

FEP WORKING PAPERS

RESEARCH – WORK IN PROGRESS – N. 214, JUNE 2006

A CROSS-COUNTRY EVALUATION OF CHEATING IN ACADEMIA: IS IT RELATED TO ‘REAL WORLD’ BUSINESS ETHICS?

MARIA FÁTIMA ROCHA

AND

AURORA A.C. TEIXEIRA*

* CEMPRES - CENTRO DE ESTUDOS MACROECONÓMICOS E
PREVISÃO

A cross-country evaluation of cheating in academia: is it related to ‘real world’ business ethics?

Maria Fátima Rocha (frocha@ufp.pt)

Faculdade de Economia. Universidade do
Porto and Universidade Fernando Pessoa

Aurora A.C. Teixeira* (ateixeira@fep.up.pt)

CEMPRE[♦]. Faculdade de Economia
Universidade do Porto. Portugal

Abstract

Today’s economics and business students are expected to be our future’s business people and potentially our tomorrow’s economic leaders and politicians. Thus, their beliefs and practices are likely to affect the definition of acceptable economics and business ethics. The empirical evaluation of the cheating phenomenon in academia has been almost exclusively focused on the US context, and the non-US studies involve, in general, a narrow scope of countries. In the present paper we perform a wide cross-country study on the determinants of economics and business undergraduate cheating which involves 21 countries from the American (4), European (14), Africa (2) and Oceania (1) continents and 7213 students. We found that the average magnitude of copying among the economics and business undergraduates is quite high (62%) but with a significant cross-country heterogeneity. The probability of cheating is significantly lower in students enrolled in schools located in the Nordic or the US plus British Isles blocks when compared with their South Europe counterparts; quite surprisingly that probability is also lower for the African block. Distinctly, students enrolled in schools from the Western and especially from the Eastern Europe observe statistically significant higher propensities for perpetrating academic fraud. Our findings further suggest that average cheating propensity in academia is significantly correlated with ‘real world’ business corruption.

Keywords: cheating; corruption; university; economics; business; countries

JEL-Codes: A22; I23

* Corresponding author - Address: Faculdade de Economia Porto, Rua Dr Roberto Frias, 4200-464 Porto, Portugal; tel. +351225571214; fax +351225505050.

♦ CEMPRE - Centro de Estudos Macroeconómicos e Previsão - is supported by the Fundação para a Ciência e a Tecnologia, Portugal, through the Programa Operacional Ciência, Tecnologia e Inovação (POCTI) of the Quadro Comunitário de Apoio III, which is financed by FEDER and Portuguese funds.

1. Introduction

Given its importance for a country's economic and political future, the education sector is expected to be particularly fair. In the book *Stealing the Future: Corruption in the Classroom*, the editors (Meier and Griffin, 2005) underline the fact that corruption in school leads to poor quality education; they further add plainly that “corruption in education is also incompatible with one of education's major aims: producing citizens that respect the law and human rights”.

In spite of the above well recognised and valued aims, in a recent article published by *The New York Times* (May 18, 2006), Jonathan D. Glater described the paramount magnitude of cheating among university students and the increasing worries by University Deans and the society in general about the escalating pervasiveness of the phenomenon within academia and its potential (detrimental) impact on business and ‘real world’ ethics.

The critical issue here is that today’s economics and business students are likely to be tomorrow’s business people and, as such, their beliefs and practices are likely to affect the definition of acceptable business ethics. Moreover, students’ perceptions of what constitutes ethical behaviour, whether accurate or not, will influence the actions they take once they enter the business world (Lawson, 2004).

Students, in general, and those in Economics and Business related areas, in particular, have grown up in a society where distinctions between right and wrong are blurred and where unethical behaviour by high-profile leaders is somewhat expected (Kidwell, 2001). Testifying on the rampant trend of cheating and plagiarism at a Thai first class reputation school, a professor sadly asserted “... the students who attend this school are likely to be the movers and shakers of the future in Thailand, the people who will be in positions of power. With the idea of impunity being re-enforced to them at such a young age, can we have any hope that corruption can be eliminated, or even reduced? These future leaders of the country are getting the message that it is ok to cheat.” (Stickman, 2004).

Studies involving students’ beliefs regarding ethical behaviour in the business world tend to be daunting. Students have been found to make consistently less ethical choices than practitioners and to possess lower ethical standards than businessmen (Hollon and Ulrich, 1979; Stevens, 1984; Arlow and Ulrich, 1985; DeConick and Good, 1989; Glenn and Van Loo, 1993; Cole and

Smith, 1996; Lord and Melvin, 1997). Wood *et al.* (1988) concluded that students were significantly more willing to engage in unethical behaviour than their professional counterparts.

Magner (1989), reporting the results of a survey of business students at a conference dealing with business ethics, noted that 97% of the students agreed that “good ethics is good business” while 71% believed that being ethical in business could hurt them in some instances. Similarly, Glenn (1988: 174) reported, a majority (54%) of the student respondents agreed with the statement that “a person in business is forced to do things that can conflict with her personal values”.

As previously documented in Rocha and Teixeira (2005a, b), the empirical evaluation of the cheating phenomenon among university students have been almost exclusively focused on the US context, embracing usually few universities. The non-US related studies generally involved a narrow scope of countries.

Thus, a comparative worldwide study on the cheating phenomenon would be illuminating on the cross country differences in university students’ propensity towards illegal behaviour within academia. Moreover, it would permit, albeit in a rather preliminary and rude attempt, to assess whether average student cheating propensity is related to the existing standard measures of ‘real world’ business corruption (e.g, Corruption Perception Index, CPI).

In the present paper we aim at extending our previous work on university cheating (Rocha and Teixeira, 2005b; Teixeira and Rocha, 2006) to 21 countries (Argentina, Austria, Brazil, Colombia, Denmark, France, Germany, Ireland, Italy, Mozambique, New Zealand, Nigeria, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Turkey, United Kingdom, USA), which cover the whole ranking of the Corruption Perception Index 2005 (TI, 2006), from the second best positioned (New Zealand) up to one of the worst ranked country (Nigeria, 152nd out of 158th). By correlating the average university cheating propensity with CPI score, which reflect the perceptions of the degree of corruption as seen by business people and country analysts, we uncover the potential direct relation between cheating in academia and cheating in ‘real world’ business.

This paper is organised as follows. The next section surveys existing studies on the topic of cheating and the potential relation to business ethics, and Section 3 reviews the determinants of university cheating and puts forward the main hypotheses of the study. In Section 4 the methodology for collecting the data is described and the following section (Section 5) presents

the econometric specification used for evaluating the phenomenon and the results. The last section concludes by discussing the main results of the study and uncovering the relation between academia cheating and 'real world' business corruption.

2. Academic cheating and the business world ethics

Research on academic cheating dates back to the turn of the century, with the earliest studies conducted within the fields of education and educational psychology (Hartshorne and May, 1928; Campbell, 1931). Since that time this body of research has been integrated with the research on societal deviance, with advanced understanding in both areas as a result of this alliance. The research on university cheating has not enjoyed as symbiotic a relationship with business ethics research (Crown and Spiller, 1998). Although university cheating does not represent an organizational unethical behaviour, the literature pertaining to the decision to engage in this behaviour may still contribute to our knowledge in business ethics.

Newstrom and Ruch (1976: 21) admitted that "it is conceivable that a student who has successfully cheated on an examination will be more likely to cheat on an expense account when he enters the world of business." These authors proceeded questioning whether the student who falsifies a term project or commits some type of illegal behaviour at school would also falsify the records of campaign contributions by his/her company.

Students generally hold the belief that people in the business world act in an unethical manner (Lawson, 2004). Yet, at the same time, a substantial proportion of the students admit to having engaged in academic dishonesty. Previous researchers have noted the apparent conflict between these two phenomena: "[o]n the one hand, collegians strongly disapprove of what they perceive as the businessman's lack of integrity. On the other hand, many college students occasionally cheat on examinations. One wonders how collegians explain this apparent inconsistency. Are their temptations more severe than the businessman's? Do they regard it as less reprehensible to be unethical in academic matters than in economic? If so, why?" (Baumhart, 1961: 19).

Especially troubling is that some educators believe that students may no longer view cheating as morally wrong (Pavela and McCabe, 1993). As early as 1987 Stevens and Stevens reported a heightened concern about cheating in higher education. After the American Council on Higher Education reported in 1990 that cheating at colleges is on the rise, studies began to explore the issue of cheating (Bunn *et al.*, 1992; Kerkvliet, 1994). Consistent with the work of Bunn *et al.*

(1992) and Kerkvliet (1994) the presumption is made that cheating behaviour is related to the perceived costs and benefits of cheating. Quite possibly the decision to cheat can also vary by certain demographic characteristics, a group of individual characteristics, as well as the educational environment.

More recent studies on cheating (e.g. Bunn *et al.* 1992; Kerkvliet and Sigmund, 1999) are based on econometric specifications consistent with the assumption of a relation between fraudulent behaviour and the notion of costs and benefits resulting from it. So these studies are adaptations of Becker's (1968) crime model to academic dishonesty.¹

Most of studies that examine the importance, in quantitative terms, of cheating in academia (*cf.* Table 1) show that the dimension of cheating is considerable – over one third. One of the pioneering studies by Bunn *et al.* (1992) concerning an analysis of two higher education courses in Microeconomics in Alabama (US), the authors found that half the students surveyed admitted to having copied. They also found that cheating was 'normal' among students, with 80% of them saying that they had seen a colleague copying and half of them said that they had seen a colleague being caught copying. Apart from the magnitude of the phenomenon, unlawful behaviour seems to be quite well 'interiorised' in the student community, with 28% of students admitting to knowing colleagues who copy regularly. The vast incidence of the phenomenon seems to be justified by the fact that most students (70%) do not see copying as a serious offence (Bunn *et al.*, 1992).

In a survey of university first year students, Collinson (1990) found that 37% admitted to having cheated on a test in high school. Nazario (1990) cites a poll that found that 47% of the students surveyed would cheat on an exam. 78% of students surveyed at the University of Delaware acknowledged having cheated (Collinson, 1990). In addition to this evidence of widespread academic dishonesty, there is evidence that the problem may be increasing over time (Davis *et al.*, 1992; McCabe, 2005).

In another context (two public universities in the US), and looking at more courses (six Economics classes), Kerkvliet (1994) found that in the random response questionnaire 42% of students indicated they had copied at least once in an exam. In a later study, covering 12 classes

¹ Rocha and Teixeira (2005a) account for the distinct forms of theorizing illegal behaviours and adapt Becker's crime model (1968) to cheating.

in the two universities, Kerkvliet and Sigmund (1999) estimated that an average of 12.8% of the students surveyed had copied at least once. But there was considerable disparity among the groups ranging from 0.2% in the least 'deceitful' class and 32% in the one where cheating was most common. The authors say this disparity is due to the different measures of "intimidation" used in the various classes (number of tests per student that watch out for discipline in the universities; space per student in the classroom; number of test versions used by the teacher; kind of exam).

Taking a larger population than that in the Bunn *et al.*'s (1992) study Nowell and Laufer (1997) looked at two higher courses in the USA (Economics and Accounting) and concluded that the average propensity for dishonesty was around 27%.

More recently, and with reference to other scientific areas, findings by Sheard and Dick (2003) in a study on postgraduate students in Information Technology at a university in Melbourne (Australia) showed that 9% of students admitted to being involved in serious forms of cheating in exams. In other study on unlawful behaviour among students from the 2nd to the 6th year of Medicine in a Croatian university, Hrabak *et al.* (2004) found that 94% admitted to having committed some kind of deceit at least once during their studies. When it came to copying answers or using 'cheat sheets' the percentages were 52.2% and 34.6%, respectively. Also a considerable percentage (66.4%) of Psychology and Management students in three Dutch universities admitted to have cheated (Bernardi *et al.*, 2004).

In the new research from the Center for Academic Integrity (CAI) conducted by Don McCabe (released in June, 2005), involving almost 50,000 undergraduates (on more than 60 campuses) who have participated in a nationwide (USA) survey of academic integrity since the fall of 2002, 70% of students admit to some cheating. Close to one-quarter of the participating students admitted to serious test cheating in the past year and half admitted to one or more instances of serious cheating on written assignments. Longitudinal comparisons show significant increases in serious test/examination cheating and not allowed student collaboration. For example, the number of students self-reporting instances of not allowed collaboration at nine medium to large US state universities increased from 11% in a 1963 survey to 49% in 1993 (McCabe, 2005).

Focusing on European countries, Teixeira and Rocha (2006), and Rocha and Teixeira (2005b), estimated that the magnitude of cheating among undergraduate Economics and Business students was preoccupying reaching values between 62% (Portugal) and 94.0% (Romania).

Table 1: Magnitude of academic dishonesty among students

Studies/authors	Level of education	Courses (n°)	Countries (n° univ/country)	Number of students	Magnitude of 'cheating'
Bunn <i>et al.</i> (1992)	University - Undergraduate	Microeconomics (2)	USA (1) (Alabama)	476	50.0%
Kerkvliet (1994)	University - Undergraduate	Economics (6)	USA (2)	363	42.2%
Nowell and Laufer (1997)	University - Undergraduate	Economics and Accounting (2)	USA (2)	311	27.0%
McCabe and Trevino (1997)	University - Undergraduate	-	USA (9)	1793	30.0%
Diekhoff <i>et al.</i> (1999)	University - Undergraduate	Sociology and Psychology related courses (6)	USA (1) Japan (3)	392 276	20.0% (USA) 55.4% (Jap)
Pulvers and Diekhoff (1999)	University - Undergraduate	Behavioural and Social Sciences. Criminal Justice. Economics and Physical Education (18)	USA (2) (Midwest)	280	11.6%
Kerkvliet and Sigmund (1999)	University - Undergraduate	Economics (12)	USA (2)	597	12.8%
Tibbetts (1999)	University - Undergraduate	Introductory Behavioural Science (6)	USA (1) (Mid-Atlantic)	598	39.0%
Magnus <i>et al.</i> (2002)	Secondary. University - Undergraduate and Postgraduate	Economics	Russia (Moscow and provincial Russia). USA; Netherlands; Israel	885	-
Sheard and Dick (2003)	University - Postgraduate	Information Technologies	Australia (1) (Melbourne)	112	9.0%-38.0%
Bernardi <i>et al.</i> (2004)	University - Postgraduate	Psychology and Management (2)	Netherlands (3)	220	66.4%
Hrabak <i>et al.</i> (2004)	University - Undergraduate	Medical Sciences	Croatia (1) (Zagreb)	827	34.6%-52.2%
Rettinger <i>et al.</i> (2004)	University - Undergraduate	Arts (4)	USA (1) (Northeastern)	103	53.0%-83.0%
McCabe (2005)	Undergraduate	Several	USA (60 campuses)	50 000	70.0%
Rocha and Teixeira (2005b)	Undergraduate	Economics and Business	Portugal (10)	2675	62.0%
Teixeira and Rocha (2006)	Undergraduate	Economics and Business	Austria (1), Portugal (6), Romania (1) and Spain (1)	2817	62.3%-94.0%

Source: Part of the table is based in Table 1 from Rocha and Teixeira (2005b: 5)

Callahan (2004), author of *The Cheating Culture: Why More Americans Are Doing Wrong to Get Ahead*, suggested that students today feel more pressure to do well in order to get into graduate or professional school and secure a job. Indeed, in a time of economic rationalism and high unemployment levels, the competition to gain qualifications is increasing. Passing exams, doing well in assignments, and ensuring a high ranking score in relation to fellow students - jostling for position against competitors - is seen as a key step towards success or failure in getting well paid employment in the future. Building on the widely held idea that the free market and competition are desirable attributes, such student competition would appear to be a good thing. According to Godfrey and Waugh (1997) this increased competition among students appears to have been responsible for a trend towards a rise in academic cheating in educational institutions.

