Citizen attitudes toward errors in criminal justice: Implications of the declining acceptance of Blackstone's ratio

Moulin Xiong [a, *], Richard G. Greenleaf [b], Jona Goldschmidt [c]

[a] Law School, Southwestern University of Finance and Economics, No. 555, Liutai Ave, Wenjian, Chengdu, 611130, PR China
[b] Department of Sociology and Criminal Justice, Elmhurst College, 190 South Prospect Ave, Elmhurst, IL, 60126, USA
[c] Department of Criminal Justice and Criminology, Loyola University Chicago, Mundelein Center 807C, 1020 W. Sheridan Rd., Chicago, IL 60660, USA

ARTICLE INFO

ABSTRACT

The "Blackstone ratio," positing that "it is better that ten guilty individuals escape, than that one innocent suffer," is a well-known principle of criminal justice. The methods of implementing the legal policy of maximum possible certainty of guilt congruent with Blackstone's ratio consists of a constellation of constitutional and statutory rights, as well as rules of procedure and evidence. However, what if the public shifts its view of the Blackstone's ratio and becomes less supportive of this principle? This paper reports the results of a cross-national study of public opinion regarding whether it is worse to wrongfully convict the innocent, or erroneously acquit the guilty. Reanalysis of the results of four different surveys of citizens in different countries conducted from 1985 to 2006 reflects a significant and growing rejection of the Blackstone ratio principle over the time period studied. We discuss one implication of these findings relating to the standard of proof in criminal cases, and suggest directions for future research.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The variance in public opinion between freeing the guilty and convicting the innocent has received some attention, but rarely from an international perspective (Rizzolli and Saraceno, 2013; Volokh, 1997; Halvorsen, 2004; Reiman and Haag, 1990; de Keijser et al., 2014; Givati, 2011; Scurich, 2015). The problem of judicial error (a term we use to refer to all manner of causes for wrongful convictions and erroneous acquittals) was originally discussed by Voltaire, Blackstone, and Starkie. Their ideas were variously stated as:

(a) *'tis much more prudence to acquit two Persons, tho' actually guilty, than to pass sentence of condemnation in one that is virtuous and innocent* (Voltaire, 1749);
(b) *The law holds that it is better that ten guilty persons escape, than that one innocent suffer* (Blackstone, 1765);
(c) *It is better that ninety-nine … …offenders shall escape than that one innocent man be condemned* (Starkie, 1824).

* Corresponding author.
    E-mail addresses: xiongmoulin@swufe.edu.cn (M. Xiong), greenleafr@elmhurst.edu (R.G. Greenleaf), jgoldsc@luc.edu (J. Goldschmidt).

Today, there appears to be a growing awareness of the need to estimate the harm of errors that exist within the criminal justice system. Past research assumes the appropriateness of Blackstone ratio, but public acceptance of this principle — or the reason why it is correct — has not been sufficiently examined. Few studies focus on the question of whether people believe that wrongful convictions (false positives, a Type I error) are less harmful than erroneous acquittals (false negatives, a Type II error). This paper provides empirical evidence of public opinion on this question from a cross-national perspective.

In general, legal theories embody the spirit of criminal law in order to protect the innocent from being mistakenly convicted (Volokh, 1997; Findley, 2008; Clark, 2011; Allen and Laudan, 2008). However, Bentham (1825) believed that wrongful convictions are exaggerated since most guilty men would be exonerated to avoid a given number of wrongful convictions (Allen and Laudan, 2008: 79). While 10:1 is the most common ratio, some scholars have increased it to 50:1, 99:1, 100:1, and even 1000:1 (Volokh, 1997: 175—179; Reiman and Haag, 1990: 228; Findley, 2008: 136—138; Scurich, 2015: 29—30; Ricciardelli et al., 2009: 417). According to Volokh (1997: 195—196) not only has the ratio been exaggerated, it has been reversed in some cases. For example, von Bismarck believed that it is far better that ten innocent men suffer than one guilty man escape (Wade, 1979: 385); and Pol Pot claimed that it is far better to arrest ten innocent men than free a single guilty one (Sorochan, 2008: 113).

Does following Blackstone ratio help the criminal justice system avoid wrongful convictions? The conviction of innocents has been found across the globe, including nations such as Canada, England, Japan, Australia, China and the United States (Roach, 2012; Beckford, 2012; Weathered, 2012). Every year hundreds of innocent people are wrongfully convicted, and many of them have had to serve prison time (Huff, 2002, 2004; Huff and Killias, 2008; Krieger, 2011; Zalman et al., 2008; Gastwirth and Sinclair, 1998; Liebman et al., 2000; Risinger, 2007). In some extreme cases, innocent people been executed after many years on death row (Moravec and Weber, 2015; Godsey, 2013; Liebman et al., 2000). Other innocents are incarcerated without vindication due to coerced plea bargains, perjured or flawed eyewitness testimony, withheld evidence, forced confessions, and other prosecutorial and police misconduct (Huff, 2002). Moreover, their families have also suffered, waiting impatiently for an appeals court to overturn the conviction (Krieger, 2011). Newspaper accounts of prosecutors and police who have intentionally sent innocent men and women to prison by withholding evidence are commonplace (Newman, 2013; Gross and O'Brien, 2008). In some cases appellate courts refuse to hear cases even when the actual offender provides a confession (O'Dell, 2011; Gorman, 2002).

