DOES *HOMO ECONOMICUS* CHEAT LIKE A WEASEL? A REVIEW OF EVIDENCE ON CHEATING BY ECONOMICS MAJORS

Patrick A. Taylor, Millsaps College

ABSTRACT

There is substantial literature reporting the results of research into many aspects of college students' cheating behavior. Some of that literature looks specifically at how a student's choice of academic major is related to his or her cheating behavior. A review of some of that literature provides no theory and little direct empirical evidence to support the conclusion that students majoring in economics cheat at a rate different from other students. Also the literature to date does not consider factors which may outweigh those frequently addressed in the literature. Including those variables may add considerably to our understanding of cheating in college.

INTRODUCTION

Most college students cheat; at least they say they do. Bowers (1964) found about three-fourths of college students in his very large sample self reported having cheated in one way or another at least once. Thirty years later, McCabe and Bowers (1994) found students were still reporting themselves to be cheating at about that same rate. McCabe, Treviño, and Butterfield (2001) continued to find much that same rate of cheating, though the preferred modes of cheating may have changed some since Bowers' 1964 study.

The present concern is with students who choose the economics major and whether the probability they will cheat is different from that of other students. If economics majors are more prone to cheat, that implies either studying economics actually teaches students to cheat or antecedent conditions that predispose students to choose economics also predispose them to cheat more.

The conventional wisdom regarding cheating by economics and business students seems to be that they are going to learn (or had already learned) to be strict maximizers of a utility function whose major component is monetary return. Furthermore, the story seems to be, in so doing they are largely unconstrained by moral or ethical considerations. This suggests students of economics and business have their moral compasses reset (or set!) so as to deem morally acceptable a wider range of behaviors than do other people. At least anecdotally, the question is generally phrased in the prejudicial one-tailed form: Do economics majors cheat more than students who choose other majors? However, there is neither theoretical nor solid empirical evidence to support the conclusion that they do cheat more. In the absence of such evidence, there is no reason to believe economics students will be any more (or less) likely to cheat than will other students. Hence, the conventional wisdom may be conventional but not wise.

Concerning cheating by economics majors, much of the work done to date condemns them through guilt by association with those highly suspect academic reprobates, business majors. In those studies considering academic major as one of the possible determinants of cheating, beginning with Bowers (1994), economics majors and business majors are usually tarred with the same brush. Bowers' choice to combine business and economics major apparently influenced many later researchers to do the same.

For those who teach economics it is important to look at economics majors alone in order to know whether they are more likely to cheat than are other students. Either students who choose economics are already more prone to cheat or we are somehow teaching students to cheat, however unintendedly, once they enter the major. Regardless of which is the case, we who teach economics are doing something wrong. We are either accepting into our major students who are systematically more likely to cheat or we are teaching them to cheat once they become economics majors.

It might be worth investigating the source of the general perception that economics and business majors can be expected to be less honest than average. That investigation will have to wait for another day, however.

Mark Twain once said, "Supposing is good, but finding out is better." Economists both suppose and find out. Next I briefly deal with the supposing part before turning to what has been found out so far.

ECONOMIC THEORY OF CHEATING IN BRIEF

Homo economicus is expected to be self-interested and rational. At least as a first approximation, economists takes that to mean one engages in behavior for which the additional benefits outweigh the additional cost. Making such choices increases the level of attainment of whatever objective one happens to be pursuing. But knowing this does not go far in helping us understand the specific choices an individual makes. That is so because we are investigating matters about which we have little way of knowing how a given individual assigns values to either benefits or costs. Beyond our saying, Ah ha! Student X cheated so for him or her in that instance the marginal benefits of cheating must have exceeded the marginal costs of doing so, we can not say much else.

Becker (1968) rigorously applied economic theory to the study of criminal behavior. As applied to academic honesty, Becker's analysis suggests *all* students will cheat more when the benefit - cost ratio increases and will cheat less when that ratio falls. As Kerkvliet (1994) put it so well, cheating is, ". . . a rational act of the expected-utility maximizing student." (p. 124). However, there is little in the literature reviewed below to lead one to believe economics majors assign benefits and costs differently than do other students. Hence, there is no reason to expect them to cheat more (or less) than average.

If students of economics are better informed about the nature of opportunity costs and are therefore better able to evaluate costs and benefits of choices then they will cheat more when the incentives favor that choice and cheat less when that is the low opportunity cost option. The optimal level of any activity is seldom zero, after all.