3. Determinants of academic cheating and the main hypotheses of the study

In order to better understand the phenomenon of cheating, several authors (e.g., Whitley, 1998) identified a host of factors associated with university student cheating. Consistent with the organizational literature (Crown and Spiller, 1998), the role individual factors play in affecting the decision to cheat has received the bulk of empirical attention.

Table 2: Factors influencing the propensity to cheat, by groups of determinants

Groups of determinants	Determinants	Studies
Students characteristics	<ul style="list-style-type: none"> ▪ Gender ▪ Average course grade ▪ Consumption of alcohol ▪ Academic year of studies ▪ Religious preference ▪ Student Status ▪ Have failed at least a year ▪ Moral factors and kind of personality ▪ Motivation and competence 	Fakouri (1972); Michaels and Miethe (1978); Baird (1980); Leming (1980); Haines <i>et al.</i> (1986); Graham <i>et al.</i> (1994); Kerkvliet (1994); Nowell and Laufer (1997), Whitey (1998); Kerkvliet and Sigmund (1999); Tibbetts (1999); Bernardi <i>et al.</i> (2004); Hrabak <i>et al.</i> (2004); Rettinger <i>et al.</i> (2004); Rocha and Teixeira (2005b); Teixeira and Rocha (2006)
Factors related with the education institution	<ul style="list-style-type: none"> ▪ Dimension and level of class ▪ Category of teachers ▪ Existence of an “honour code” ▪ Classroom environment 	Gardner <i>et al.</i> (1988); May and Loyd (1993); Nowell and Laufer (1997), Whitey (1998); Pulvers and Diekhoff (1999); Kerkvliet and Sigmund (1999); McCabe <i>et al.</i> (2003); Rocha and Teixeira (2005b); Teixeira and Rocha (2006)
Cost of detecting academic dishonesty	<ul style="list-style-type: none"> ▪ Teachers’ academic category ▪ Existence of verbal warnings regarding the resultant consequences of copying in exams 	Houston (1983); Bunn <i>et al.</i> (1992) Kerkvliet and Sigmund (1999)
Probability of detecting copying	<ul style="list-style-type: none"> ▪ Number of tests by students with the goal of maintaining good behaviour ▪ Geographic class occupation by student ▪ Number of exams versions utilized by instructor ▪ Type of exams 	Kerkvliet and Sigmund (1999)
Benefits of copying (in the case of not being caught)	<ul style="list-style-type: none"> ▪ Expected classification ▪ Number of “free” hours for the student during the term ▪ Type of Courses 	Whitey (1998); Kerkvliet and Sigmund (1999); Rocha and Teixeira (2005b); Teixeira and Rocha (forthcoming)
Benefits of not copying	<ul style="list-style-type: none"> ▪ Average number of weekly hours of study 	Kerkvliet (1994) Kerkvliet and Sigmund (1999)
Others factors	<ul style="list-style-type: none"> ▪ Students’ opinion of those that copy or commit other types of academic dishonesty ▪ Students perception in light of the percentage of students that copy and of rival group behaviours ▪ Intensity of Work (“Workload”) ▪ Pressure not to fail ▪ Type of courses ▪ Country /region ▪ Students’ background ▪ Students’ origin 	Millham (1974); Houston and Ziff (1976); Baird (1980); Lanza-Kaduce and Klug (1986); Bunn <i>et al.</i> (1992); May and Loyd (1993); Ward and Tittle (1993); Kerkvliet (1994); McCabe and Trevino (1997); Nowell and Laufer (1997); Whitey (1998); Diekhoff <i>et al.</i> (1999); Magnus <i>et al.</i> (2002); Sheard and Dick (2003); Hrabak <i>et al.</i> (2004); Rocha and Teixeira (2005b); Teixeira and Rocha (2006)

Source: Part of the table is based in Table 2 from Rocha and Teixeira (2005b: 5)

Separate studies systematically indicate a series of determinants for academic dishonesty which may be grouped into seven major factors (*cf.* Table 2) – e.g., student characteristics, factors related to the institution, variables influencing the likelihood of the phenomenon being detected

and the respective cost of detection, and also causes associated with the benefits of copying (when they are not caught) and the benefits of not copying.

Grade Point Average (G.P.A.) and Expected Benefits. Bushway and Nash (1977: 624) reported that “the majority of studies indicate that students who are lower in school achievement may cheat more frequently.” Research continues to find a significant negative relationship between cheating and G.P.A. (see Crown and Spiller (1998) for a survey). Although Bunn *et al.*'s (1992) results confirm this assumption, many authors (Kerkvliet, 1994; Nowell and Laufer, 1997; and Kerkvliet and Sigmund, 1999) did not find the course average statistically significant. Notwithstanding, Hrabak *et al.* (2004) argue that the course average could be relevant in explaining attitudes to cheating. They take the view that students with a higher average have a more negative attitude to copying than those with a lower one, and further disapprove of swapping questions by phone during an exam, and using personal relations to pass an exam. Concerning grades, we suggested here, linked to the cost/benefit idea (similarly to Rocha and Teixeira, 2005b), that perhaps more important than students' average grade/mark, a critical determinant of the propensity to cheat is students' perceived 'benefits', in terms of a higher grade, which they expect if they copy successfully.

In this line, we aim at testing the following hypothesis:

Hypothesis 1: The likelihood of copying is increased when the difference between the mark/grade students expect if they copy is positive when compared with the mark/grade that they expect if they do not copy.

Hypothesis 2: The probability of copying is higher the greater the difference between the mark students says they expect if they do in fact copy and the mark if no copying takes place.

Contextual factors. The role situational factors play in affecting the decision to cheat has garnered a significant amount of recent attention. Consistent with Ford and Richardson (1994: 212), situational/contextual factors encompass the “pressures which come to bear on the individual to encourage or discourage ethical decision making. Contextual factors and the environment-peer pressure and attitudes towards academic dishonesty are considered by a larger number of studies (e.g., Houston, 1986; Lanza-Kaduce and Klug, 1986; Ward and Title, 1993) as conditioning factors for the development of unlawful academic practices. In fact, Bunn *et al.*

(1992) found that the likelihood of copying is directly related to observing others doing so, and the perception of the number of students who routinely copy. In other words, the probability of a student having already copied is conditioned by his/her beliefs in relation to other students who copy. Furthermore, these authors assess the perception students have regarding the severity of the punishment applied if they are caught copying and use this and indicators of the climate of cheating perceived by students to evaluate their perception of the percentage who copy. They find evidence for the belief among students that, given the negligible effect of intimidation attached to expected punishments, they are very unlikely to be caught copying. In addition they find that students do not think copying is a serious crime, which could contribute to a greater incidence of this phenomenon.

Hypothesis 3: In copying-favourable environments where permissibility and permeability towards copying is high, students' propensity for copying tends to be higher.

Hypothesis 4: The higher and more serious the perceived sanctions are, fewer incentives students have to perpetrating dishonest behaviours.

Honour codes. Since the earlier of the twentieth century researchers have been interested in the effectiveness of honour codes. For instance, Campbell (1935) reported that in instances where honour guarantees were used students were less likely to cheat than students placed in traditional proctor conditions. This finding has been replicated as recently as 1993. In an extensive survey of 6090 students McCabe and Trevino (1993) found that students under honour systems reported significantly lower levels of cheating than students without honour codes. Interestingly, the acceptance of the policy, the likelihood of being reported, and the severity of the penalty for being caught all influenced the likelihood students would refrain from cheating. Perhaps most interesting is their finding that the perceived behaviour of peers was the most important factor in predicting cheating behaviours. May and Loyd (1993) also found a significant reduction in cheating for students at universities with honour codes. Although McCabe *et al.* (2003) do not analyse directly the influence of codes of honour on the probability of copying, they examine whether this variable has an effect on the academic integrity of university staff in terms of their attitudes and behaviours. The analysis is based on universities with and without codes of honour. The authors found that universities which have a code of honour have more positive attitudes towards policies of academic integrity and are more willing to allow the system to take measures

to warn and discipline students. Furthermore, they confirmed that, in the absence of a code of honour, university faculty members with this experience believe in students being responsible for monitoring their colleagues, recognising the fairness and efficiency of their institutions' policies of academic integrity. Following this line of argument we hypothesise here that:

Hypothesis 5: In universities where 'codes of honour' exist, the propensity for copying among students is lower.

Countries/social and cultural factors. Differences in social factors are likely to comprise an important factor in explaining students' propensity to cheat. For instance, Diekhoff *et al.* (1999) detect differences and similarities in American and Japanese students copying in exams. Weighting the limitation associated with the distinct composition of the two samples (both in terms of size and associated with various demographic characteristics, such as gender, age and school year), the data show that in comparison with the Americans, the Japanese students are more prone to copy in exams. With regard to with social involvement, Diekhoff *et al.* (1999) consider that if copying is viewed as widespread, it is harder for Japanese students to resist to the pressure of copying or to help their colleagues to copy, given the group and team orientation among Japanese students. In a complementary way, Magnus *et al.* (2002) conducted an experiment on students in secondary, higher and postgraduate education, in 5 different regions - Moscow, Russia (province), the Netherlands, the USA and Israel - and show that both the level of teaching and the zone lead to students having distinct opinions relative to academic dishonesty. More recently, Teixeira and Rocha (2006) show that differences in undergraduate copying propensities are surmount, with Romania and Spanish students revealing a higher propensity towards fraudulent behaviours than their Austrian and specially their Portuguese counterparts. Thus we hypothesise that:

Hypothesis 6: The propensity to copy is influenced by the countries' cultural/educational systems and social and business ethics-related factors.

Gender. Crown and Spiller (1998) in a review of studies on cheating argued that the relationship between gender and cheating appears to have become more tenuous in the recent past. In the earlier studies such as the one by Bushway and Nash (1977), it was concluded that the amount of cheating behaviours engaged in by females was fewer than the amount engaged in by males. With the exception of Karabenick and Srull (1978) and Graham *et al.* (1994), the studies

published after 1982 did not find significant gender differences. Surprisingly, the latest study to find gender differences reported that females were more likely to admit to cheating than males (Graham *et al.*, 1994). An explanation of the attenuation of gender differences may be found in Ward and Beck's (1990) work. They noted that sex-role socialization is thought to influence the tendency towards dishonesty through differences in internalised role requirements. The prevailing non-significant relationship between gender and cheating during the latter years might suggest a convergence in role requirements among males and females in collegiate settings. In Rocha and Teixeira's (2005b) study females were found to significantly cheat less than males. Additional studies (Kerkvliet, 1994; Nowell and Laufer, 1997; Kerkvliet and Sigmund, 1999; Tibbets, 1999; Hrabak *et al.*, 2004) focused this relation but without any clear-cut picture.

Age. Several studies (e.g., Barnes, 1975; Baird, 1980; Michaels and Miethe, 1978; Haines *et al.*, 1986; Graham *et al.*, 1994) reported significant age-cheating relationships, while Antion and Michael (1983), and Daniel *et al.* (1991) did not find a significant correlation. Unfortunately, the importance of age effects are difficult to detect in the cheating literature. In most studies age is restricted to a five-year span in addition to being highly correlated with class. In the one study that focused on traditional versus non-traditional age students Graham *et al.* (1994) found that the former cheated more than the latter. Studies assessing differences within the traditional age span have produced mixed findings. Barnes (1975) and Michaels and Miethe (1978) found that older students were more likely to cheat, while Baird (1980) and Haines *et al.* (1986) reported that younger students cheated more frequently. Similarly to this later study, Rocha and Teixeira (2005b) found that younger undergraduates are more likely to commit illegal conducts.

Year of study. The year in school have been reliably associated with cheating attitudes and behaviour, with attitudes toward cheating becoming more negative and cheating behaviour declining with increases in year in school (Davis *et al.*, 1992; Diekhoff *et al.*, 1996; Haines *et al.*, 1986). Diekhoff *et al.* (1999) however, found that their more mature/senior Japanese sample actually engaged in more cheating than did students in their American sample. In the same line, Nowell and Laufer (1997) found that seniors, who, according to the authors, would have little to gain in terms of overall change in GPA, were somewhat less likely to cheat than freshmen (first year students).

Student status. Previous research highlights the importance of the students' workload. Nowell and Laufer (1997) found that increased workload was positively related to the probability of cheating. Students who were employed either part time or full time were more likely to cheat than students who were not employed. Thus cheating propensity is likely to be dependent on the student status, that is whether it is a regular/full time student or part-time student combining employment (Working Students, Ws) or other student-related tasks (Association Members, AMs).

4. Methodological issues and data exploratory description

Cheating is a complex issue. When exploring students' cheating behaviour in university institutions there are many aspects to consider. It is not surprising, therefore, that a search of the literature has shown a lack of any simple definitions (Sheard *et al.*, 2003). Typically, cheating is described in terms of a series of practices, which cover a range of areas that can be defined as illegal, unethical, immoral or against the regulations of the course or institution. The difficulty of clearly defining cheating is exacerbated by differences across institutions and also across disciplines of study (Maramba and Maline, 1993). Some practices, however, may be universally accepted as cheating, for example, employing someone to sit an examination or copying at exams (by a colleague and/or using not allowed written/taped/saved notes in papers, cell phones, calculators, etc.). In this study we defined a cheating behaviour copying at exams.

Measuring cheating in academia is not an easy task and researchers have generally used their own information to gather data for assessing this type of behaviour (Nowell and Laufer, 1997). The literature points to four main ways to obtain data on academic fraudulence (Kerkvliet and Sigmund, 1999): direct yet discrete observation of the data; the "overlapping error" method; the random answer questions method, and inquiry via the direct questions method. In the present work we have opted for the latter method. Although this method takes no account of problems associated with sensitivity to the kind of questions asked (like the random answers method), meaning that it can induce deviation in the estimates of academic dishonesty (Kerkvliet and Sigmund, 1999), it does have simplicity of implementation in its favour, and a wealth of output for analysis. This is why it is often the procedure used (Bunn *et al.*, 1992; Magnus *et al.*, 2002; Sheard and Dick, 2003; Hrabak *et al.*, 2004).²

² Rocha and Teixeira (2005a) provide a detailed description of the different methods.

We devised a one page inquiry in line with Bunn *et al.* (1992) embracing a range of questions focusing the main determinants associated with academic fraudulent behaviour, adding new variables/questions which in our view are likely to influence the propensity to copy (*cf.* Section 2).