In view of the apparent lack of empirical evidence regarding Blackstone's "error ratio," it is time to examine public opinion as to the currency of the view that it is worse to convict one innocent person than to free ten who are guilty. This paper reports the results of a cross-national study of public opinion regarding the relative acceptance of wrongful convictions or erroneous acquittals. We then discuss the implications of the changed attitude for the standard of proof in criminal cases.

2. Literature review

2.1. Interdisciplinary approaches

The statistical hypothesis testing concepts of Type I error (false positives) and Type II error (false negatives) has direct application to the criminal prosecution process. Wrongful convictions are false positives, and erroneous acquittals are false negatives (Feinberg, 1971: 30; Friedman, 1972: 21). This method of comparing errors (in any hypothesis testing) is applied in numerous disciplines such as law, sociology, economics, psychology, philosophy and criminology.

Researchers have since the 1970s applied statistical analyses to study the effects of Blackstone's ratio in criminal prosecutions (Kornstein, 1976; Kaye, 1979; Cohen, 1981; Jonakait, 1983). Originally, scholars disagreed that one innocent person wrongfully convicted can be linked to a given number of guilty persons being acquitted; however, gradually they came to accept the accuracy of statistical error models (Radford, 1988; Stith, 1990; Givelber, 1997, 2005). In the years after 2000, skepticism among academicians arose once again, as evidence by several symposium law review issues on the subject of wrongful convictions (*Texas Tech Law Review*, 2008; *Albany Law Review*, 2011, 2012). A plenary presentation at one symposium noted that Blackstone's ratio lacked any empirical support (Acker, 2011: 1070).

Philosophers consider the Blackstone ratio a moral issue. For example, Reiman and Haag (1990: 227) question the ratio of 10:1, arguing that there is a lack of quantifiable evidence regarding the principle. Lippke (2010: 462) argues that the principle is untenable, whereas Goodin (1985: 149) agrees that it is hard to gain consensus on the ratio of wrongful convictions to erroneous acquittals (the latter term as used here refers to the factually guilty who are acquitted by judge or jury). However, philosophers concur that there is no way to provide a precise estimation of the ratio in society (Reiman and Haag, 1990; Goodin, 1985).

Scholars in the field of law and economics translate the ratio into cost-benefit terms. By utilizing a complicated econometric model they attempt to establish optimal results to differentiate wrongful convictions from erroneous acquittals (Rizzolli and Saraceno, 2013; Posner, 1973, 1999, 2007; Polinsky and Shavell, 1989; Png, 1986; Persson and Siven, 2007; Dekay, 1996; Garoupa and Rizzolli, 2012). As a result, many more factors related to economics, law, and political science are taken into account. Png (1986) argues that wrongful convictions are as detrimental as acquittals by adding many indirect costs. After a review of the literature on judicial error, Rizzolli and Saraceno (2013) reveal that both types of errors are equally harmful in terms of cost (Becker, 1968). Many researchers claim wrongful convictions diminish the value of general deterrence (Miceli, 1990; Garoupa and Rizzolli, 2012; Tullock, 1994; Persson and Siven, 2007), while others suggest that these errors do not decrease the deterrent effect (Lando, 2006). Psychologists have also utilized diverse statistical measures to explore how

judicial errors contribute to the conviction of the innocent and acquittal of the guilty (Dhami, 2008). Wright et al. (2011) utilize various models to measure the jury process by applying the reasonable doubt standard. They, however, fail to discuss the complexity of judicial error in the criminal justice system.

Researchers have raised doubts about the Blackstone ratio for various reasons. Academicians embrace due process and the reasonable doubt standard, but they also critique suggestions for the mathematical rate of judicial errors. Philosophers who would be more likely to concentrate on the spirit of justice and protecting the innocent from false convictions have generally believed that ten guilty men are not equal to one innocent man (Reiman and Haag, 1990). Both psychologists and economists have also made efforts to assess judicial errors (Clark, 2011). Great contributions have also been made by legal scholars and criminologists engaging in empirical research on attitudes regarding the Blackstone ratio, and who directly and indirectly question its validity (Sommer et al., 1991; de Keijser et al., 2014; Scurich, 2015).