According to Callahan (2004), the cost of cheating is low because cheaters are rarely punished, even if they are caught. He also notes the typical benefit-cost calculation for faculty members provides little incentive for them to take steps to deter, detect, and punish cheating. Furthermore, Callahan suggests administrators may be reluctant to back faculty members who bring cheating charges. He correctly notes the buyers' market nature of higher education for most undergraduate institutions. Administrators may be inclined to think of faculty members as "hired help" so, when balanced against the "customer is always right" attitude, they find it hard to back faculty attempts to get tough with cheaters.

For the present purpose, that is sufficient supposing. What has been found out about cheating by economics students?

THE LITERATURE ON CHEATING BY ECONOMICS MAJORS

This section provides details of previous work on cheating by college students, especially students of economics. The main body of relevant literature can be loosely organized into three main categories: cost-benefit studies; self reported survey based studies including review articles, most of which are attributable to McCabe and his several colleagues; and what are referred to below as econometric studies. It is in that order those three tributaries, the confluence of which forms the river of cheating literature, are considered below. The section concludes with some discuss of the question whether economists' brains might work a bit differently than do the brains of "normal" people such that they are more apt to cheat.

Cost-benefit studies

Bunn, Caudell and Gropper (1992) and Kirkvliet (1994) estimate models which explicitly try to apply the benefit-cost approach to the study of student cheating. Neither study, however, singles out economics majors. In the case of the Kirkvliet study, measures of both the benefits and costs of cheating are mostly of the psychic sort. In fact, it is only by implication that one may be able to attach any monetary value to either study's measures. For example, Kirkvliet includes a dummy variable measuring whether a student's parents were college graduates. He finds that students with college educated parents tend to cheat more. Because college graduates ordinarily earn higher incomes than do those without degrees, one may conclude students from wealthy families tend to cheat more, regardless of their major.

Looking at the matter again later, Krikvliet and Sigmund (1999) included in their model several individual characteristics such as; sex, grades, year in college, and level of alcohol consumption. None materially altered the benefit-cost ratio, hence were not shown to influence cheating behavior. Though Kirkvliet and Sigmund did not include academic major among their variables, as noted below, it seems unlikely that including major would significantly affect the benefit-cost ratio, hence would have little, if any, impact on cheating behavior.

Several authors, Callahan (2004); Crown and Spiller (1998); and McCabe, Treviño, and Butterfield (2001) note an increase in professional rewards, financial and otherwise, that flow to those having a meaningful college degree. Therefore the returns to completing college with attractive grades is higher, meaning the net benefits of cheating will be higher, holding fixed the probability of being caught and

sanctioned for cheating. But, as Callahan (2004) notes, cheaters are not likely to be sanctioned if they are detected.

Survey-based and review studies

Since McCabe, Treviño, and Butterfield (2001) summarized the work McCabe and various colleagues and others did over the previous decade, there has not been much investigation of cheating behavior of economics majors. As McCabe, *et al* (2001) note, most studies find contextual variables have the strongest influence upon students' attitudes and behavior regarding academic honesty. They find especially important students' perceptions of the extent to which peers cheat and the existence of an effective honor code system. However, neither McCabe and his colleagues nor others provide strong, direct evidence as to whether economics majors cheat more or less than do others. Furthermore, most of the evidence there is comes primarily from analysis of self reported direct question survey data, which is suspect, as discussed below.

The main theme running through all of the work on cheating McCabe and his several colleagues have done is peer behavior is the most important determinant of the amount of cheating a student is likely to do. That in turn is most strongly influenced by the culture of the institution as it pertains to the deterrence, detection, and punishment of cheating. The lesson for economics departments is cheating deterrence is best achieved by making sure the department and the entire institution create and inculcate what is (and students perceive to be) a "just community" (McCabe, Treviño, and Butterfield, 1996, p. 461).

Of the variables usually identify as playing significant roles in determining the probability a student will cheat, academic major is ordinarily thought of as an individual, rather than contextual, variable. While it is perfectly reasonable to think of ones choice of major as a purely individual trait, the milieu from which one comes is also likely to have some bearing upon that choice. Hence, looking at major choice only as an individual variable may misstate the problem to some degree. As Crown and Spiller (1998) note, it may be more appropriate to think of major choice as a composite variable, some of whose antecedents are contextual and some individual. In effect, this is the old nature versus nurture debate.

Table 1 lists some of the variables most often considered in studies of college student cheating. It also notes some of the authors who have employed particular variables in their work on cheating. As one can see, there is a mix of contextual and individual variables. As discussed further below, not many of these

variables pertain to either nature or nurture happening in life before the student reaches college.