The target group was 2nd, 3rd and 4th year students from Economics and Business/Management courses. The questionnaire was implemented in 11 Portuguese Universities (all public universities from the mainland plus University of Azores), and 31 schools/universities of 20 other countries. In operational terms, for the majority of schools, the questionnaires were implemented in the classrooms (in general it were targeted the classes with the highest number of enrolled students).

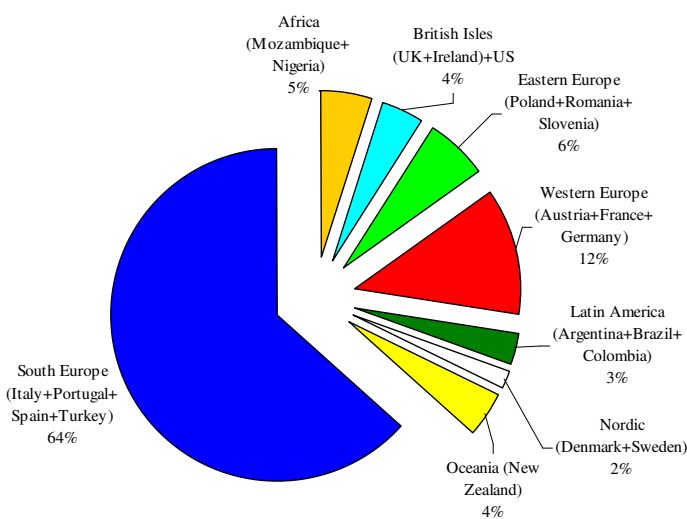
For schools in countries such as Brazil, Colombia, France, and Poland, students filled an on-line questionnaire similar to the one the other students filled in classes. The on-line option was chosen following the suggestions of professors/researchers from the targeted schools given the difficulty that, within a reasonable time span, to assembly in classes a sufficient number of students. The survey was conducted between March 2005 and May 2006 resulting 7213 valid responses.

Reflecting the number of schools surveyed, the number of responses from Portuguese students totalled almost 40% of total responses. The remaining responses were distributed, by decreasing order of responses, as follows: Spain with 22% of the remaining total; Turkey and Austria with about 12%; Slovenia, New Zealand and Germany with approximately 7%; Italy, Nigeria and UK with between 5%-6%; with around 2% we have Mozambique, Brazil, Romania, Ireland, Denmark, and Argentina; finally, the least representative countries with about 1% of the remaining total, France, Colombia, Sweden, US, and Poland.

Table 3: Countries, schools and number of students that participated in the survey

Country	Number of schools/universities	Number of responses	% Total responses	% Total responses (excl. Portugal)
Argentina	1	75	1,0	1,7
Austria	1	519	7,2	11,8
Brazil	1	100	1,4	2,3
Colombia	1	44	0,6	1,0
Denmark	1	78	1,1	1,8
France	2	62	0,9	1,4
Germany	3	305	4,2	6,9
Ireland	1	79	1,1	1,8
Italy	2	279	3,9	6,3
Mozambique	1	115	1,6	2,6
New Zealand	1	315	4,4	7,1
Nigeria	1	237	3,3	5,4
Poland	1	20	0,3	0,5
Portugal	11	2805	38,9	
Romania	2	99	1,4	2,2
Slovenia	2	321	4,5	7,3
Spain	3	955	13,2	21,7
Sweden	1	44	0,6	1,0
Turkey	2	528	7,3	12,0
UK	2	197	2,7	4,5
US	2	36	0,5	0,8
Total	42	7213	100,0	100,0

Given the low representativeness of the responses for some countries and the pertinence of the analysis we thought it was advisable to additionally aggregate countries into 8 meaningful blocks, as represented in Figure 1.

**Figure 1:** Distribution of the responses by blocks of countries

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Our worldwide survey on copying propensity among economics and business undergraduate students points to an average cheating propensity of 61.7%. Thus, similarly to the studies surveyed in Section 2, we conclude that the phenomenon of cheating in the Universities reaches a relatively high magnitude. Recall that studies using a comparable methodology to the one presented here estimated copying probabilities between 50% (Bunn *et al.*, 1992) and 62% (Rocha and Teixeira, 2005b). Focusing also on copying practices Hrabak *et al.* (2004) pointed to figures between 34.6% and 52.2%.

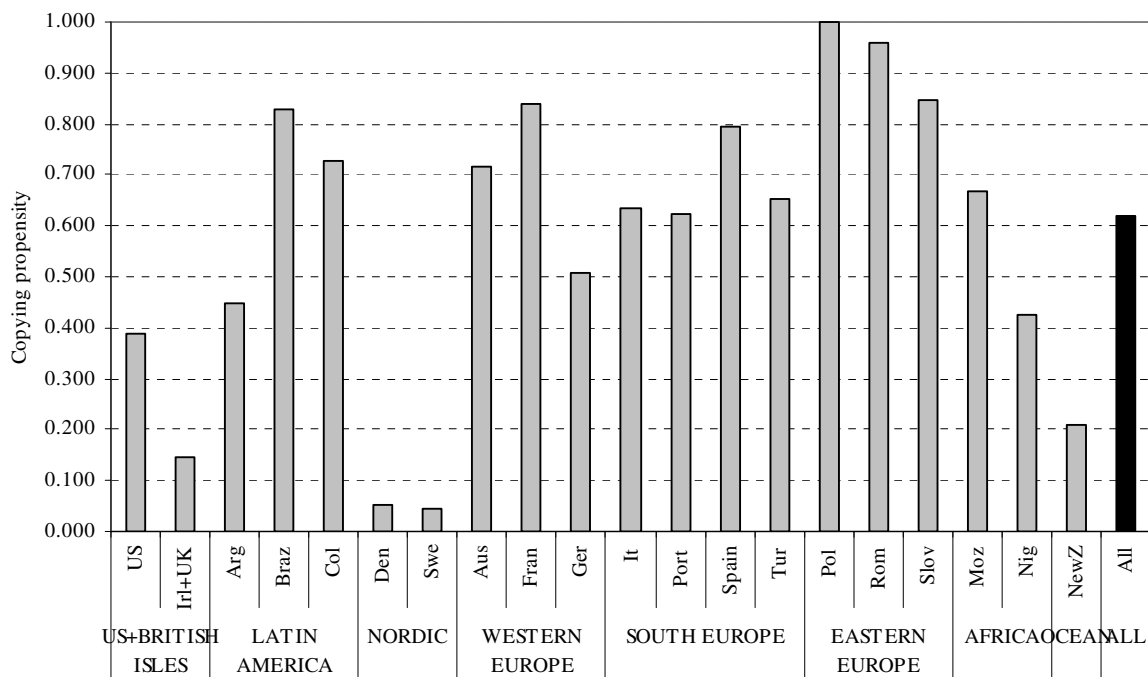


Figure 2: Probability of ‘copying’ by (blocks of) countries

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

The interesting contribution of our study relies on the evidence of striking differences in cheating behaviours between (blocks of) countries. In fact, from the Figure 2, it is apparent, for instance, the vast differences between the Nordic countries, whose average propensity to cheat is below 5%, and the Eastern Europe countries with an average cheating propensity of 87.9%. Latin America and South Europe blocks present rather similar averages, respectively 67.9% and 66.4%. In the US plus British Isles (Ireland and the UK) block around 17% of students surveyed admitted to have cheated, which is not far from the percentage of their New Zealand (Oceania) counterparts (20.7%). Quite surprisingly is the copying propensity evidence by the African block

(Mozambique plus Nigeria), where around ‘only’ half of the students admitted to commit fraudulent behaviours.

Table 4: Frequency of copying by countries and countries’ blocks

Countries/Blocks	% total of students in each country/block			Probability of copying (%)	% total responses (n=7139)
	Never	Sometimes	Often		
British Isles (Irl+UK)	85,6	14,0	0,4	14,4	
United States	61,1	36,1	2,8	38,9	4,3
US BI	82,7	16,6	0,7	17,3	
Argentina	55,4	43,2	1,4	44,6	
Brazil	17,0	72,0	11,0	83,0	3,1
Colombia	27,3	70,5	2,3	72,7	
Latin America	32,1	61,9	6,0	67,9	
Denmark	94,9	3,8	1,3	5,1	
Sweden	95,5	4,5	0,0	4,5	1,7
Nordic Countries	95,1	4,1	0,8	4,9	
Austria	28,4	67,5	4,2	71,6	
France	16,1	80,6	3,2	83,9	12,1
Germany	49,3	49,3	1,3	50,7	
Western Europe	34,7	62,2	3,1	65,3	
Italy	36,6	60,1	3,3	63,4	
Spain	20,4	73,0	6,6	79,6	
Turkey	34,6	60,4	5,0	65,4	63,6
Portugal	37,6	60,0	2,4	62,4	
South Europe	33,6	62,7	3,7	66,4	
Poland	0,0	85,0	15,0	100,0	
Romania	4,0	81,8	14,1	96,0	6,1
Slovenia	15,4	78,3	6,3	84,6	
Eastern Europe	12,1	79,4	8,5	87,9	
Mozambique	33,7	65,3	1,0	66,3	
Nigeria	57,4	39,1	3,5	42,6	4,8
Africa	49,3	48,1	2,6	50,7	
New Zealand	79,3	20,1	0,6	20,7	4,3
All Countries	38,3	58,1	3,6	61,7	100

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Distinguishing the frequency that students in each country and block of countries commit illegal behaviours during exams provides interesting patterns. Countries from Eastern Europe, in particular Poland and Romania, and Latin America, namely Brazil, present the highest percentages of students that admit copying in exams often or always. In sheer contrast we have Oceania (New Zealand), US and the British Isles and Nordic countries were a meagre percentage of student (below 0.8%) admit copying. Specifically Sweden, where no student admits copying with high frequency, and Ireland plus the UK emerge as the least prone to very regular behaviour towards cheating. Western and South Europe blocks present very similar figures (3.1% and 3.7%,

respectively), evidencing from these blocks (by a negative perspective) Austria (4.2%) and Spain (6.6%). Notable are the figures from the African block, in particular Mozambique with only 1% of the corresponding total respondent students admitting copying with regularity.

Analysing the percentages of students that claimed never ever have copied, once again the Nordic, the US plus British Isles, and the New Zealand, emerge here as the ‘cleaner’ undergraduate academics. In these (blocks of) countries 80% and over of their students stated that never committed fraud in exams. By contrast, Eastern countries (especially Poland), France, Brazil and Spain come up with the lowest percentages in this regard with 0% (Poland) up to 20% (Spain) of the corresponding total students claiming never have copied.

Table 5: Frequency of ‘observing others copying’ by countries and blocks of countries

Countries/Blocks	% total of students in each country/block			Prob. of observing copying (%)	% total responses (n=7171)
	Never	Sometimes	Often		
British Isles (Irl+UK)	47,5	46,7	5,8	52,5	4.4
United States	13,9	75,0	11,1	86,1	
US_BI	43.6	50.0	6.4	56.4	
Argentina	4,0	70,7	25,3	96,0	3.1
Brazil	0,0	35,0	65,0	100,0	
Colombia	0,0	65,9	34,1	100,0	
Latin America	1.4	53.3	45.3	98.6	
Denmark	79,5	17,9	2,6	20,5	1.7
Sweden	81,8	18,2	0,0	18,2	
Nordic Countries	80.3	18.1	1.6	19.7	
Austria	11,0	68,6	20,4	89,0	12.2
France	4,8	51,6	43,5	95,2	
Germany	18,5	71,3	10,2	81,5	
Western Europe	13.1	68.3	18.6	86.9	
Italy	12,0	52,6	35,4	88,0	63.4
Spain	2,6	47,3	50,1	97,4	
Turkey	7,6	54,4	38,0	92,4	
Portugal	7,5	68,6	23,9	92,5	
South Europe	6.8	61.5	31.7	93.2	
Poland	0,0	70,0	30,0	100,0	6.1
Romania	1,0	38,4	60,6	99,0	
Slovenia	6,3	63,7	30,0	93,7	
Eastern Europe	4.8	58.2	37.0	95.2	
Mozambique	7,0	61,0	32,0	93,0	4.8
Nigeria	16,2	54,9	28,9	83,8	
Africa	13.5	56.7	29.8	86.5	
New Zealand	52.3	45.1	2.6	47.7	4.3
All Countries	12.4	59.7	27.9	87.6	100

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Observing other students copying (Table 4) might constitute an indirect measure of cheating propensity and a reasonable indicator of the generalisation of the cheating 'culture'. It is alarming the fact that for all the countries analysed almost 90% of students admit having seen others committing illegal behaviours at exams – one third approximately claimed to observe that type of behaviour often or always!

The cheating 'culture' seems pervasive in Latin America, where grossly all students have observed others copying (45% admitted to have seen the phenomena with regularity), Eastern Europe (particularly Poland and Romania), and South Europe (namely Spain). Quite differently, the phenomenon is seldom observed in the Nordic countries – around 80% of Nordic students never observed other colleagues committing frauds in examinations. In the New Zealand and British Isles approximately half of the students stated never seen others copying. Regarding the observation of copying with some regularity, the percentages are quite high (approximately 70% or more) in countries such as the United States, Argentina, Poland, Austria and Spain.

The pervasiveness of cheating is further confirmed by the percentage of students that recognised knowing someone of their closer relations that copies with regularity – in Spain, Brazil, Romania, Slovenia and Colombia that percentage is around or above 80%.

Such pervasiveness is large extent explained by the opinion and attitude of students regarding those illegal behaviours. From our results we found that, on the overall, only 12.2% of respondent students reckon that cheating is a serious problem and around one third recognize that it deserves some concern. For the majority (60%), cheating is not a problem or is a trivial problem.

As expected, in the Nordic countries, this phenomenon is considered 'not an issue' – more than 80% of the Nordic students considered copying in examinations not a problem or a minor one. Interesting are the results gathered from Nigeria, Mozambique and Argentina. In these countries copying in exams is considered, by a substantial part of the undergraduates (over 70%), a serious problem or a problem that deserves some attention. Albeit the considerable amount of fraudulent behaviour among undergraduates in these nations, their pupils seem to have conscience of the relevance of the phenomenon. Eastern countries, despite having even more preoccupying rates of copying than the latter mentioned countries, do not seem to recognise it as an important issue which deserves some concerns and actions. For instance, in Slovenia and Poland where the

magnitude of cheating is paramount, a large majority of student do not perceive cheating as a problem. The same happens in Austria, Spain and Brazil.