2.2. Empirical findings

Several studies have examined public attitudes toward Blackstone's ratio. Sommer et al. (1991: 485-88) studied the opinions of 256 students regarding the Blackstone ratio as applied to six offenses, including murder, embezzlement, and traffic violations, and various sentence length to represent different levels of crime severity. They found that the ratios varied positively with the sentence length for the innocent persons, and was associated with different crimes. For example, the median number of guilty persons that respondents were willing to release was less than ten for murders and more than 40 for embezzlement in order to avoid one innocent person from being wrongfully convicted.

Ricciardelli et al. (2009: 416-20) asked students whether they agree or disagree with Blackstone's ratio, and what levels, from 1 in 10 to 1 in 10,000, are acceptable. Their analysis indicated considerable disagreement among respondents. By the rank of each statement range from 1 (strongly disagree) to 5 (strongly agree), their finding shows the student's major and year of study impact the attitude toward Blackstone' s ratio. But not all respondents overwhelmingly supported the ratio, expressed as "It is better that 10 guilty men go free than to convict one innocent man." In their analysis, the mean rank of 2.95 and 2.91 imply that first-year criminal justice and non-criminal justice, respectively, seem to have rejected the Blackstone ratio, while third-year non-criminal justice students (mean 3.03) and criminal justice majors (mean 3.58) moderately agreed with it.

Unlike asking respondents about the acceptable level of Blackstone ratio, Zalman et al. (2012: 57) examined citizen's attitudes toward the frequency of wrongful convictions. They asked them "How often do you think wrongful convictions occur?" Their research could be regarded as an attempt to formulate a reverse Blackstone ratio. Approximately 93% of respondents reported that wrongful convictions occur at a rate of at least 1%; 21.2% believed that wrongful convictions occur at a rate of only 1—3%; 61.6% of respondents believed it was 4—10%; and 10.2% of respondents believed that wrongful convictions occur in at least 11% of cases. In another words, their research indicated that citizens in United States believe that the criminal justice system should convict at least 1 (to 11) innocent person (s) in order to ensure the remaining numbers (from 89 to 99) of guilty persons are punished. Contrary to the principle "freeing a given guilty man to assure that no innocent being convicted," Zalman et al. research casts doubt on Blackstone's ratio.

Are those studies reliable to estimate the worst type of judicial error? The researches in these studies asked respondents to choose a given number in a list from 1 in 10, 1 in 100, 1 in 1000, and 1 in 10,000. Whatever their findings, the computed numbers of acceptable wrongful convictions or erroneous acquittals resulted mainly from a biased design. Conceptually the researchers presupposed that convicting an innocent person is much worse than freeing a (or many) guilty person(s), and then they created such a question to survey the respondents' preferences. However, we basically believe their findings are flawed for reasons explained in the next section. As Halvorsen (2004: 3) commentated, "we are not quite sure that we actually know what the question is."

2.3. Citizen attitudes

To date, only three articles have explicitly examined public attitudes (as distinguished from small, non-random samples) about the worst type of judicial error. Using the British Social Attitudes (BSA) survey of 2006 ($N = 924$), de Keijser et al. (2014: 35) found that 64% of British citizens believe that convicting an innocent person is worse than letting a guilty one go free. In a study of 436 Dutch train passengers regarding what level of N in the Blackstone ratio is acceptable, no significant difference between wrongful convictions (false positives, 104 responses) and erroneous acquittals (false negatives, 102 responses) was found. Givati (2011) used data from the International Social Survey Program (ISSP) ($N = 48,641$) on the role of government, in which he reported that 82.6% of French citizens and 70.6% of Americans believe that convicting the innocent is worse than the erroneous acquittal of the guilty. Scruich (2015: 28) examined 568 adult participants of Amazon's Mechanical Turk (AMT) and found that 85% of the respondents believe wrongful convictions are a type of error worse than erroneous acquittals.

Examination of the results of these three studies, summarized in Table 1, using the Student's T test (t = 3.231, p = 0.016) permits rejection the hypothesis of equal preference, The research seems to confirm that citizens consider Type I errors are worse than Type II errors. However, the most serious limitation of these studies is a methodological defect that exaggerates the percentage of false positive. As indicated in the following discussion (*see* Table 2), the researchers mistakenly regarded opinions regarding judicial errors as having bivariate outcomes only, and ignored the percentage of citizen attitudes reflected in the Cannot Choose or N/A (no answer) responses. While the newest quantitative public opinion analyses were conducted

Table 1
Public opinion regarding error type preference in previous empirical studies %(n).