Table 1: Variables Affecting Cheating	
Contextual Variables	
Effective Honor Code	McCabe *et al.*
Institutional/Faculty Diligence	McCabe *et al.*
Seen (or think) peers cheat	McCabe *et al.*; Bunn *et al;* Mixon; Carrell *et al.*
Full-time Faculty	Nowell & Laufer; Kirkvliet & Sigmund
In-class warnings	Kirkvliet & Sigmund
Size of institution	McCabe *et al.*
Probability of detection	McCabe *et al.*
Severity of Sanctions	McCabe *et al.*
"Just community"	McCabe *et al.*
Fraternity/Sorority membership	McCabe *et al.*; Kirkvliet & Sigmund
Individual Variables	
Academic major	Nowell & Laufer; Bowers, Krikvliet & Sigmund; McCabe *et al.*
Grades (GPA)	Many
Off campus work load	Kirkvliet; Kirkvliet & Sigmund; Nowell & Laufer
Year in college	Kirkvliet & Sigmund; Nowell & Laufer
Course load	Kirkvliet & Sigmund
Demographic variables - age, sex, race, etc.	Many
Religious practice of student	Nowell & Laufer
Extra Curricular Activities	McCabe *et al.*
Socio-economic group	McCabe *et al.*
Alcohol Consumption	Kirkvliet
Student contribution to cost	Diekhoff *et al.*

As McCabe, *et al.* show, previous work in the area strongly supports the primacy of contextual variables, over individual variables, as factors influencing whether and to what extent students cheat. McCabe, Treviño, and Butterfield (2001) reach that conclusion following their review of several studies from the decade ending in 2000. McCabe, *et al*, (1996, 1997, 1999, 2001) consistently find contextual variables, especially peer cheating and the existence of a credible honor code, are more important influences upon cheating than are individual variables. If contextual variables are the more influential of the two, then a student's choice of major, an individual variable, is not likely to be decisive in determining whether that student will decide to cheat in college.

McCabe and Treviño (1993) found the single most important influence upon the probability a student will cheat is the student's perception of the extent to which her or his peers are cheating. In that particular study, no consideration was given to what sort of an influence the student's major choice might have, however. In their 1997 study, McCabe and Treviño continue to find factors surrounding peer behavior to be the most important influence upon the decision to cheat. They go on to say contextual variables as a whole account for more than twice as much of the variation in cheating behavior (21% versus only 9%) than do several individual variables. Of course, that means the remaining 70 percent of variation is explained by neither contextual nor individual variables.

To the extent McCabe and Treviño's numbers are accurate, the upper limit of the possible influence of academic major in explaining variation in cheating behavior is only nine percent. Because there are several other individual variables which have been found to play at least some role; gender, age, grades, for example, the share of variation for which academic major can be responsible must be quite small. That does not mean, however, it is not worth knowing whether students who choose the economics major are systematically more (or less) inclined to cheat. It would also be interesting and valuable to know what factors account for the other seventy percent of variation.

Baird (1980) found business majors tend to cheat more. He did not separate economics and business majors. But he also found males tend to cheat more than females. Though he did not report the gender mix among the business majors in his sample, during the time when his study was done, business majors were predominately males. If that was true of his sample, then males were over-represented in his sample, hence we can not be sure his finding is due to the fact that economics majors cheat more than others or that males cheat more than females.

There is evidence (Baird, 1980; Moffatt, 1990; and Roberts, Anderson, and Yanish, 1997) that students majoring in business, which may or may not include economics majors, tend to cheat more than do other students. Baird's evidence is weak, however. Of the twenty three questions on his survey, the effect of major (business only) was statistically insignificant for nineteen of the questions.

Moffatt (1990) found 87 percent of economics majors self reported having cheated at least once, which was the largest percentage of four groups of majors at which he looked. The other three grouped together several majors: communications, political science, and psychology combined; English and history combined; and several disciplines in the physical sciences combined. According to his study, students in those three groups cheated at the rates of 80 percent, 65 percent, and 60 percent, respectively. It is not clear why Moffatt looked at economics majors by themselves and combined several other majors in his other three groups. His having done so makes it difficult to know what to make of his survey results. Furthermore, it is not possible to say whether the 87 percent of economics major respondents who reported having cheated is statistically different from the responses of his other groups of majors or the roughly 75 percent Bowers (1994) and McCabe and Bowers (1994) found.