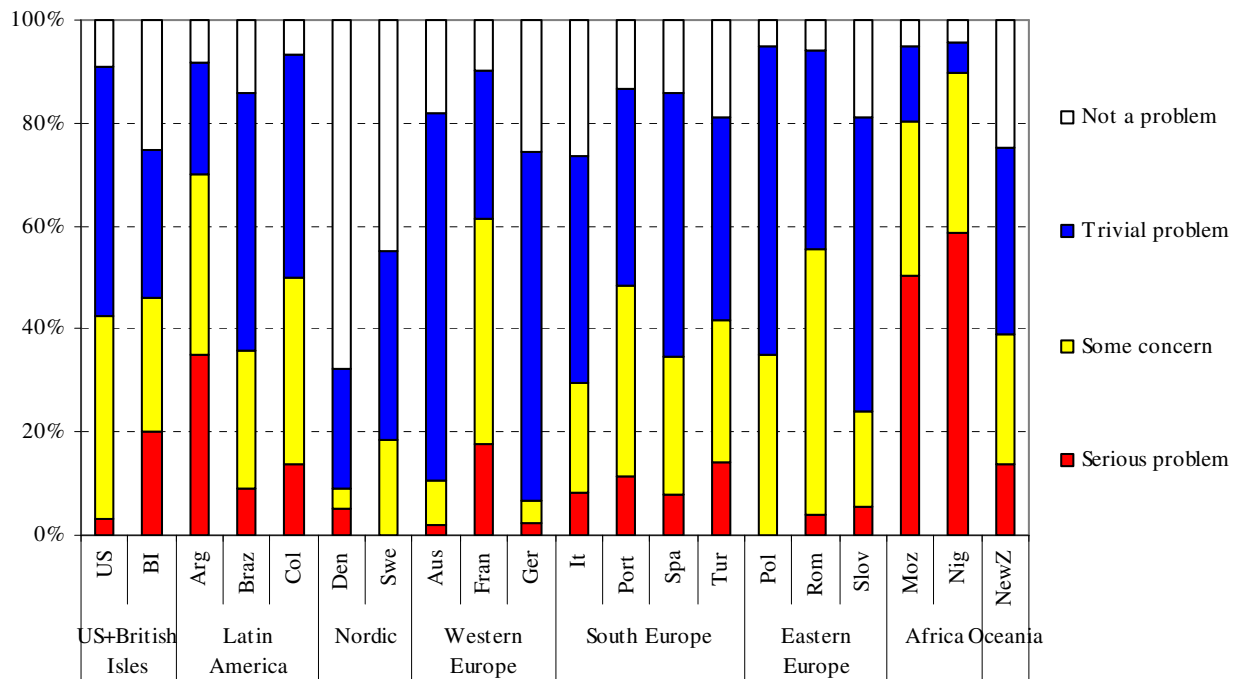


Figure 3: Students’ opinion regarding copying by block/country

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Troublesome is the fact that not only students reckon copying as a minor problem but a large percentage (around 40% of all respondents) argues that copying is an intentional act. Only 17% admit that copying occurred due to panic.

The countries where a higher percentage of students identifies copying with panic situations are in general those where fraud in academia is less expressive – Sweden, Denmark, British Isles and New Zealand.

Meaningful and asking for reflection is the evidence that more prone to illegal behaviour countries – Romania, Slovenia, Brazil, Spain, France – tend to a larger extent regard copying as an intentional act. Likewise, in Portugal and the US a significant proportion of students recognises that copying is intentional.

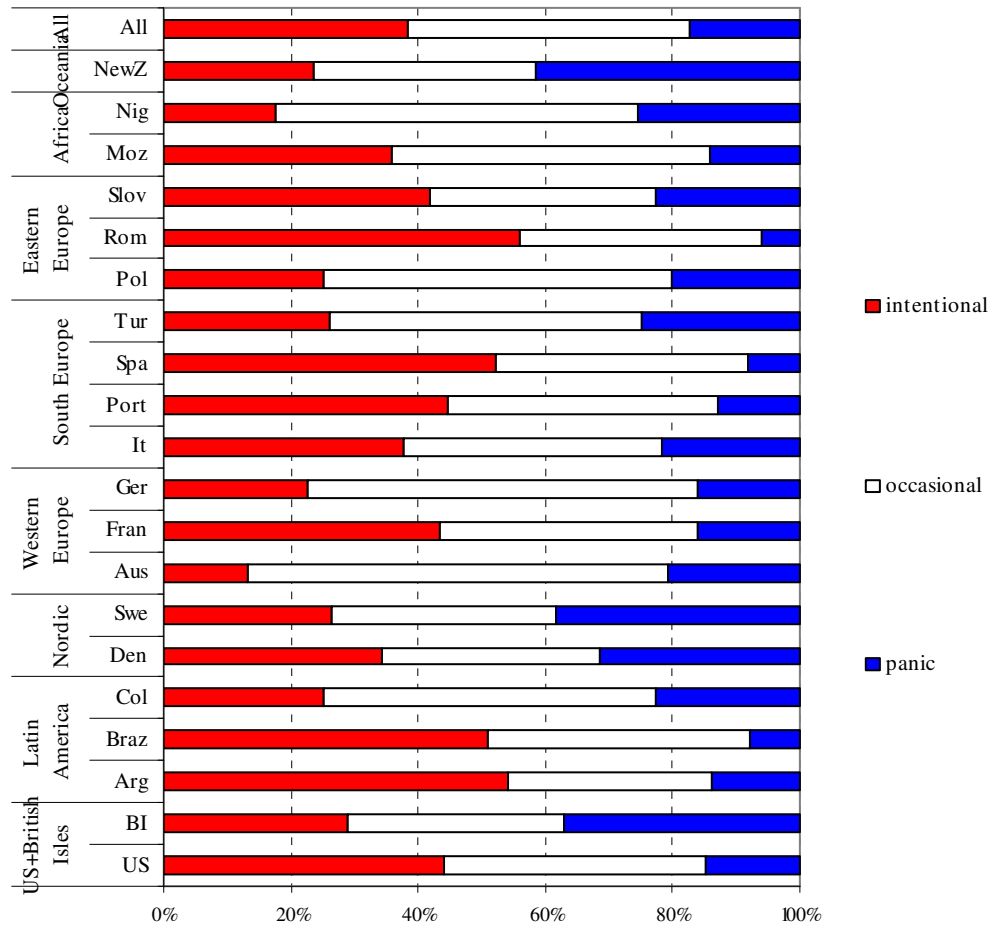


Figure 4: Type of copying by block/country

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Another worrying finding is that more than half of the students asserted that they would study less if there were no supervision/vigilance at the exams and/or no sanction existed for illegal practices in examinations. In Poland, a country where, according to our data, cheating is widespread, that figure reaches three-quarters of the students. In other Eastern countries, such as Slovenia and Romania, the percentages are also frightening (68.9% and 56.1%, respectively). In three South Europe countries – Turkey (66%), Spain (65.8%), and Italy (57.5%) –, as well as in France (56.5%) the figures are also quite alarming. In these countries, as it is possible to observe in Figure 5, the environments are quite permissive to illegal behaviours – the highest penalty students expects form deceitful acts is that their exam would be nil. In countries where the incidence of academic fraud is lower – the Nordic and New Zealand – students expect more serious consequences for illegal behaviour which may lead to one year of suspension from the

university. In Nigeria a large percentage of students (41%) anticipate severe sanctions for fraudulent acts.

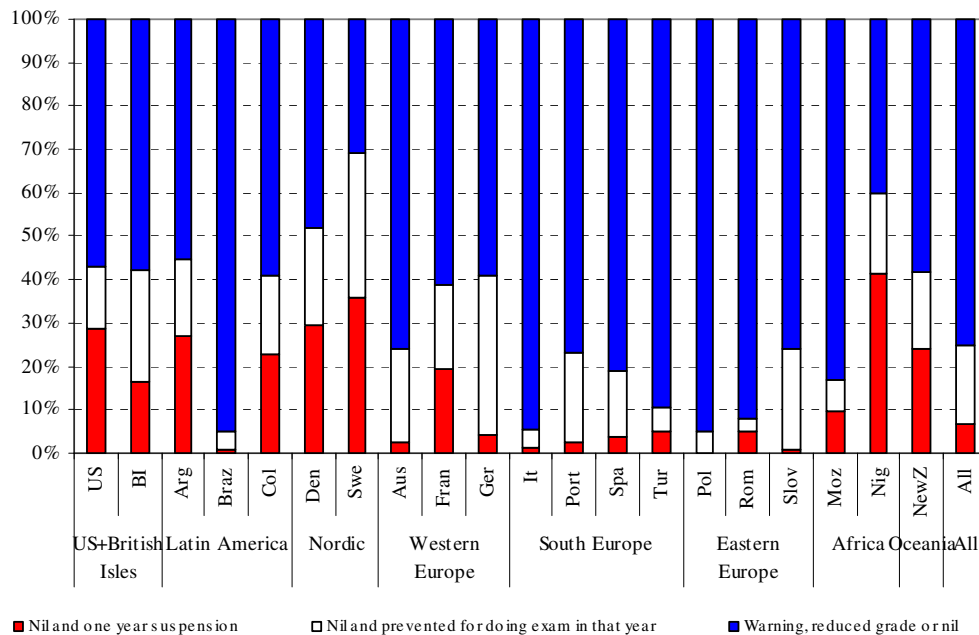


Figure 5: Expected sanction for copying by block/country

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

In Spain a huge percentage (64%) of students that admitted having, at some time, copied have been caught by professors and/or supervisors/vigilantes. That figure is also high for Argentina. However, in general, the percentage of students that admit copying that happened to be caught committing illegal practices is rather low (less than 20% for the overall sample).

Nevertheless, a reasonable percentage (around 60%) of the (total) students have, at some time, seen other colleagues being caught committing fraud. That percentage is astonishingly high for Eastern European countries, Brazil, Colombia, Nigeria and Italy.

This however did not prevent the widespread of the illegal practices in these countries, which further sustains the inconsequentiality of the sanctions expected by students when caught in fraudulent behaviours.

A particularly efficient system is that of Denmark where one quarter of the (smallest number of) students that admits copying is caught. In Sweden although no student admitted ever being caught, none of them saw anyone being caught either.

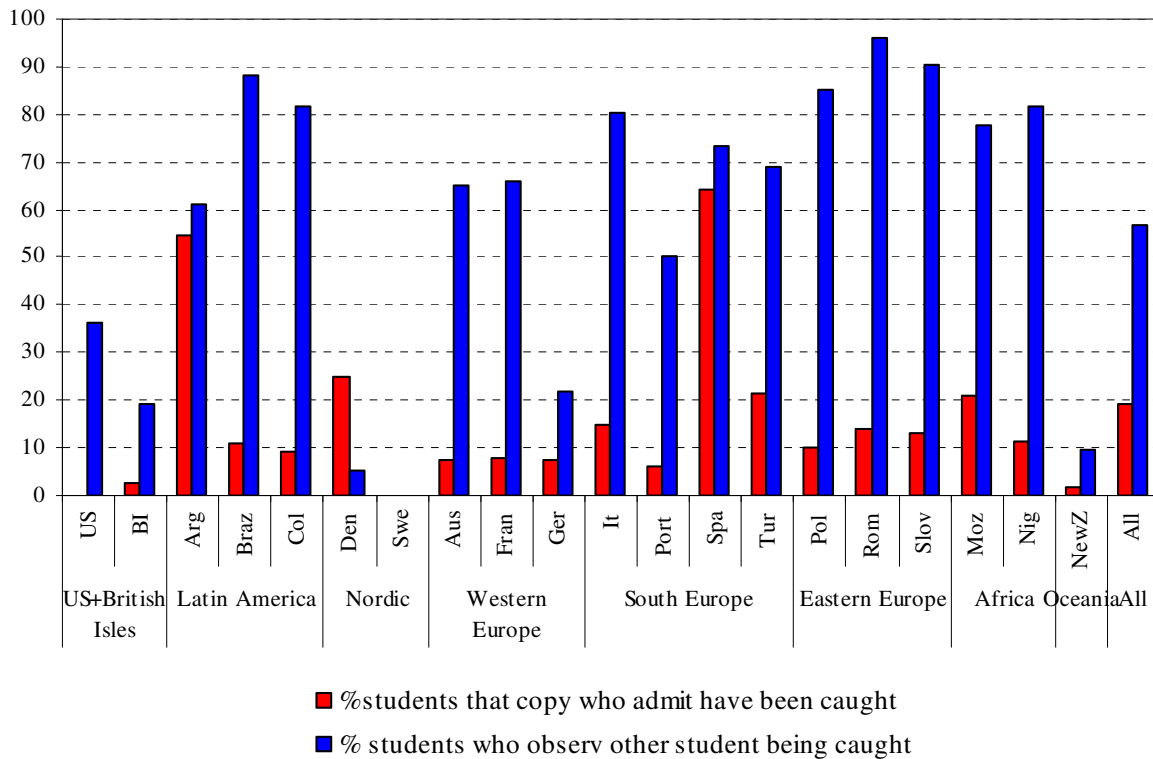


Figure 6: Efficiency of the vigilance system by block/country

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

In terms of the characteristics of the students surveyed, the data gathered point for a slightly higher probability of copying among female students (62.4% versus 61.4%). However, the picture is quite blurred when we analyse by (blocks) of countries. In Latin America, Nordic countries, Eastern Europe and Africa, females do cheat more than their males counterparts. By contrast, in the US plus British Isles, Western Europe, South Europe, and New Zealand males students present a higher propensity to fraud.

As can be seen in the next figure, students with intermediary ages, i.e. aged 20 to 25 (representing about 78.4% of the total students surveyed) registered a probability to cheat ranging between 61.7% and 67.2%, much higher than the 55.6% registered among younger students (17 – 19 years) and 55.9% among older students (26 and over).

Again, there is some diversity among (blocks of) countries, with Latin America, Nordic, South Europe, Africa and New Zealand following a similar path than the overall sample – higher probability of copying by intermediate aged students. In the US and British Isles and in Eastern Europe countries older students are more likely to commit illegal behaviours than their younger colleagues. Differently, in Western Europe younger students (those aged 17-18 years old) have substantially higher copying propensity than their older colleagues (75.0% against 57.6%).