Author	Country	% of Worse Preference		SE	Odds	Confidence Interval at 95%		Data
		Type I	Type II			Type I	Type II	
de Keijser et al., 2014	U K [a]	63.61 (479)	36.39 (274)	1.75	1.75	(60.17, 67.05)	(32.95, 39.83)	BSA, 2006
	Dutch [b]	50.49 (104)	49.51 (102)	3.48	1.02	(43.66, 57.32)	(42.68, 56.34)	Train
Givati, 2011	US [a]	70.64 (1030)	29.36 (428)	1.19	2.41	(68.30, 72.98)	(27.02, 31.70)	ISSP, 2006
	France[a]	82.57 (1383)	17.43 (292)	0.93	4.74	(80.75, 84.39)	(15.61, 19.25)	
Scurich, 2015	US	85.39 (485)	15.61 (83)	1.53	5.47	(82.39, 88.39)	(12.61, 18.61)	AMT
Arithmetic Mean		70.54 (3481)	29.66 (1179)	0.67	2.38	(69.23, 71.85)	(28.35, 30.97)	
Weighted Mean		74.70 (6483)	25.30 (1096)	0.64	2.95	(73.45, 75.95)	(24.05, 26.55)	
T-test[c]		3.23**						

** $p < 0.05$.
Note.
[a] The number of samples were mined from original dataset according to the citation in text.
[b] The percentage was computed by the number of sample, excluding 115 balanced information.
[c] Student's T-test on the percentage of worse type error preference, H0:Type I Error = Type II. Error, Ha: (mean) diff>0.

Table 2
Re-analysis of survey data regarding type I and type II errors.

Question	All systems of justice make mistakes, but which do you think is worse: to convict an innocent person, OR to let a guilty person go free?						
Survey	All Responses					Dichotomous [a]	
	Type I		Type II	CNC	N/A	Type I	Type II
	Agree %(n)	Disagree %(n)	%(n)	%(n)	%(n)	%(n)	%(n)
BSA, 2006	51.4 (479)	48.6 (453)	29.4 (274)	18.4 (171)	0.9 (8)	63.6 (479)	36.4 (274)
ISSP, 2006	62.1 (30192)	37.9 (18449)	24.8 (12081)	11.6 (5627)	1.5 (741)	71.4 (30192)	28.6 (12081)
GSS, 2006	67.9 (1030)	32.1 (488)	28.2 (428)	3.4 (52)	0.5 (8)	70.6 (1030)	29.4 (428)
CGSS, 2005	44.4 (4608)	55.6 (5764)	42.2 (4375)	13.4 (1389)	– –	51.3 (4608)	48.7 (4375)
Mean	56.4 (36309)	43.6 (25154)				64.7 (36309)	35.3 (17158)
Weighted	59.1 (36309)	40.9 (25154)				67.9 (36309)	32.1 (17158)
T-test	1.22[b]					3.06**[c]	
Power	0.846					0.993	

** $p < 0.05$.
Note: CNC=Can't Choose, N/A = Not Answered.
[a] Dichotomous model excludes "Can't Choose" response and missing data. The denominator used for the percentage calculation in this model is the *N* of valid responses only.
[b] H0: Agree with Type I Error = Disagree with Type I Error, Ha: (mean) diff>0.
[c] H0: Type I Error = Type II Error, Ha: (mean) diff>0.
Source: BSA, 2006; ISSP, 2008; CGSS, 2005; NORC, GSS Data Explorer.

with small samples, they contributed to our understanding of the public's acceptance of the Blackstone ratio. Three of the studies had no more than 600 respondents (Sommer et al., 1991; de Keijser et al., 2014; Scurich, 2015). In Scurich's (2015: 28) online survey using AMT the respondents' median age was only 28. The results of these studies are of course ungeneralizeable to the general population.

3. Questions posed and data excluded in national surveys

In examining data from available public opinion surveys we focused not only on the text of the questions posed, but on the data excluded. In 2010, the European Social Survey (ESS) issued the 5th report of public opinions of citizens of 27 European Union (EU) membership countries regarding judicial errors (ESS Round 5, 2010). Respondents were asked to use a 10-point scale (0 = never and 10 = always), to answer the question: "Please tell me how often you think the courts make mistakes that allow guilty people go free?" A calculation of the data shows the mean to be 4.97, excluding invalid answers, refusals, and individuals who state that they do not know. Unfortunately, this wave of ESS did not develop similar questions about how often the courts err in convicting the innocent, and which in their view was a worse type of judicial error.

The BSA (1985–2006) survey posed the following question: "All systems of justice make mistakes, but which do you think is worse?" The options were: "To convict an innocent person", "To let a guilty person go free", or "Can't Choose". We organized respondents' views regarding false positives (CIN, convicting the innocent) and false negatives (FG, freeing the guilty). The results of the 2006 survey, using the *N* of all respondents (including undecided and others who failed to respond) indicate that approximately 51.4% of the respondents agree that wrongful convictions are worse than erroneous acquittals, whie 48.6% do not agree (see Table 2).

In contrast, de Keijser et al. (2014: 35), using the same BSA data, reported that about 64% of the British public believe that convicting an innocent person is worse than acquitting a guilty one, with 36% having the opposite view. As noted above, the

researchers excluded Can't Choose responses and missing data. As Table 2 indicates, a model that uses the *N* of only valid responses (the dichotomous model) for the denominator of the percentage calculation causes an increase in the percentage values (in this case from 51.8% in the all responses to 63.6%). Such reported survey results can, therefore, be misleading. We see the same pattern in the case of other reported survey results (Givati, 2011; Scurich, 2015).

