributions to society?

In 1981, the same year in which Robbins called for a revival of the term “political economy” to clarify the disciplinary division between an economics with ethics and an economics without ethics, Albert Hirschman, in a discussion of the moral dimensions of the social sciences in general, envisioned a different transformation:

“Down the road, it is then possible to visualize a kind of social science that would be very different from the one most of us have been practicing: a moral social science where moral considerations are not repressed or kept apart, but are systematically commingled with analytic argument, without guilt feelings over any lack of integration; where the transition from preaching to proving and back again is performed frequently and with ease; and where moral considerations need no longer be smuggled in surreptitiously, nor expressed unconsciously, but are displayed openly and disarmingly” (Hirschman, 1981, 305 – 306).

It remains to be seen whether a strict value-free approach will continue to make a division between economic science and political economy necessary, or whether a reincorporation of ethical considerations might be part of a reunification. As it stands, the ethos of economic science, strongly imbued with a sense of ethical neutrality, continues to exercise broad influence. Careful attention to the consequences of that influence in areas such as management and engineering education might offer useful insights as we ponder the future evolution of economic methodology.

## NOTES

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- <sup>1</sup> In this essay, all references to Lionel Robbins's *An Essay on the Nature and Significance of Economic Science* will be to the revised edition, published in 1935, and will be notated as "ENSES".
- <sup>2</sup> In the U.S., the catchphrase "guns don't kill people, people kill people" is sometimes used by opponents of gun control to argue against restrictions on gun ownership. Its sentiment appeals to personal responsibility, and absolves producers and sellers of guns of any responsibility for the uses to which their products might be put.
- <sup>3</sup> This refers to a 1975 conference organized by scientists engaged in recombinant DNA research, who had become concerned that current research in the field could generate potentially dangerous and ethically troubling outcomes.
- <sup>4</sup> This should not be confused with the so-called "observer effect" in the physical and social sciences, which refers to the possibility that mere observation of a system will change the way the system behaves or is perceived to behave. Hans Hahn, a member of the Vienna Circle, made note of this effect as early as 1933:  
  
"Every event is somehow disturbed by the fact that it is observed. That this is not a case of irrelevant hairsplitting, but has basic importance, is clearly shown by the most recent development of atomic and subatomic physics." (*Logik, Mathematik und Naturerkennen*, 1933)
- <sup>5</sup> Interestingly, the current cohort of critiques echoes an earlier spate of introspection in the U.S., when the concern was not with ethical lapses but with the loss of competitive advantage to other economies (Hayes and Abernathy, 1980; Rehder, 1982; Harris, 1984). During both episodes, however, economics comes under fire for having deleterious effects on management education.
- <sup>6</sup> This is an interesting viewpoint in light of the fact that classical liberalism was, in one sense, a reaction to Hobbes's overly pessimistic view about the nature of man, and grew in part out of Smith's moral sentimentality.
- <sup>7</sup> See, for example, Lincourt and Johnson (2004), Bird (2003), Uff (2002), Herkert (2007 and 2000), or Whitbeck (1998). For additional insight into the pervasive role of ethical considerations in engineering education, accreditation agencies also provide extensive resources. See, for example, the Accreditation Board for Engineering and Technology (ABET) accreditation criteria, <http://www.abet.org/>, or The Royal Academy of Engineering's engineering ethics curriculum map, <http://www.raeng.org.uk/policy/ethics/default.htm>.
- <sup>8</sup> The Ford Pinto was a subcompact car manufactured by the Ford Motor Company for the North American market from 1971 to 1980. It became the focus of a scandal when it was alleged that the car's design allowed its fuel tank to be easily damaged and perhaps explode in the event of a rear-end collision. Ford was aware of this design flaw but allegedly refused to incur the expense of a redesign. Instead, it was argued, Ford decided it would be cheaper to pay off possible lawsuits for resulting deaths. (Wikipedia, "Ford Pinto")
- <sup>9</sup> In late 1991, Lawrence Summers, who was then the chief economist at the World Bank, circulated a memo that used traditional economic analysis to encourage the movement of dirty industries to less developed countries.
- <sup>10</sup> Economists who are serious about considering both benefits and costs ought to juxtapose Adam Smith's celebrated passage on division of labor, with which he opens *The Wealth of Nations*, with this less well-known passage on its pernicious effects:

"The man whose whole life is spent in performing a few simple operations, of which the effects too are, perhaps, always the same, has no occasion to exert his understanding . . . He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him, not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of for many any just judgment concerning many even of the ordinary duties of private life." (Book V, chapter 1)

Figure 1

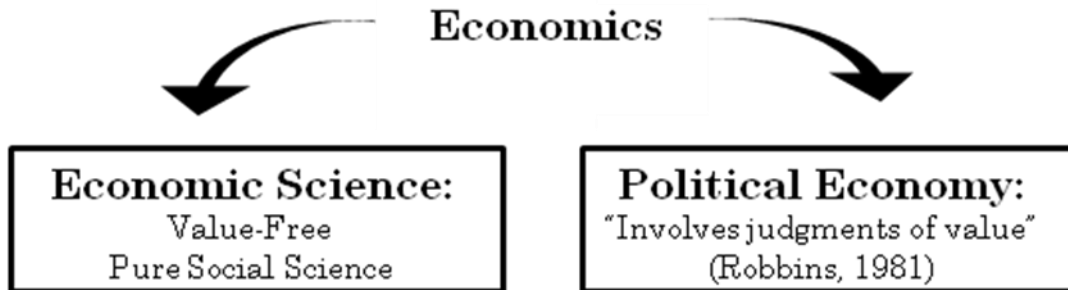


Figure 2



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