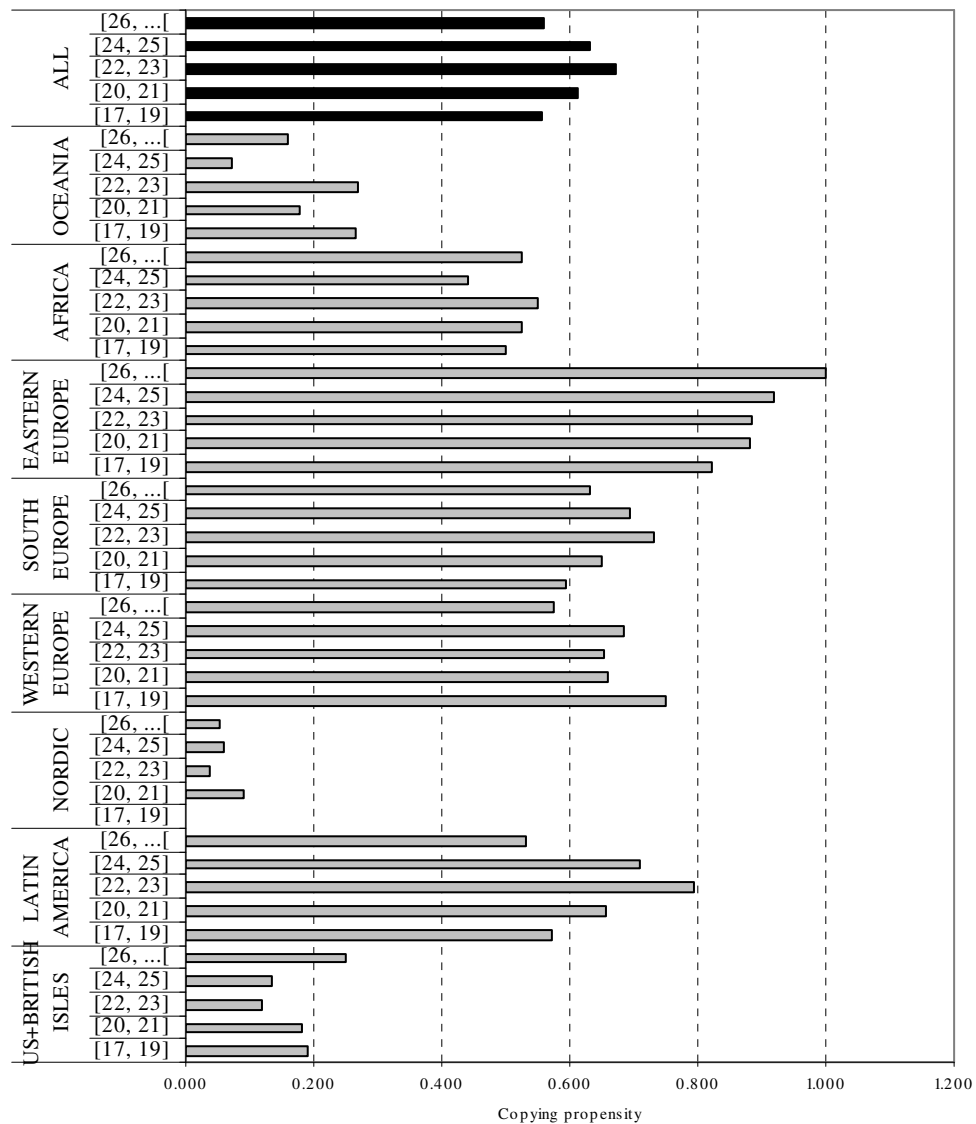


Figure 7: Copying propensity by age and (blocks of) countries

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Although at a first glance age tend to be related to schooling year in which the student is enrolled, the results show a strong relationship between the propensity to copy and coming closer to concluding the degree. Students enrolled in the final year (4th year) reveal a 70.8% probability to copy whereas their colleagues in the 2nd year registered 57.8%. Such result is also robust for (blocks of) countries as patent in Figure 8.

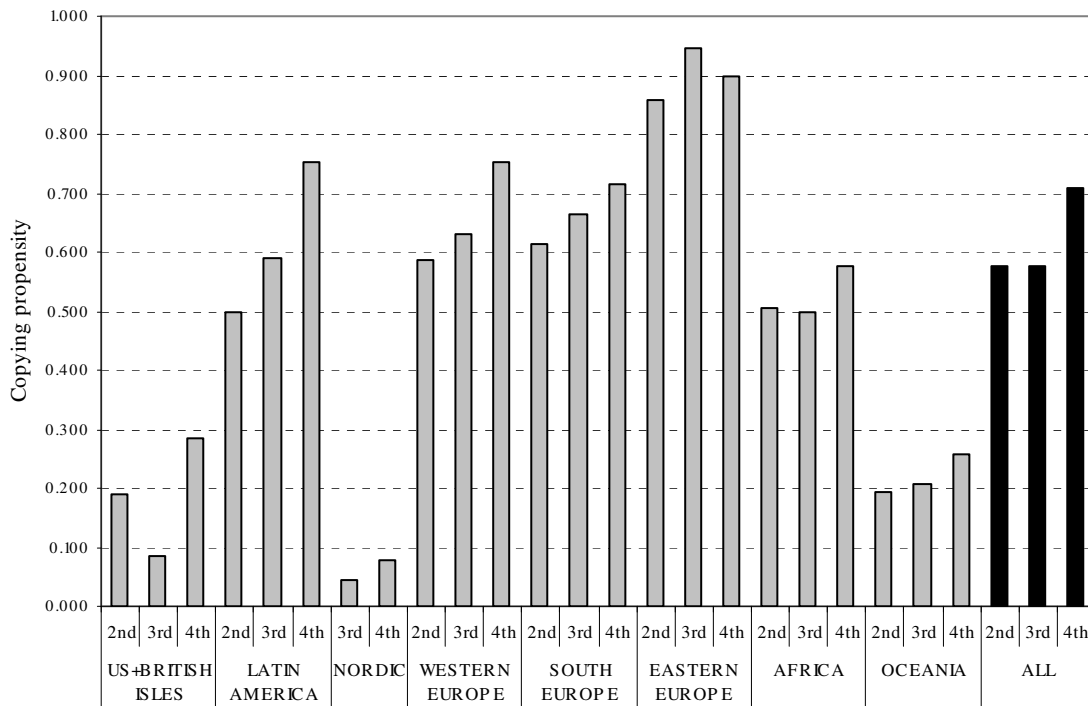


Figure 8: Copying propensity by schooling year and (blocks of) countries

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

Most of the students surveyed (86.3%) are ‘Regular/Normal Students’. Association Members (AMs) and Working Students (WSs) count for, respectively, 3.4% and 8.8% of all the students surveyed.³ The latter two groups admitted to a greater propensity to practice dishonest acts academically, namely 62.7% (AMs) and 66.6% (WSs), against the 61.5% of the so-called ‘regular’ students, which may possibly reveal that AMs and WSs have less time to dedicate to study.

³ There is another category, ‘Others’, which includes loosely speaking students from the Portuguese-speaking Countries, Erasmus students, Armed Forces, etc., who represent 1.4% of the students surveyed.

The data in this exploratory analysis seem to confirm, albeit not as strongly as in the case of the study focusing only Portugal (Rocha and Teixeira, 2005b), the inverse relation between student's performance (proxied by the average academic grade or Grade Point Average – G.P.A.) and the respective propensity to cheat. In fact, as can be seen in Figure 9, the students with a better academic performance (average grade of 80% or higher on a scale from 0 – 100) admit on average to a propensity to copy of 57.8%, a number which is below the one of their less brilliant colleagues (average grades between 50% and 60%), who reveal a propensity to cheat of 63.6%.

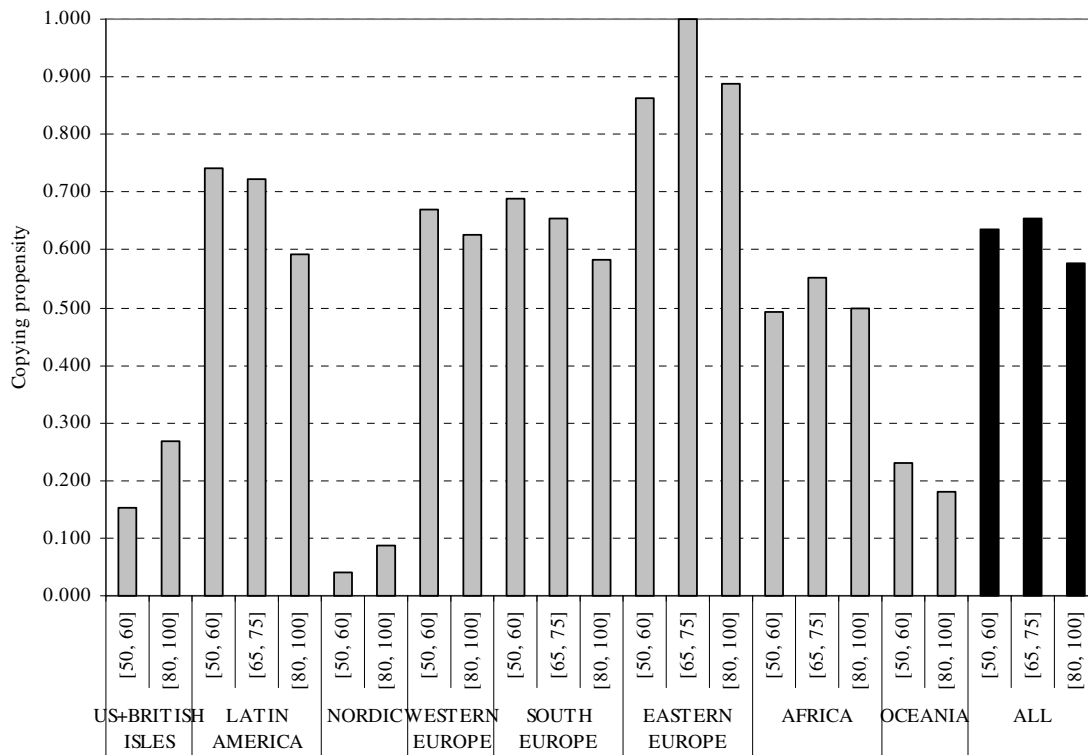


Figure 9: Copying propensity by grade point average and (blocks of) countries
Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006.

In cross-country terms, the inverse relation between student's performance and the corresponding (average) propensity to cheat is also verified in the case of Latin America, Western Europe, South Europe and New Zealand (Oceania). In Eastern Europe and African countries those students with intermediate average grades tend to copy more than their lower and higher performance colleagues. Oddly are the US and British Isles and the Nordic countries where top grade students (GPAs between 80% and 100%) admit to undertake fraudulent acts in higher proportion than low grade students (GPAs between 50% and 60%) - respectively 26.8% versus 15.2% in the case of the US and British Isles, and 8.6% versus 4.2% in case of the Nordic countries.

Table 6: Descriptive statistics

	Mean	σ	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13		
Probability of copying	0,65	0,476	0	1	0,147 ^{***}	0,131 ^{***}	-0,003	0,412 ^{***}	0,294 ^{***}	-0,015	0,302 ^{***}	0,160 ^{***}	-0,121 ^{***}	-0,271 ^{***}	0,025 [*]	0,016	0,103 ^{***}		
Expected benefits	(1) Δ GainCopy	0,65	0,475	0	1	0,685 ^{***}	-0,151 ^{***}	0,162 ^{***}	0,145 ^{***}	0,025	0,066 ^{***}	0,171 ^{***}	-0,051 ^{***}	-0,096 ^{***}	0,049 ^{***}	-0,019	-0,018		
	(2) $D\Delta$ GainCopy	10,29	21,43	-100	100		-0,114 ^{***}	0,168 ^{***}	0,135 ^{***}	-0,025 [°]	0,060 ^{***}	0,169 ^{***}	-0,076 ^{***}	-0,125 ^{***}	0,022	-0,019	-0,012		
Opportunity cost	(3) Grade	63,88	0,159	50	100			0,065 ^{***}	0,019	0,021	0,074 ^{***}	-0,035 ^{**}	-0,005	-0,022	0,031 ^{**}	-0,034 ^{**}	0,050 ^{***}		
Context - permissibility and permeability	(4) Frequency that observes the act of copying (1: never ...5: always)	2,71	0,433	1	5				0,475 ^{***}	0,146 ^{***}	0,397 ^{***}	0,139 ^{***}	-0,086 ^{***}	-0,285 ^{***}	0,063 ^{***}	0,002	0,129 ^{***}		
	(5) Familiarity with someone that copies regularly	0,56	0,496	0	1					0,100 ^{***}	0,300 ^{***}	0,135 ^{***}	-0,069 ^{***}	-0,181 ^{***}	0,088 ^{***}	-0,015	0,131 ^{***}		
	(6) Opinion regarding copying (1: not a problem ... 4: serious problem)	2,19	0,409	1	4						0,068 ^{***}	-0,023 [°]	0,060 ^{***}	-0,005	0,024 [°]	-0,016	0,023 [°]		
	(7) See other being caught copying	0,58	0,494	0	1								0,116 ^{***}	-0,094 ^{***}	-0,226 ^{***}	0,012	0,043 ^{***}	0,084 ^{***}	
Sanctions	(8) Supervisors' influence in amount of study (0: no influence ... 6: study less 50% or more)	2,08	0,709	0	6								-0,021	-0,064 ^{***}	-0,013	-0,045 ^{***}	0,008		
	(9) Expected sanction for copying	2,85	0,396	1	5									0,092 ^{***}	0,054 ^{***}	0,001	-0,018		
	(10) Honour Code	1,62	0,450	0	3										-0,036 ^{***}	-0,054 ^{***}	0,020		
Student characteristics	(11) Gender	0,55	0,498	0	1												-0,116 ^{***}	-0,003	
	(12) Age	21,64	0,120	17	89														0,392 ^{***}
	(13) Schooling year (1: 2nd year ... 3: 4th year)	1,78	0,461	1	3														

Note: significance levels *** 1%; ** 5%; * 10%.

From the calculation of Pearson's linear correlation coefficient (Table 6), we find that the probability of copying appears statistically and positively correlated with the variation in the benefits gained from successful copying, the frequency of seeing other students copying and being caught copying, with the familiarity of those who copy regularly, with the influence of supervisors on time spent studying, and with the school year in which students are enrolled.

Thus, the perception of a higher grade resulting from copying encourages students to practice this act. Cheating is thus all the more probable the greater the expected difference in grades. On the other hand, seeing other students copying regularly seems to be associated with a higher probability for this practice to occur (which may reflect inefficiency in the penalisations applied). Furthermore, the lower the percentage of time spent studying due to the knowledge that there will be no exam supervisors, the higher the probability of copying. Finally, students who are closer to concluding their degrees are more inclined to copying.

Moreover, students that are enrolled in schools that have codes of honour are, in general less likely to copying in examinations. In a bivariate correlation, that is, without controlling for all the potential factors affecting copying propensity, females (who amount to 55% of respondent students) are more inclined to perpetrate fraud in academia.

The Grade Point Average (GPA) *per se*, which has a sample mean of approximately 64% (out of 100%), does not emerge as significantly correlated to the probability of copying. The same happens with the students' opinion regarding copying and the students' age.

4. Evaluating the cross-country determinants of cheating propensity

The aim here is to assess which are the main determinants of the propensity to cheat by university students at the international level. The nature of the data observed regarding the dependent variable [Have you ever copied in an exam? (1) Yes; (0) No] dictates the choice of the estimation model. Conventional estimation techniques (e.g., multiple regression analysis), in the context of a discrete dependent variable, are not a valid option. Firstly, the assumptions needed for hypothesis testing in conventional regression analysis are necessarily violated – it is unreasonable to assume, for instance, that the distribution of errors is normal. Secondly, in multiple regression analysis predicted values cannot be interpreted as probabilities – they are not constrained to fall in the

interval between 0 and 1.⁴ The approach used, therefore, will be to analyse each situation in the general framework of probabilistic models.

In the model of cheating likelihood, it is believed (*cf.* Section 3) that a set of factors, such as students' expected benefits/costs of copying, contextual factors, country of origin, among other variables, gathered in a vector X , explain the outcome, so that

$$\text{Prob}(Y = 1) = F(X, \beta) \quad \text{and} \quad \text{Prob}(Y = 0) = 1 - F(X, \beta).$$

The set of parameters β reflects the impact of changes in X on the likelihood of 'copying'.