The International Social Survey Program (ISSP), entitled *On the Role of Government*, reports data from public opinion surveys from 1985 to 2006 regarding Type I and Type II judicial errors. The most recent wave in 2006 (4th) includes respondents from 38 countries. The following question was posed: "All systems of justice make mistakes, but which do you think is worse?" The response options were: "To convict an innocent person," to "Let a guilty person go free," or "Can't choose." The ISSP results (Table 2) indicate that 62.1% of respondents believe that the worst of the outcomes is wrongful conviction, but 37.9% of the respondents disagree. By excluding Can't Choose responses and missing data, the dichotomous outcome increased the percentage of false positives from approximately 62.1%—71.4%.

The General Social Survey (United States) conducted a similar survey since 1985, with the most recent investigation carried out in 2006. The question posed in this survey is: "All systems of justice make mistakes but which do you think is worse?" and provides these choices: "To convict an innocent person," "To let a guilty person go free." or "Can Not Choose." Almost 68% percent of the GSS respondents believe wrongful convictions are worse than erroneous acquittals (Table 2), while 32.1% have the opposite view. Without recognition of all responses, the dichotomous model results in an exaggerated percentage of belief in false positives being worse than false negatives to 70.6%, thus adding about 3.7% preferring wrongful convictions over erroneous acquittals.

The China General Social Survey (CGSS) (2005: F19) was administered in 2005, and included a question regarding attitudes toward judicial errors. The CGSS divides respondents into rural and urban categories. It uses multilevel sampling on the unit of specific streets, towns, and counties clustering in different provincial groups. A total of 10,372 valid responses from 28 mainland provinces, excluding Ningxia, Qinghai and Tibet in Mainland China, are integrated in the dataset. The survey included the following question: " In your opinion, which of the following situations is worse?". And provides these choices: "Innocent people are sentenced," "Criminals are set free," or "Difficult to choose." Interestingly, the results of the all-responses model indicate that 44.4% of the respondents believe wrongful convictions are worse than erroneous acquittals (far fewer than those in the other surveys), while 42.2% believe erroneous acquittals are worse, and 13.4% think it is difficult to choose. These results differ from the binary or dichotomous model, where the percentages are about 51% and 49%, respectively, thus, reflecting a 6.9% difference in the reported values between the two models.

What does selection of Can't Choose mean in the context of the aforementioned surveys? This response may reflect conflict in the beliefs of the respondents, specifically, that Type I and Type II errors are equally problematic and constitute a miscarriage of justice, making it difficult for them to select one or the other option. It may reflect the view that it is impossible to select one or the other because there are too many factors that can impact the decision, such as the seriousness of the crime, criminal history of the defendant or other variables. Given the difference of proportions of response between the all-response and dichotomous models, the Student's T-test demonstrates that the methodological defect identified here would cause a flawed conclusion. As the test outcome for four surveys revealed in Table 2, there is a significant difference (t = 3.058, p = 0.028) between citizen attitude supporting Type I versus Type II error when we exclude the Can't Choose responses. However, such preference to support Type I error is not significantly different from the percentage of disagreement toward Type I error (t = 1.223, p = 0.154), when we compute the percentage including all responses. The literature review presented above suggests that a discussion of the topic of judicial error still has profound theoretical implications.

4. Longitudinal survey analysis

4.1. General findings

We examined the data from the national public opinion surveys using an all-responses model longitudinally to reassess global attitudes toward wrongful convictions. Fig. 1.1 is the outcome of four waves of ISSP data (1985—2006). The ISSP collected responses from 6 nations in 1985 (N = 7350); from 11 nations in 1990 (N = 14,897); from 25 nations in 1996 (N = 32,795); and 38 nations in 2006 (N = 48,641). The ISSP dataset codes false positives and negatives as "0" and "1" respectively, and includes with a large number of missing values. The codebook and online tabulation describes the proportions for each specific response option in each wave.

On average, Fig. 1.1 for the years from 1985 to 2006 shows that about 14% (14.1%) of respondents believe it is difficult to choose between the two types of judicial errors (*see* also Table 3). Approximately 20% (22.2%) of the respondents believe it is much worse to free the guilty than to convict the innocent, while about 65% (63.4%) concur that wrongful conviction is worse than letting a guilty man go free. It is very clear that Fig. 1.1 (all response model) shows a decrease in support for wrongful convictions as being worse than erroneous acquittals. In contrast, the dichotomous model (Fig. 1.2) reflects a much sharper decline in respondents' preference over time for Type I (wrongful conviction) errors, if responses of Cannot Choose are excluded.