Econometric studies

Since Bowers' 1964 study, only Kirkvliet (1994), Nowell and Laufer (1997), and Carrell, Malmstron and West (2005) have done quantitative analyses of factors influencing students to cheat. Kirkvliet's study looked at students in principles of economics classes but not specifically at economics majors. His study included only individual variables, excluding academic major. Of those he looked at, a student's alcohol consumption was most likely to be linked to cheating behavior.

To corroborate what McCabe and his colleagues have had to say about cheating, Carrell, *et al*, (2005) examined the relationship between peer cheating and the probability a student will cheat. Various versions of their models, estimated using both logit and two-stage least squares techniques, did not include academic major and explained only from 7.5 to 11 percent of the total variation in cheating behavior.

Compared to studies whose conclusions are based upon direct question survey results, Nowell and Laufer's (1997) work has an advantage in that it reports results of a combination of observed experimental data and students' responses to

a random response type questionnaire. Nowell and Laufer make the case that random response type instruments may produce more honest responses than do direct question instruments. Concerning self-reported survey data and observed behavior data, while each has its advantages (Kerkvliet, 1994) and disadvantages (Umeseh and Peterson 1991), using the two methods together strengthens the conclusions one might be able to draw from Nowell and Laufer.

They found economics majors are no more likely to cheat than are students pursuing other majors. The logit model Nowell and Laufer estimate found being an economics major increases the odds of cheating between only about 2 and 4 percent. That finding, however, is not nearly statistically significant, in addition to being absolutely small. The only other individual major for which Nowell and Laufer test is computer information systems. They found students choosing the CIS major had a 28 percent higher probability of cheating. Hence, they can not confirm the findings of Bowers and those whose findings tend to support the conclusion that business and economics majors are more likely than average to cheat.

As for the random response portion of their study, Nowell and Laufer found instances of cheating during the experiment were twice as numerous as their survey responses suggested. This raises serious questions about the validity of any study based upon survey data, be it a direct question or random response type survey. More is said about survey issues below.

Do economists think differently?

Some people appear to believe that economists think differently than do other people. In fact, Carter and Irons (1991) find economics majors are different from other students in that they appear to be better than others at behaving rationally (in the economic sense of the word). But they also find economists tend to be born, not made. Their work suggests students who choose the discipline come to economics because of predispositions developed before reaching college. However, that does not mean economics majors cheat more and Carter and Irons present no evidence that they do. Furthermore, of the differences between economics and other majors, their model explains very little (between 5 and 17 percent) of total variation in cheating behavior.

Frank, Gilovich, and Regan (1993) found economics majors are more self-interested and less likely to behave cooperatively the more courses in economics they have taken. They also suggest economics majors may be less honest than other students, though they do not systematically investigate that question. Frank (2004)

believes economists are less cooperative specifically because they have studied economics rather than being predisposed to behave more self-interestedly. Furthermore, he finds a little evidence that studying microeconomics in certain ways might cause students to be more accepting of dishonesty, at least in others if not in themselves. However, Frank draws no conclusions as to what this might mean for the likelihood that economics majors will cheat.

SOME QUESTIONS

As noted above, much of the literature categorizes variables thought to influence cheating behavior as either individual or contextual variables. This raises the question as to the extent to which economics majors may be affected by both contextual and individual variables. It also raises the question whether the effects of individual and contextual variables are structurally different for economics majors from their effects upon the general population of college students.

It also begs the question as to whether there may be circularity between individual and contextual variables. For instance, college students self select into major fields of study. Are there common antecedent influences predisposing students to choose economics which also predispose them to cheat more than their peers? And are there contextual influences that either increase or decrease the rate of cheating by economics majors (McCabe, Treviño and Butterfield, 2001)? If so, does this mean those directing economics major programs should try to identify informal leaders among their group of majors and try to influence them to model academic honesty?

The entire matter of the circumstances under which a student grew up is essentially absent from the literature on cheating. In fact, there is perhaps an entire array of variables composing the circumstances of ones upbringing that may be important in shaping cheating behavior. These influences may help form moral and ethical predilections which in turn shape the ways in which one finally solves moral and ethical dilemmas, such as whether to cheat. To date, there have been no attempts to incorporate such information in models of student cheating behavior.