The empirical assessment of the propensity to copy is based on the estimation of the following general logistic regression:

$$P(\text{copy}) = \frac{1}{1 + e^{-Z}}; \text{ with } Z = \beta_0 + \beta_1 \Delta \text{GainCopy} + \beta_2 D \Delta \text{GainCopy} + \beta_3 \text{Grade} + \beta_4 \text{Contextual} + \beta_5 \text{Sanctions} + \\ + \beta_6 \text{HCode} + \beta_7 \text{StudentCharact} + \beta_8 \text{Countries} + \varepsilon_i$$

In order to have a more straightforward interpretation of the logistic coefficients, the logistic model can be rewritten in terms of the odds of an event occurring - the *logit* model comes:

$$\log \left(\frac{\text{Prob}(\text{copy})}{\text{Prob}(\text{not copy})} \right) = \beta_0 + \beta_1 \Delta \text{GainCopy} + \beta_2 D \Delta \text{GainCopy} + \beta_3 \text{Grade} + \beta_4 \text{Contextual} + \beta_5 \text{Sanctions} + \\ + \beta_6 \text{HCode} + \beta_7 \text{StudentCharact} + \beta_8 \text{Countries} + \varepsilon_i$$

The logistic coefficient can be interpreted as the change in the log odds associated with a one-unit change in the independent variable. Then e raised to the power β_i is the factor by which the odds change when the i^{th} independent variable increases by one unit. If β_i is positive, this factor will be greater than 1, which means that the odds are increased; if β_i is negative, the factor will be less than one, which means that the odds are decreased. When β_i is 0, the factor equals 1, which leaves the odds unchanged.

⁴ The logistic regression model is also preferred to another conventional estimation technique, discriminant analysis. According to Hosmer and Lemeshow (1989), even when assumptions required for discriminant analysis are satisfied, logistic regression still performs well.

Table 7: Determinants of academic dishonesty among university students (ML estimation)

		Model I		Model II	
		$\hat{\beta}$	Exp($\hat{\beta}$)	$\hat{\beta}$	Exp($\hat{\beta}$)
<i>Expected Benefits</i>	(1) $\Delta\Delta$ GainCopy	0,366***	1,443	0,376***	1,456
	(2) Δ GainCopy	-0,002	0,998	-0,002	0,998
<i>Opportunity cost</i>	(3) Grade	-1,113***	0,329	-0,814***	0,443
<i>Context - permissibility and permeability</i>	(4) Frequency that observes the act of copying	1,499***	4,479	1,501***	4,485
	(5) Familiarity with someone that copies regularly	0,292***	1,338	0,426***	1,531
	(6) Opinion regarding copying	-0,345***	0,709	-0,374***	0,688
<i>Sanctions</i>	(7) See other being caught copying	0,545***	1,725	0,535***	1,707
	(8) Vigilantes' influence in amount of study	0,286***	1,331	0,280***	1,323
	(9) Expected sanction for copying	-0,431***	0,650	-0,412***	0,662
	(10) HCode	-0,656***	0,519	-0,702***	0,496
<i>Student characteristics</i>	(14) Gender (Female=1)	-0,120*	0,887	-0,113	0,893
	(15) Age	-0,455	0,634	-0,556*	0,573
	(16) Schooling year	0,266***	1,305	0,374***	1,453
	(17) Status_Association Member	0,332	1,394	0,190	1,210
	(18) Status_Working Student	-0,121	0,886	-0,075	0,928
		United State		1,058	
	British Isles	US + British Isles	0,221	-1,178***	0,308
	Argentina		0,689		
	Brazil	Latin America	1,663	0,081	1,084
	Colombia		1,638		
	Denmark		0,000		
	Sweden	Nordic	0,415	-1,369*	0,254
	Austria		1,539		
	France	Western Europe	4,201	0,407***	1,502
	Germany		1,228		
	Poland		597978236		
	Romania	Eastern Europe	5,654	1,346***	3,843
	Slovenia		3,556		
	Mozambique	Africa	1,616	-0,480***	0,619
	Nigeria		0,357		
	New Zealand	Oceania	0,954	0,000	0,999
	Italy		0,517		
	Spain	South Europe	1,815		
	Turkey		0,672		
	Constant		190,950	4,249***	70,028
	N		5098		5300
	Copied		3305		3468
	Not copied		1793		1832
	% corrected		76.5		76.5
	Nagelkerke R Square		36.3		34.3
	Hosmer and Lemeshow Test		8.901 (pvalue=0.351)		12.312 (pvalue=0.138)

Significant at *** 1%; ** 5% and * 10%.

We estimated two models, one (Model I) where we control for countries, being Portugal the default, and the other (Model II) where we control for blocks of countries – with the default here being the South European block (composed by Italy, Portugal, Spain and Turkey). According to standard measures of goodness of fit both models present a reasonable quality of adjustment. In concrete, and referring to the Hosmer and Lemeshow's (1989) test, which null hypothesis refers that the predicted values by the model are not significantly different from the observed values, given that the p-value is not significant for standard values, this hypothesis is not rejected, leading us to the conclusion that both models foresee the reality reasonably well. Moreover, the estimated model correctly predicts around three quarters of the observed values of the dependent variable.

Controlling either by the country or the block of countries of origin of the students' universities does not change significantly the magnitude, the significance or the signs of the several coefficient estimates. Excluding gender and age coefficients for all the remaining variables in both models, the sign and significance of the coefficients are similar. So the models specification and the corresponding estimates are robust.

The expected gain in terms of a higher grade when copying is successful is statistically significant and the correspondent coefficient has the expected (positive) sign, corroborating therefore our Hypothesis 1. According to our results, the odds ratio⁵ changes by about 1.4 when the difference between the mark students expect if they copy is positive when compared with the mark they expect if they do not copying. However, nothing can be concluded concerning the absolute value of the difference between expected marks (between copying and not copying) and the odds of copying. In this line, Hypothesis 2 – *“The probability of copying is higher the greater the difference between the mark students say they expect if they copy and the mark if no copying takes place”* – cannot be corroborated by our data. The student's academic performance, assessed by his/her grade negatively and significantly influences the propensity to commit fraud – everything remaining constant, the higher the student's grade (i.e., the higher the opportunity cost) the lower, on average, the probability of copying.

Copying-favourable environments – proxied by the frequency with which students observe the act of copying, the familiarity with someone that copies regularly and students' opinion regarding

⁵ Ratio of the probability of copying to the probability of not copying.

copying – are associated with a higher propensity to commit this illegal phenomenon. The negative and significant sign of the coefficient associated to the last variable indicates that the more serious copying is, the lower the propensity of students to commit that act. Summing up, our Hypothesis 3 – “*In copying-favourable environments where permissibility and permeability towards copying is high, students’ propensity to copy tends to be higher*” - is corroborated.

Our results also show that those students who admit to studying less when there are no supervisors and/or sanctions in case being caught cheating, have a higher propensity to copy in exams. Additionally, the negative sign related to estimate of the severity of the sanctions confirms Hypothesis 4, since the higher and more serious the penalisations as perceived by students, fewer are the incentives they have to perpetrate dishonest behaviours. Even though having seen other students being caught copying has a positive influence on the probability of copying, this outcome combined with the previous results, leads to the conclusion that existing sanctions have no efficient effects.

Quite significantly, the existence of ‘codes of honour’ or any written form which sets forth the conduct and sanction applied in a situation where copying is detected reflects a lower propensity to copy, corroborating therefore Hypothesis 5 – “*In universities where ‘codes of honour’ exist, the propensity to copy among students is lower*”.

The school year in which students are enrolled arises here as the most (statistically) important student characteristic determining cheating behaviour. Results reveal that the closer a student is to concluding his/her degree, the higher the odds of copying. Gender is (statistically) relevant when we control for the country of the students’ schools (Model I) – here the negative sign of the coefficient estimate means that, *ceteris paribus*, female students are less prone to commit fraudulent acts – whereas age emerges as a negative relevant determinant when we control for the blocks of countries reflecting the fact that, on average, all other factors remaining constant, senior students are less likely to perpetrate illegal acts than their younger counterparts.

Recall, similarly to our previous works (Rocha and Teixeira, 2005b; Teixeira and Rocha, 2006), when controlling for a set of determinants of cheating behaviour, student status fails to be a statistically relevant variable – all else being constant, having AM or WS status when compared to the ‘regular’ student status does not seem to result in a different attitude towards cheating.

There is a significant heterogeneity in copying propensity at cross-country level. Students enrolled in schools located in countries such as the Ireland and the UK (British Isles), Nigeria, Italy, and Turkey present a significantly lower propensity to academic fraud than students from Portuguese universities. In contrast those enrolled in schools from Brazil, Austria, France, Romania, Slovenia, and Spain reveal substantially higher (1.5-5.6) odds of copying than those from Portugal (the default country).

The odds of copying are seventy-five per cent (seventy per cent) [forty per cent] lower in students enrolled in schools located in Nordic countries (the US plus British Isles) [Africa] when compared with their South Europe counterparts. Distinctly, students enrolled in Western and Eastern Europe schools observe statistically significant higher odds (1.5-3.8, respectively) of copying than their homologous counterparts from the South European schools. From this we can conclude that “*The propensity to copy is influenced by the countries’ cultural and educational systems and socially-related factors*”, that is, the data seems to enforce Hypothesis 6.

Albeit in a very preliminary and exploratory attempt, in the following section we conclude the work relating the different countries’ copying propensities to their rankings according to the Corruption Perception Index published by the International Transparency. This might potentially uncover a direct relation between cheating in academia with cheating in the ‘real world’.

5. Uncovering the relation between academic cheating and ‘real world’ business corruption.

Some final remarks

It has been well documented that a sizeable proportion of business school students routinely engage in cheating during their university experience (Crown and Spiller, 1998; see also Section 2 of the present paper). Research mainly focused on the US reality indicates that students intending to enter business fields are more likely than any other group of students to engage in cheating and other forms of academic dishonesty (McCabe and Trevino, 1995). A study from Smyth and Davis (2004) exposed that business students were in fact generally more unethical in their behavior than non-business majors. Premeaux (2005) further points that cheating appears to be fairly ingrained in the culture of learning in business. According to this author such situation is “... quite unfortunate because today’s business school students are tomorrow’s business managers, not only in America but throughout the world.” (Premeaux, 2005: 416-7).

Indeed, if the same ethical standards prevail in the academic and business environments, and given that past behavior is a strong predictor of future behavior, it is likely that those who engage in unethical activities in the classroom will also engage in unethical activities in the business world (Grimes, 2004).

The data we gathered from cross-country (average) copying/cheating propensity might be illuminating at this regard. In fact, if the above prediction is correct one would expect that our (average) cheating propensity be (significantly) correlated with the standards measures of countries' corruption, such as the Corruption Perception Index (CPI) released by the International Transparency (TI, 2005), which reflects the perceptions of the degree of corruption as seen by business people and country analysts. The next two figures depict the relation between the CPI 2005 score and two alternative measures of illegal behaviour in academia – student's 'Cheating Propensity' and the 'Probability of seeing other students cheating'.

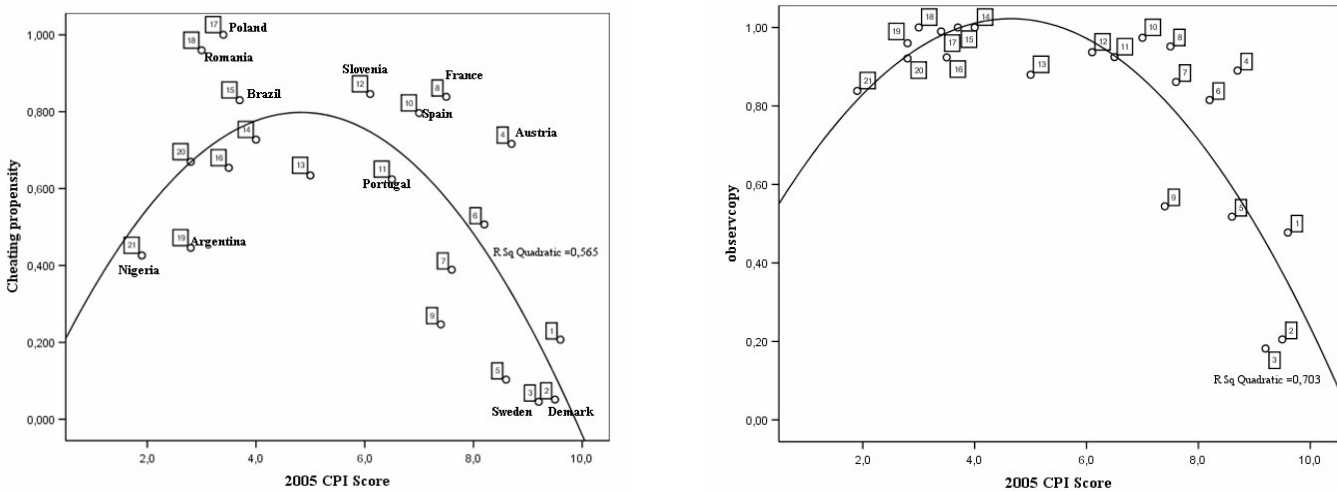


Figure 10: Relation between cheating in academia and 'real world' business corruption

Source: Calculations made by the authors based on direct survey conducted in the periods February 2005-May 2006; CPI (TI, 2005).

Note: The TI Corruption Perceptions Index is a composite survey, reflecting the perceptions of business people and country analysts, both resident and non-resident. It draws on 16 different polls from 10 independent institutions. For a country to be included, it must feature in at least 3 polls (for details see www.transparency.org/surveys/index.html#cpiIn).

According to the data, at cross-country level, there is a non-linear significant relation between economics and business undergraduate cheating and countries' CPI scores –countries that have both a very low ('high perceived corruption') and very high ('highly transparent') CPI score present relatively low levels of cheating in academia. In concrete, Nigeria and Argentina, which according to CPI are economies where corruption is rampant, and the Nordic countries, which are considered "the least corrupted states in the world" (Scandinavica.com, 2006), are associated

with low levels of fraud incidence at university, especially Sweden (4.5%) and Denmark (5.1%) – see Box below.

The British Isles and New Zealand are also well ranked economies in the CPI where student revealed low propensity for committing and observing others committing less ethic behaviours.

Box: The Nordic philosophy for a corruption-free society

» *A culture of ethicality*

Corruption and falseness are **strictly not tolerated** in the Nordic society. Individual cases of corruption are very rare. **Rules are clear, taken seriously**, and the price of being excluded from the normal circles of society is exceptionally high. (...)

» *Low hierarchical structure*

Civil servants are responsible for doing their work without the intervention of superiors and have to inform others about their actions and duties. An administration with a low hierarchical structure, transparency, and a **high degree of individual and collective responsibility** does not foster corruption.

» *Scandinavian Welfare: an egalitarian society*

A **well-educated society** is one of the pillars of the Nordic Welfare system. The Nordic countries believe in a democratic and egalitarian society where the ideal is to achieve the welfare of all the country citizens. The civil servant reflects these values, a democratic mentality and high standard of education being dominant in the civil service.

Source: Scandinavica.com Magazine (May, 2006)

If one excluded Nigeria and Argentina, the relation between academic fraud and ‘real world’ transparency would be (in statistic terms) significantly negative (Pearson correlation coefficient estimate around -0.71), conveying the idea that countries where the cheating propensity is high the CPI scores are low, that is, corruption levels are high.