The BSA collected 1502 responses in 1985, 1316 in 1986, 1163 in 1990, 986 in 1994, 994 in 1996, 842 in 2005, and 932 in 2006. Although BSA only reports the bivariate percentage (i.e., consisting of convicting the innocent and freeing the guilty), the original percentage including, "Cannot Choose" can be calculated since the survey lists the total number of participants in specific options. Longitudinal analyses of both models of the BSA data (Fig. 1.3 and 1.4) show a pattern similar to the ISSP

Table 3

Which is Worse: Convicting the Innocent or Freeing the Guilty? (ISSP All Responses, 1985–2006, 38 country) %.

Country/State	1985			1990			1996			2006			Mean Row			Change CIN Only	Pearson χ^2
	CIN	FG	CNC	CIN	FG	CNC	CIN	FG	CNC	CIN	FG	CNC	CIN	FG	CNC		
Australia	71.3	21.2	7.5	64.5	20.7	14.9	64.6	21.8	13.6	59.5	26.5	14.0	64.1	22.9	13.0	↓(−11.8)	91.0***
Germ-W	76.3	13.2	10.5	65.8	18.5	15.8	68.0	14.6	17.4	62.2	19.3	18.4	67.5	16.6	16.0	↓(−14.1)	69.3***
Germ-E				63.7	17.1	19.2	64.1	17.1	18.8	60.8	22.2	17.0	63.3	18.1	18.6	↓(−2.9)	7.7*
UK	66.7	20.3	13.1	61.4	19.1	19.5	56.2	26.9	16.9	52.2	29.1	18.7	59.2	23.4	17.0	↓(−14.5)	77.6***
US	61.9	20.4	17.7	56.2	20.0	23.8	60.4	22.5	17.0	67.9	28.2	4.0	61.9	23.4	14.7	↑(6.0)	237.2***
Italy	76.5	16.8	6.7	74.8	22.4	2.9	75.7	19.5	4.8				75.8	19.1	5.1	↓(−0.8)	27.6***
Austria	67.5	14.2	18.3										67.5	14.2	18.3	NA	
Hungary [a]				56.5	32.3	11.2	54.3	21.6	24.1	52.4	30.9	16.7	54.3	27.3	18.4	↓(−1.9)	89.6***
Ireland				75.9	17.1	7.0	72.6	20.9	6.4	70.1	20.3	9.6	72.9	19.4	7.7	↓(−4.0)	14.0***
Norway				86.2	7.7	6.1	86.4	7.5	6.1	84.2	10.5	5.3	85.6	8.5	5.9	↓(−2.0)	10.0**
Israel-Jews [b]				65.9	17.4	16.8	66.7	16.1	17.2	63.8	20.4	15.8	65.5	18.0	16.6	↓(−2.1)	7.0
Israel-Arabs [a]							53.8	27.6	18.6	63.5	27.4	9.1	57.5	27.5	15.0	↑(9.7)	14.5***
North Ireland			66.2	20.0	13.9							66.2	20.0	13.9		NA	
Sweden							71.7	20.0	8.3	71.9	19.2	9.0	71.8	19.6	8.6	↑(0.1)	0.5
Czech							67.6	18.8	13.6	75.5	13.5	11.0	71.8	16.0	12.2	↑(7.9)	18.2***
Slovenia							61.2	18.9	19.9	66.7	15.4	18.0	63.9	17.1	18.9	↑(5.5)	7.2**
Poland							40.4	20.5	39.1	62.1	22.5	15.4	51.7	21.5	26.7	↑(21.7)	187.7***
Russia							64.2	18.6	17.2	54.8	15.6	29.6	58.7	16.8	24.5	↓(−9.5)	82.8***
New Zealand							62.5	21.4	16.1	57.8	25.0	17.2	60.1	23.2	16.7	↓(−4.7)	6.2**
Canada							61.6	18.2	20.2	58.8	23.4	17.8	60.4	20.5	19.2	↓(−2.8)	9.1**
Philippines							42.7	21.8	35.6	44.6	22.2	33.3	43.6	22.0	34.4	↑(1.9)	1.5
Japan							58.5	26.7	14.8	61.6	23.2	15.3	60.0	25.0	15.0	↑(3.1)	4.3
Spain							68.6	22.7	8.7	61.5	22.6	15.9	65.1	22.7	12.3	↓(−7.1)	62.5***
Latvia							69.3	18.1	12.6	70.4	17.1	12.4	69.8	17.7	12.5	↑(1.1)	0.5
France							73.5	17.3	9.2	75.8	16.0	8.2	74.8	16.6	8.6	↑(2.3)	2.3
Cyprus							40.0	45.8	14.2				40.0	45.8	14.2	NA	
Bulgaria							53.5	29.3	17.3				53.5	29.3	17.3	NA	
Switzerland										76.3	18.2	5.6	76.3	18.2	5.6	NA	
Chile										55.2	40.4	4.5	55.2	40.4	4.5	NA	
P.R.C.Taiwan										37.7	47.3	15.0	37.7	47.3	15.0	NA	
Croatia										63.7	18.7	17.7	63.7	18.7	17.7	NA	
Denmark										81.9	12.2	5.9	81.9	12.2	5.9	NA	
Dominican										63.3	28.8	7.8	63.3	28.8	7.8	NA	
Finland										74.2	17.5	8.3	74.2	17.5	8.3	NA	
South Korea										65.4	28.6	6.0	65.4	28.6	6.0	NA	
Netherlands										65.9	24.4	9.8	65.9	24.4	9.8	NA	
South Africa										39.3	45.4	15.4	39.3	45.4	15.4	NA	
Uruguay										63.3	27.6	9.1	63.3	27.6	9.1	NA	
Venezuela										62.9	32.5	4.6	62.9	32.5	4.6	NA	
Portugal										69.8	20.9	9.4	69.8	20.9	9.4	NA	
Mean	70.8	17.9	11.3	67.1	18.9	14.1	63.3	20.8	16.0	62.1	24.8	13.1	63.4	22.2	14.1	↓(8.7)	579.5***
T-test [c]	8.51	***		6.36	***		5.61	***		7.59	***		7.80	***			
Sample	7350		14,897		32,795		48,641		103,683								