McCabe and Treviño (1997) discuss some sources of influences upon cheating that do not fit conveniently into the individual-contextual dichotomy. Using a concept from psychology, they mention variables of either sort may affect students differently depending upon the individual's locus of control. One who believes life outcomes are under his or her own control has an internal locus of control. One who believes outcomes are largely controlled by circumstances beyond

their control has an external locus of control. McCabe and Treviño find little evidence to support the notion that cheating behavior is related to locus of control. However, McCabe, Treviño, and Butterfield (1999) also mention in passing the potential role of ones upbringing as an influence upon her or his likelihood to cheat.

PROBLEMS WITH SURVEY DATA

The empirical work reviewed here, indeed nearly all of the empirical work on the subject, is based upon self reported data, usually in the form of direct question survey responses. While surveys certainly have their place in social science research, as Kirkvliet (1994); Kirkvliet and Sigmund (1999), and Sudman and Bradburn (1974) point out, there are reasons to use caution when searching survey data for meaning. Other than perhaps Frank, *et al*, (2004), no one argues that students of economics are systematically more (or less) inclined to respond truthfully to surveys asking about their own cheating behavior. Furthermore, neither is there theory giving reason to believe economics majors' survey responses will be less (or more) honest than will be others' responses. Using a random response type instrument, as did Nowell and Laufer (1993), may help in this regard, however.

Until such time as better experimental results are available or we invent survey instruments that are better at eliciting truthful responses, we are going to have to be very careful interpreting the results of studies of cheating using self reported data.

THE CASE FOR MISSING VARIABLES

Based upon the results of research reviewed here, particularly the work of McCabe and his colleagues, it seems fair to say contextual variables are likely to be the largest influence upon the cheat/don't cheat decision. McCabe, Treviño and Butterfield (1996) find students are less likely to cheat if they perceive their campuses to be "ethical communities" (p. 461). This raises the question whether students who have been raised in an "ethical community" are less likely to cheat. The literature so far does not address that question. As noted below, designing questions and a survey format to get at that question may not be easy, however.

According to Frank, Gilovich, and Regan (1993) students of economics are more self interested and tend to cooperate with others less than students pursuing other academic majors. If true, that may mean economics majors are less influenced by what their peers are doing than is the typical student. As related to the

dichotomy between individual and contextual variables, this would mean economics majors are perhaps more driven by the effects of individual variables. That argues for including in the examination more extensive measurement of individual variables, such as family background and other early life influences.

Here are some questions about the influences upon cheating behavior the literature has yet to address very well, or at all. While this set of questions is merely suggestive, it may include the more important heretofore unmeasured influences. How would parents react to their student being charged with cheating? Did parents ever discuss cheating as unacceptable behavior? Did parents (or teachers) cheat in college? At what age did the student first notice peers cheating? Does the student have plans for graduate study? How risk averse is the student? What is the student's expected income in his or her first job? How large is the earnings gap between college graduates and non-graduates? Does the student find the institution to be a "just community"? How frequently does the student's family attend religious services?

Several of these questions have been at least implied by others, but none of them have been specifically included in empirical work to date. Some of these influences could be easily measured. For example, it would be relatively easy to find data as to the size of the income gap between college graduates and those without degrees. Other variables, however, would only be measurable through self-reported survey responses, the voracity of which is suspect, as noted above. It would be informative to see which, if any, of these would improve the power of statistical models to predict cheating behavior.

CONCLUSIONS

Considering the body of work so far, it appears applying the economic model to student behavior does not lead to the conclusion that economics majors are more likely than average to cheat. There is neither theory nor convincing empirical evidence sufficient to support the argument *homo economicus* is more inclined to cheat than are her or his peers. Additionally empirical studies are able to explain a relatively small part of total variation in measured cheating differences, regardless of whether academic major is included as an explanatory variable. Of those studies for which it is possible to determine the size of explained variation, shares range from about 7.5 percent (Carrell, *et al*, 2005) to a high of about 30 percent (McCabe and Treviño, 1997). Therefore, statistical work to date leaves unexplained a rather

large share of total variation in the data. Furthermore, there are methodological issues in using self-reported survey data.

To address some of the shortcoming of the present state of the literature on cheating further work will have to be done. In addition there are important influences upon students' decision to cheat that are not investigated in the existing literature. In particular, we have yet to systematically include data from the pre-college stage of students' development, including the influences of their upbringing and family background. Controlling for other influences, if economics majors cheat differently than does the average student, we need to know why, if we are to find ways to improve the situation.

Scholars have made good progress in their investigations of the antecedents of cheating behavior so the state of the art is not deplorable. However, heretofore unexplored territory exists and covering that ground holds the promise of advancing the state of the art. We may find, to paraphrase Pogo, we have met *homo economics* and he is all of us!

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