These two countries are notwithstanding interesting cases studies. Here there is a widespread feeling of the need to combat fraud and corruption. “Nigerians have identified corruption as the nation’s number one problem and Nigerians are demanding that something is done about it” (IAP, 2006). In fact, a recent survey in Nigeria reveals that 58 per cent of respondents say corruption is the nation’s major problem while 42 per cent say it is a major problem (IAP, 2006). Highlighting its anti corruption programmes for a nearby future, the NGO Advocacy Project underline that the 2006 survey on Nigeria’s corruption rather than being a mere perception of the

degree of corruption, it would seek to provide benchmarks of integrity based on actual incidences.

Likewise, in Argentina several attempts have been made in recent years to curb corruption both at the society as a whole and in the education sector in particular. Arcidiacano (2005) describes how *Poder Ciudadano* (Transparency International's chapter in Argentina), helped the Ministry of Education to increase transparency in the pre-contract phase of a large textbook procurement. Though not all instruments were applied to their full potential, stakeholders felt that there was greater impartiality in the selection process, and that trust had been restored. In an depth reflection of Argentina's corruption Hernandez (2004) emphasizes that "... the attempt to clean up corruption in this country, people are going to have to change the way they do politics, the way they do business, the way they run their lives. Not so much because of law or regulation but because of the recognized need to improve their standard of living". She further recognizes that with the help of NGOs like *Poder Ciudadano*, gradually Argentina is changing. Our data on undergraduate student cheating evidence that at least at this level people are becoming more conscious on the seriousness of the issue – recall that a substantial percentage of the undergraduates (over 70%) in Argentina and Nigeria consider copying in exams a serious problem that deserves attention.

Lawson (2004) found a strong relationship between students' propensity to cheat in an academic setting and their attitude toward unethical behavior in the business world. He argued that the long held belief of students that unethical behavior is the norm in the business world is a cause for concern. Some authors further argue that where there is the general belief that "corruption is okay" or a normal practice' one will find corruption (e.g., Caiden *et al.*, 2001; Uprety, 2000).

There is widespread agreement that corruption has become one of today's most pressing global and ethical problems (Ryan, 2000; Sanyal and Samanta, 2000; Pacini *et al.*, 2002; Weber and Getz, 2004). Corruption is said to distort standards of merit and erode the respect of law (Hamir, 1999), result in higher public investment and lower quality of infrastructure (Schloss, 1998; Tanzi and Davoodi, 1998), and hold back political and economic advance (Klitgaard, 1994).

An understanding of the extent of cheating in our educational institutions, namely at the university level, and an awareness of what procedures might therefore be taken to prevent its occurrence, is important for teachers and administrators of schools and, indeed, to the wider educational community and society. This has more than just a moral, watchdog sense for, by

implication, understanding cheating and being able to scrutinise for such activity will ultimately assist in making educational assessment fairer and more equitable (Godfrey and Waugh, 1997).

Acknowledgments

We are deeply indebted to all students that responded the survey and to the following individuals (in alphabetic order) for permitting and/or implementing the questionnaire underlying this study.

Directors in Portugal: Antonieta Cunha Sá (UNL/University Nova of Lisboa), Artur Cristóvão (UTAD/University of Alto Douro e Trás-os-Montes), Fernando Almeida (Economics and Management School/University of Minho), Joaquim Borges Gouveia (Economics, Business and Industrial Engineering Department /University of Aveiro), José Pereirinha (ISEG/University of Lisbon), José Silva Costa (FEP/University of Porto), Manuel Branco (Faculty of Economics/University of Évora), Paulo Rodrigues (Faculty of Economics/University of Algarve), Pedro Botelho (FEUC/University of Coimbra).

Department Coordinators in Portugal: Carlos Arriaga (Economics Department/University of Minho), Fernanda Nogueira (Business Department/University of UTAD), José Caldas (Economics Department/University of UTAD).

Professors/Researchers in Portugal: Ana Maria Rodrigues (University of Coimbra), Ana Paula Faria (University of Minho), António Caleiro (University of Évora), Arménio Rego (University of Aveiro), Aurora Galego (University of Évora), Carla Amado (University of Algarve), Carlos Ferreira (University of Aveiro), Carlota Quintal (University of Coimbra), Efigénio Rebelo (University of Algarve), Elisabete Félix (University of Évora), Fernando Cardoso (University of Algarve), Francisco Torres (University of Aveiro), Henrique Albergaria (University of Coimbra), Joana Costa (University of Beira Interior), João Paulo Costa (University of Coimbra), Jorge Santos (ISEG/University of Lisbon), José Belbute (University of Évora), José Novais (University of Évora), Luís Filipe Lages (UNL/University Nova of Lisboa), Margarida Saraiva (University of Évora), Maria do Carmo Seabra (UNL/University Nova of Lisboa), Maria Graça Baptista (University of Açores), Maria João Alves (University of Coimbra), Maria João Carneiro (University of Aveiro), Maria João Thompson (University of Minho), Miguel Lebre de Freitas (University of Aveiro), Patrícia Valle (University of Algarve), Paulo Fontura (ISEG/University of Lisbon), Vasco Santos (UNL/University Nova of Lisboa).

Other university staff in Portugal: Ana Paula Teixeira and Cristina Santana (University of Algarve), Leonor Dias (University of Coimbra), Sónia Fidalgo (University of Aveiro).

Deans/Professors/Researchers in other countries: Alvaro Cuervo-Cazurra (US), André Everett (New Zealand), Andreas Klossek (Germany), Anil Kumar (US), Anne-Christin Stockmeyer (Germany), Axele Giroud (UK), Beatriz Caro (Spain), Carlos Gradín (Spain), Caviola Silvia Maria (Argentina), Celestino Vaz (Mozambique), Dan Popescu (Romania), Dilek Zamantili Nayir (Turkey), Bernd Ebert (Germany), Eduardo Moreira (Brazil), Elke Kizelmann (Austria), Frances Ruane (Ireland), Ivan Lopez (Spain), Keld Laursen (Denmark), Kirsten Lange (Denmark), Lisa Fiacre (France), Luca Panaccione (Italy), Maja Makovec Brencic (Slovenia), Nazan Gunay (Turkey), Nicolae Marinescu (Romania), Olufemi Akinwale (Nigeria), Patrycia Swierkot (Poland), Peter Forster (France), Sally Burrows (UK), Samo Bobek (Slovenia), Sandra Milena Santamaria (Colombia), Sanja Kocijan (Slovenia), Sourafel Girma (UK), Stefano Brusoni (Italy), Ulf Andersson (Sweden).

A final word of appreciation to Luzia Belchior (FEP - Administrative Office) for her valuable assistance with the optical reading of the survey questionnaires, and José Mergulhão Mendonça (FEP - Computing Department) for the huge help in devising the on-line international questionnaire.

References

- Antion, D. L. and Michael, W. B. (1983), "Short-Term Predictive Validity of Demographic, Affective, Personal, and Cognitive Variables in Relation to Two Criterion Measures of Cheating Behaviors", *Educational and Psychological Measurement* 43:467–483.
- Arcidiacano, P. (2005), "Argentina. Procurement: A Textbook Case", in Meier, B. and Griffin, M. (2005) (eds.), *Stealing the Future. Corruption in the Classroom: Ten Real World Experiences*, Berlin, Germany: Transparency International, Chapter 3.
- Arlow, P. and Ulrich, T. (1985), "Business Ethics and Business School Graduates: A Longitudinal Study", *Akron Business and Economic Review* 16, 13–17.
- Baird, J. S. Jr. (1980), "Current Trends in College Cheating", *Psychology in the Schools* 17: 515–522.
- Barnes, W. F. (1975), "Test Information: An Application of the Economics of Search", *Journal of Economic Education* 7: 28–33.
- Baumhart, R. (1961), "How Ethical Are Businessmen?", *Harvard Business Review* 39: 6–31.
- Becker, G. S. (1968), "Crime and punishment: an economic approach", *Journal of Political Economy*, 76: 168-217.
- Bernardi, R. A., Metzger, R. L., Bruno, R. G. S., Hoogkamp, M. A. W., Reyes, L. E. and Barnaby, G. H. (2004), "Examining the decision process of students' cheating behaviour: an empirical Study", *Journal of Business Ethics*, 50: 397-414.
- Bunn, D. N., Caudill, S. B. and Gropper, D. M. (1992), "Crime in the classroom: an economic analysis of undergraduate student cheating behavior", *Journal of Economic Education*, 23: 197-207.
- Bushway, A. and Nash, W. R. (1977), "School Cheating Behavior", *Review of Educational Research* 47: 623–632.
- Caiden, E. G., Dwivedi, P. O. and Jabbra, J. (2001), *Where Corruption Lives*, Kumarian Press, Bloomfield, Ct..
- Callahan, D. (2004) *The Cheating Culture: Why More Americans Are Doing Wrong to Get Ahead* Florida, US: Harcourt Books.
- Campbell, W. G. (1931), "Student Honesty as Revealed by Reporting of Teacher's Errors in Grading", *School and Society* 33: 97–100.
- Campbell, W. G. (1935), *A Comparative Investigation of Students Under a Honor System and a Proctor System in the Same University*, University of Southern California Press, Los Angeles, CA.
- Cole, B. and Smith, D. (1996), "Perceptions of Business Ethics: Students vs. Business People", *Journal of Business Ethics* 15: 889–896.

- Collinson, M. (1990), "Apparent Rise in Students' Cheating Has College Officials Worried", *The 198 Raef A. Lawson Chronicle of Higher Education* (January 17), A33, A35.
- Crown, D. and Spiller, M. (1998), "Learning from the Literature on Collegiate Cheating: A Review of Empirical Research", *Journal of Business Ethics* 17: 683–700.
- Daniel, L. G., Blount, K. D. and Ferrell, C. M. (1991), "Academic Misconduct Among Teacher Education Students: A Descriptive-Correlational Study", *Research in Higher Education* 32: 703–724.
- Davis, S. F., Grover, C.A., Becker, A. H and McGregor, L. N. (1992), "Academic Dishonesty; Prevalence, Determinants, Techniques, and Punishments", *Teaching of Psychology* 19: 16–20.
- DeConick, J. and Good, D. (1989), "Perceptual Differences of Sales Practitioners and Students Concerning Ethical Behavior", *Journal of Business Ethics* 8: 667–676.
- Dick, M., Sheard, J., Bareiss, C., Carter, J., Joyce, D., Harding, T., and Laxer, C. (2003), "Addressing Student Cheating: Definitions and Solutions", *ACD SIGCSE Bulletin*, 35(2): 172-184.
- Diekhoff, G. M., LaBeff, E. E., Clark, R. E., Williams, L. E., Francis, B., and Haines, V. J. (1996), "College cheating: Ten years later", *Research in Higher Education*, 37: 487-502.
- Diekhoff, G. M., LaBeff, E. E., Shinohara, K. and Yasukawa, H. (1999), "College Cheating in Japan and the United States", *Research in Higher Education*, 40(3): 343-353.
- Fakouri, M. E. (1972), "Achievement Motivation and Cheating", *Psychological Reports* 31: 629–630.
- Ford, R. and Richardson, W. (1994), "Ethical Decision Making: A Review of the Empirical Literature", *Journal of Business Ethics* 13(3): 205–221.
- Glater, J. (2006), "Colleges Chase as Cheats Shift to Higher Tech", *The New York Times* (May 18, 2006).
- Glenn, Jr., J. (1988), "Business Curriculum and Ethics: Student Attitudes and Behavior", *Business and Professional Ethics Journal* 7(3&4): 167–185.
- Glenn, Jr., J. and Van Loo, M. (1993), "Business Students' and Practitioners' Ethical Decisions Over Time", *Journal of Business Ethics* 12: 835–847.
- Godfrey, J. and Waugh, R. (1997), "Students' perceptions of cheating in Australian Independent Schools", *Education Australia*, 37: 14-16.
- Graham, M. A., Monday, J. O'Brien, K. and Steffen, S. (1994), "Cheating at Small Colleges: An Examination of Student and Faculty Attitudes and Behaviors", *Journal of College Student Development* 35: 255–260.
- Grimes, P. (2004), "Dishonesty in Academics and Business: A Cross-Cultural Evaluation of Student Attitudes", *Journal of Business Ethics* 49: 273–290.

- Haines, V. J., Diekhoff, G. M. LaBeff, E. E. and Clark, R. E. (1986), "College Cheating: Immaturity, Lack of Commitment, and the Neutralizing Attitude", *Research in Higher Education* 25: 342–354.
- Hamir, M. A. (1999), "Keynote Address", in K. Frimpong and G. Jacques (eds.), *Corruption, Democracy and Good Governance in Africa: Essays on Accountability and Ethical Behaviour*, Lentswe La Lesedi, Gaborone, Botswana, pp. 1–8.
- Hartshorne, H. and May, M. A. (1928), *Studies in Deceit*, New York: MacMillan.
- Hernandez, S. (2004), "Combating Corruption in Argentina", in www.duke.edu/web/las/Funding/herandezpaper.pdf, accessed on May 2006.
- Hollon, C.J., Ulrich, T.A. (1979), "Personal business ethics: managers vs managers-to-be", *Southern Business Review*, 5: 17-22.
- Hosmer, D. and Lemeshow, S. (1989), *Applied Logistic Regression*, New York: John Wiley & Sons.
- Houston, J. P. (1983), "College Classroom Cheating, Threat, Sex and Prior Performance", *College Student Journal* 16: 229–235.
- Houston, J. P. (1986), "Classroom Answer Copying: Roles of Acquaintanship and Free Versus Assigned Seating", *Journal of Educational Psychology* 78: 230–232.
- Houston, J. P. and Ziff, T. (1976), "Effects of Success and Failure of Cheating Behavior", *Journal of Educational Psychology* 68: 371–376.
- Hrabak, M., Vujaklija, A., Vodopivec, I., Hren, D., Marusic, M. and Marusic, A. (2004), "Academic misconduct among medical students in a postcommunist country", *Medical Education*, 38 (3): 276-285.
- IAP - Independent Advocacy Project (2006), "Corruption is Nigeria's Major Problem", in <http://www.ind-advocacy-project.org/Press%20Statements.htm>.
- Karebenick, S. A. and Srull, T. K. (1978), "Effects of Personality and Situational Variation in Locus of Control on Cheating: Determinance of the Congruence Effect", *Journal of Personality* 46: 72–95.
- Kerkvliet, J. (1994), "Cheating by economics students: A comparison of survey results.", *Journal of Economic Education*, 25(2): 121-133.
- Kerkvliet, J. and Sigmund, C. L. (1999), "Can We Control Cheating in the Classroom?", *Journal of Economic Education*, 30(4): 331-351.
- Kidwell, L. (2001), "Student Honor Codes as a Tool for Teaching Professional Ethics", *Journal of Business Ethics* 29: 45–49.
- Klitgaard, R. (1994), "A Framework for a Country Programme Against Corruption", in F. Galtung (ed.), *Accountability and Transparency in International Development: The Launching of Transparency International*, Laserline GmbH, Berlin, pp. 55–73.