*$p \leq 0.1$.

**$p \leq 0.05$.

***$p \leq 0.01$.

Note.

[a] Indicates possible data entry error by statistician Responses for both type I and type II errors for Hungary in 1990 and Israel-Arab in 1996 were recoded since they were transposed in the dataset.

[b] Survey in 1990 did not differentiate Jews or Arabs, Israel-Jews used here for comparison only.

[c] H0: the percentage of Agree with Type I Error (i.e., CIN) = Disagree with Type I Error (i.e., both FG and CNC), Ha: (mean) diff>0.

Source: ISSP, 1986, 1992, 1999, 2008.

survey. The stark differences in the results of the two models are especially pronounced in the analysis of the 2006 data. Fig. 1.3 indicates about 52% of respondents that year selected wrongful convictions as being worse than erroneous acquittals, whereas about 30% had the opposite view. If "Can't Choose" responses (about 19%) are included, then the latter increases to 48%. In contrast, the dichotomous model (Fig. 1.4) suggests that 63.6% of the respondents would deem it worse to convict the innocent than to acquit the guilty, having increased 11.8% by excluding Can't Choose responses.

Fig. 1 also reveals the decreasing public acceptance of the Blackstone principle, and the increasing concurrence as to the worst type of judicial error being erroneous acquittal. Over time, a growing proportion of the public in these nations feel that wrongfully convicting the innocent is not worse than a guilty person's erroneous acquittal. In comparison with the percentage in ISSP 1985, respondents who selected Type I error as the worst type declined by 8.7% in 2006. Even in the dichotomous results (from 79.8% to 71.4%), 8.4% fewer respondents from 1985 to 2006 believe that false positives (wrongful convictions) are not as bad as false negatives (erroneous acquittals). The same trend can be identified in the BSA survey: the preference for
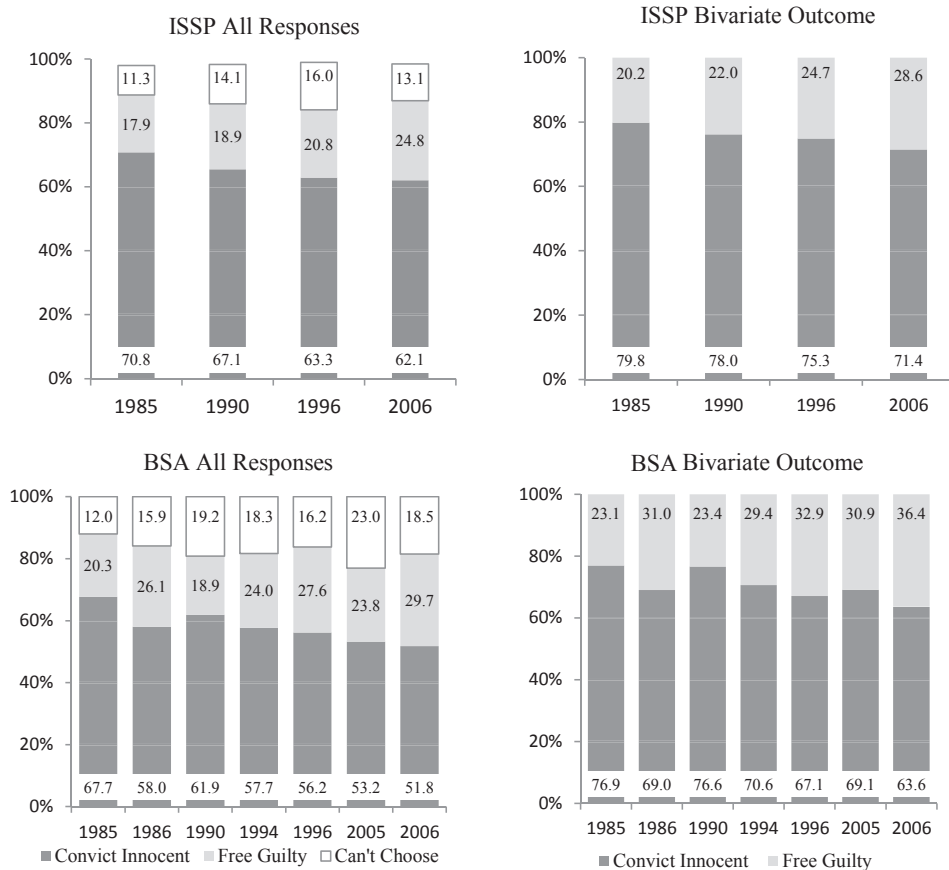
Fig. 1. Preference regarding worst type of judicial error, ISSP and BSA (1985—2006).
Source: ISSP, 1986, 1992, 1999, 2008; BSA, 1985—2006.