- Lanza-Kaduce, L. and Klug, M. (1986), "Learning to Cheat: The Interaction of Moral-Development and Social Learning Theories", *Deviant Behavior* 7: 243–259.
- Lawson, R. (2004), "Is Classroom Cheating Related to Business Students' Propensity to Cheat in the "Real World"?", *Journal of Business Ethics* 49: 189–199.
- Leming, J. S. (1980), "Cheating Behavior, Subject Variables, and Components of the Internal-External Scale Under High and Low Risk Conditions", *Journal of Educational Research* 74: 83–87.
- Lord, A. T. and Melvin, K. B. (1997), "The Attitudes of Accounting Students, Faculty, and Employers Toward Cheating", in L. Ponemon (ed.), *Research on Accounting Ethics*, Vol. 3, New York: JAI Press Inc., pp. 1–20.
- Magner, D. (1989), "Students Urge Graduate Business Schools to Emphasize Ethical Behavior and Require Courses in Standards", *The Chronicle of Higher Education* (March 29), A31–A32.
- Magnus, J.R., Polterovich, V. M., Danilov, D. L. and Savvateev, A. V. (2002), "Tolerance of Cheating: An Analysis Across Countries", *Journal of Economic Education*, 33: 125-135.
- Maramark, S. and Maline, M. (1993), *Academic dishonesty among college students. Issues in Education*, Washington, DC: Department of Education, Office of Research.
- May, K. M. and Loyd, B. H. (1993), "Academic Dishonesty: The Honor System and Students' Attitudes", *Journal of College Student Development* 34: 125–129.
- McCabe, D. L. (2005), *CAI Research. Center for Academic Integrity*, in http://academicintegrity.org/cai_research.asp, accessed on April 2006.
- McCabe, D. L. and Trevino, L. K. (1993), "Honor Codes and Other Contextual Influences", *Journal of Higher Education* 64: 522–538.
- McCabe, D. L. and Trevino, L. K. (1997), "Individual and Contextual Influences on Academic Dishonesty: A Multicampus Investigation", *Research in Higher Education*, 38 (3): 379-396.
- McCabe, D. L., Butterfield, K. D. and Trevino, L. K. (2003), "Faculty and Academic Integrity: The Influence of Current Honor Codes and Past Honor Code Experiences", *Research in Higher Education*, 44 (3): 367-385.
- McCabe, D.L. and Trevino, L.K. (1996), "What we know about cheating in college", *Change*, 29-33.
- Meier, B. and Griffin, M. (2005) (eds.), *Stealing the Future. Corruption in the Classroom: Ten Real World Experiences*, Berlin, Germany: Transparency International.
- Michaels, J. W. and Miethe, T. D. (1989), "Applying Theories of Deviance to Academic Cheating", *Social Science Quarterly* 70: 870–885.
- Millham, J. (1974), "Two Components of the Need for Approval Score and Their Relationship to Cheating Following Success and Failure", *Journal of Research in Personality* 8: 378–392.

- Nazario, S. L. (1990), "Schoolteachers Say It's Wrongheaded to Try to Teach Students What's Right", *The Wall Street Journal*, B1, B8.
- Newstrom, J. and Ruch, W. (1976), "The Ethics of Business Students: Preparation for a Career", *AACSB Bulletin* (April), 21–29.
- Nowell, C. and Laufer, D. (1997), "Undergraduate Student Cheating in the Fields of Business and Economics", *Journal of Economic Education*, 28: 3-12.
- Pacini, C., Swingen, J. A and Rogers, H. (2002), "The Role of the OECD and EU Conventions in Combatting Bribery of Foreign Public Officials", *Journal of Business Ethics* 37(4): 385–340.
- Pavela, G., and McCabe, D. L. (1993) "The surprising return of honor codes", *Planning for Higher Education*, 21 (4): 27-32.
- Premeaux, S. R. (2005), "Undergraduate Student Perceptions Regarding Cheating: Tier 1 Versus Tier 2 AACSB Accredited Business Schools", *Journal of Business Ethics*, 62: 407–418.
- Pulvers, K. and Diekhoff, G. M. (1999), "The Relationship Between Academic Dishonesty And College Classroom Environment", *Research in Higher Education*, 40 (4): 487-498.
- Rettinger, D. A., Jordan, A. E. and Peschiera, F. (2004), "Evaluating the Motivation of other Students to Cheat: A Vignette Experiment", *Research in Higher Education*, 45 (8): 873-890.
- Rocha, M. F. and Teixeira, A. A. C. (2005a), "Crime without punishment: an update review of the determinants of cheating among university students", *FEP Working Papers* n° 191, October 2005.
- Rocha, M. F. and Teixeira, A. A. C. (2005b), "College cheating in Portugal: results from a large scale survey", *FEP Working Papers* n° 197, December 2005.
- Ryan, L. (2000), "Combating Corruption: The 21st- Century Ethical Challenge", *Business Ethics Quarterly* 10(1): 331–338.
- Sanyal R. N. and Samanta, S. K. (2000), "Corruption Across Countries: The Cultural and Economic Factors", *Business & Professional Ethics Journal* 21(1).
- Schloss, M. (1998), "Combating Corruption for Development: The Role of Government, Business, and Civil Society", in Transparency International and the International Bank for Reconstruction and Development (ed.), *New Perspectives on Combating Corruption*, Transparency International and the International Bank for Reconstruction and Development, Washington, pp. 1–11.
- Sheard, J. and Dick, M. (2003), "Influences on Cheating Practice of Graduate Students in IT Courses: What are the Factors?", *ACM SIGCSE Bulletin* 35(3): pp. 45-49.
- Sheard, J., Markham, S. and Dick, M. (2003), "Investigating Differences in Cheating Behaviours of IT Undergraduate and Graduate Students: the maturity and motivation factors", *Higher Education Research & Development*, 22 (1): 91-108.

- Stevens, G. E. (1984), "Ethical Inclinations of Tomorrow's Citizens: Actions Speak Louder?", *Journal of Business Education* 59: 147–152.
- Stickman (2004), "Thailand, The Future", *Stickman Weekly* 19th September 2004, in <http://www.stickmanbangkok.com/Weekly/weekly176.html>.
- Tanzi V. and Davoodi, H. (1998), "Roads to Nowhere: How Corruption in Public Investment Hurts Growth", in Transparency International and the International Bank for Reconstruction and Development (ed.), *New Perspectives on Combating Corruption*, Transparency International and the International Bank for Reconstruction and Development, Washington, pp. 33–42.
- Teixeira, A. A. C. and Rocha, M. F. (2006), "College cheating in Austria, Portugal, Romania and Spain: a comparative analysis", *forthcoming in Research in Comparative and International Education*.
- TI (2006), *Corruption Perception Index 2005*, Berlin, Germany: Transparency International.
- Tibbets, S. G. (1999), "Differences between women and men regarding decisions to commit test cheating", *Research in Higher Education*, 40 (3): 323-342.
- Uprety, H. (2000), "Chaos and Complexity of Corruption", in R. Khanal (ed.), *Transparency and Accountability Against Corruption in Nepal*, Kathmandu: Modern Printing Press, pp. 27–37.
- Ward, D. A. and Beck, W. L. (1990), "Gender and Dishonesty", *Journal of Social Psychology* 130: 333–339.
- Ward, D. A. and Tittle, C. R. (1993), "Deterrence or Labeling: The Effect of Informal Sanctions", *Deviant Behavior: An Interdisciplinary Journal* 14: 43–64.
- Weber, J. and Getz, K. (2004), "Buy Bribes or Bye-Bye Bribes: The Future Status of Bribery in International Commerce", *Business Ethics Quarterly* 14(4): 695–711.
- Whitley, B. E. (1998), "Factors associated with cheating among college students: A Review", *Research in Higher Education* 39(3): 235–274.
- Wood, J., Longenecker, J. McKinney, J. and Moore, C. (1988), "Ethical Attitude of Students and Business Professionals: A Study of Moral Reasoning", *Journal of Business Ethics* 7: 249–257.

Recent FEP Working Papers

Nº 213	Maria Rosário Moreira and Rui Alves, <u>"Does Order Negotiation Improve The Job-Shop Workload Control?"</u> , June 2006
Nº 212	Pedro Cosme da Costa Vieira and Aurora A. C. Teixeira, <u>"Human capital and corruption: a microeconomic model of the bribes market with democratic contestability"</u> , May 2006
Nº 211	Ana Teresa Tavares and Aurora A. C. Teixeira, <u>"Is human capital a significant determinant of Portugal's FDI attractiveness?"</u> , May 2006
Nº 210	Maria Rosário Moreira and Rui Alves, <u>A new input-output control order release mechanism: how workload control improves manufacturing operations in a job shop</u> , April 2006
Nº 209	Patrícia Teixeira Lopes and Lúcia Lima Rodrigues, <u>Accounting for Financial Instruments: An Analysis of the Determinants of Disclosure in the Portuguese Stock Exchange</u> , April 2006
Nº 208	Pedro Cosme Costa Vieira, <u>Energia nuclear: Uma solução para Portugal?</u> , April 2006
Nº 207	Aurora A.C. Teixeira and Joana Costa, <u>What type of firm forges closer innovation linkages with Portuguese Universities?</u> , March 2006
Nº 206	Joao Correia-da-Silva and Carlos Hervés-Beloso, <u>Rational Expectations Equilibrium in Economies with Uncertain Delivery</u> , March 2006
Nº 205	Luís Delfim Santos and José Varejão, <u>Employment, Pay and Discrimination in the Tourism Industry</u> , February 2006
Nº 204	Carlos F. Alves and Victor Mendes, <u>Mutual fund flows' performance reaction: does convexity apply to small markets?</u> , February 2006
Nº 203	Carlos F. Alves and Victor Mendes, <u>Are mutual fund investors in jail?</u> , February 2006
Nº 202	Óscar Afonso and Paulo B. Vasconcelos, <u>Numerical computation for initial value problems in economics</u> , February 2006
Nº 201	Manuel Portugal Ferreira, Ana Teresa Tavares, William Hesterly and Sungu Armagan, <u>Network and firm antecedents of spin-offs: Motherhooding spin-offs</u> , February 2006
Nº 200	Aurora A.C. Teixeira, <u>Vinte anos (1985-2005) de FEP Working Papers: um estudo sobre a respectiva probabilidade de publicação nacional e internacional</u> , January 2006
Nº 199	Samuel Cruz Alves Pereira, <u>Aggregation in activity-based costing and the short run activity cost function</u> , January 2006
Nº 198	Samuel Cruz Alves Pereira and Pedro Cosme Costa Vieira, <u>How to control market power of activity centres? A theoretical model showing the advantages of implementing competition within organizations</u> , January 2006
Nº 197	Maria de Fátima Rocha and Aurora A.C. Teixeira, <u>College cheating in Portugal: results from a large scale survey</u> , December 2005
Nº 196	Stephen G. Donald, Natércia Fortuna and Vladas Pipiras, <u>Local and global rank tests for multivariate varying-coefficient models</u> , December 2005
Nº 195	Pedro Rui Mazedo Gil, <u>The Firm's Perception of Demand Shocks and the Expected Profitability of Capital under Uncertainty</u> , December 2005
Nº 194	Ana Oliveira-Brochado and Francisco Vitorino Martins, <u>Assessing the Number of Components in Mixture Models: a Review.</u> , November 2005
Nº 193	Lúcia Paiva Martins de Sousa and Pedro Cosme da Costa Vieira, <u>Um ranking das revistas científicas especializadas em economia regional e urbana</u> , November 2005
Nº 192	António Almodovar and Maria de Fátima Brandão, <u>Is there any progress in Economics? Some answers from the historians of economic thought</u> , October 2005

Nº 191	Maria de Fátima Rocha and Aurora A.C. Teixeira, <i>Crime without punishment: An update review of the determinants of cheating among university students</i> , October 2005
Nº 190	Joao Correia-da-Silva and Carlos Hervés-Beloso, <i>Subjective Expectations Equilibrium in Economies with Uncertain Delivery</i> , October 2005
Nº 189	Pedro Cosme da Costa Vieira, <i>A new economic journals' ranking that takes into account the number of pages and co-authors</i> , October 2005
Nº 188	Argentino Pessoa, <i>Foreign direct investment and total factor productivity in OECD countries: evidence from aggregate data</i> , September 2005
Nº 187	Ana Teresa Tavares and Aurora A. C. Teixeira, <i>Human Capital Intensity in Technology-Based Firms Located in Portugal: Do Foreign Multinationals Make a Difference?</i> , August 2005
Nº 186	Jorge M. S. Valente, <i>Beam search algorithms for the single machine total weighted tardiness scheduling problem with sequence-dependent setups</i> , August 2005
Nº 185	Sofia Castro and João Correia-da-Silva, <i>Past expectations as a determinant of present prices – hysteresis in a simple economy</i> , July 2005
Nº 184	Carlos F. Alves and Victor Mendes, <i>Institutional Investor Activism: Does the Portfolio Management Skill Matter?</i> , July 2005
Nº 183	Filipe J. Sousa and Luís M. de Castro, <i>Relationship significance: is it sufficiently explained?</i> , July 2005
Nº 182	Alvaro Aguiar and Manuel M. F. Martins, <i>Testing for Asymmetries in the Preferences of the Euro-Area Monetary Policymaker</i> , July 2005
Nº 181	Joana Costa and Aurora A. C. Teixeira, <i>Universities as sources of knowledge for innovation. The case of Technology Intensive Firms in Portugal</i> , July 2005
Nº 180	Ana Margarida Oliveira Brochado and Francisco Vitorino Martins, <i>Democracy and Economic Development: a Fuzzy Classification Approach</i> , July 2005
Nº 179	Mário Alexandre Silva and Aurora A. C. Teixeira, <i>A Model of the Learning Process with Local Knowledge Externalities Illustrated with an Integrated Graphical Framework</i> , June 2005
Nº 178	Leonor Vasconcelos Ferreira, <i>Dinâmica de Rendimentos, Persistência da Pobreza e Políticas Sociais em Portugal</i> , June 2005
Nº 177	Carlos F. Alves and F. Teixeira dos Santos, <i>The Informativeness of Quarterly Financial Reporting: The Portuguese Case</i> , June 2005
Nº 176	Leonor Vasconcelos Ferreira and Adelaide Figueiredo, <i>Welfare Regimes in the UE 15 and in the Enlarged Europe: An exploratory analysis</i> , June 2005
Nº 175	Mário Alexandre Silva and Aurora A. C. Teixeira, <i>Integrated graphical framework accounting for the nature and the speed of the learning process: an application to MNEs strategies of internationalisation of production and R&D investment</i> , May 2005
Nº 174	Ana Paula Africano and Manuela Magalhães, <i>FDI and Trade in Portugal: a gravity analysis</i> , April 2005
Nº 173	Pedro Cosme Costa Vieira, <i>Market equilibrium with search and computational costs</i> , April 2005
Nº 172	Mário Rui Silva and Hermano Rodrigues, <i>Public-Private Partnerships and the Promotion of Collective Entrepreneurship</i> , April 2005

Editor: Prof. Aurora Teixeira (ateixeira@fep.up.pt)

Download available at:

<http://www.fep.up.pt/investigacao/workingpapers/workingpapers.htm>

also in <http://ideas.repec.org/PaperSeries.html>