Type I error is reduced to 51.8% from 67.7%, and in contrast Type II error increased to 29.7% from 20.3%. The noticeable changes in both Type I and Type II errors is observed in the dichotomous model as well, showing a decrease of 12.7% and an increase of 13.3% in Fig. 1.4. In contrast, with the slight rise of Cannot Choose responses in the ISSP, Fig. 1.3 indicates that 6.5% of British citizens think that it is difficult to make a choice. Such a noticeable change in public opinion within a 21-year period deserves much more attention by criminal justice researchers.

4.2. Changes at country level

We can gauge international public regarding the Blackstone ratio principle by examining the ISSP survey data. As noted above, the first three ISSP surveys report all responses of each country in the codebook (ISSP, 1985:50, ISSP, 1990:71, ISSP, 1996:19), but the 2006 report includes only the valid responses (dichotomous model). For that year we compared the United States GSS data regarding the number of responses preferring false positive, false negative, and missing values. The two datasets as to the U.S. are consistent. This verification confirms to us that the missing values in the ISSP dataset consist of Cannot Choose and N/A. Thus, we recode all the missing value into Cannot Choose so as to retest the public's opinion about judicial errors. Table 3 presents the results of the four surveys of ISSP from 38 countries, in which the percentages are calculated from the dataset of each wave via Stata.

The longitudinal data analysis (where data over four surveys was available) is summarized by the directional arrows and changes for false positive. Again, the trends for specific countries are basically similar to the general trend. We observe a mean reduction of 8.7% in the proportions of respondents who believe convicting the innocent is worse than erroneous acquittals. To further determine whether the preferences in four waves in each country are significantly different, we employ Pearson Chi-square to test the distribution of each response from 1985 to 2006. Twelve nations show a significant decrease in support for wrongful convictions as being worse than erroneous acquittals, while the change in Israel-Jews is not significant. In contrast, four countries show a significant increase in support for erroneous acquittals as being worse than wrongful convictions, while five nations show a slight increase without reaching a significance level. Nine of these countries with increasing support for erroneous acquittals come from the studies conducted between 1996 and 2006. In contrast, those

nations with a decreasing tendency conducted their surveys prior to 1990. This decreasing preference for a Type I error (wrongful conviction) further reflects the decreasing global acceptance of the Blackstone principle.

The Student's T-test in Table 3 indicates that the public's growing acceptance of false positives is significantly different from the proportion rejecting it. However, citizens in South Africa, Taiwan, and Cyprus believe that freeing a guilty person is worse than convicting an innocent person, while a large portion of Bulgarians, Filipinos, English, and Russian citizens believe that it is difficult to make the choice as to which error is worse. Poland witnessed a significant change in public views of the question from 1996 to 2006, while the percentage of citizens preferring Type I error in China were almost no different from respondents preferring Type II error (*see* Table 2). Interestingly, the BSA survey data from 2006 indicates that the proportions of respondents agreeing or disagreeing that convicting an innocent person is the worst type of error are almost equal (51.8% versus 49.2%; *see* Fig. 1), while the percentage supporting Type II error and Cannot Choose increased by 9.4% and 6.5%, respectively. If we acknowledge this decreasing tendency and some social strains in the aforementioned countries, the public may — given a further rise in terrorism or serious crime — eventually come to believe that the harm caused by wrongful convictions is at least equal to the harm caused by erroneous acquittals. More longitudinal data are needed to test this hypothesis in future research.

4.3. Statistical analysis by year

To further test the change in each country by year we use multinomial logistic regression to predict the tendency of citizen attitude toward Type I error and Cannot Choose respectively, with a base of Type II error. The current international ISSP survey consists of only four waves, which do not allow us to do time series analysis. Alternatively, we treat the year as a dummy variable, and then compare the probability of preferring Type I error and Cannot Choose in later years with a given year (*see* Table 4).

The change in each country, or general trend, can be read from the relative risk ratio in the multinomial logistical model (Stata command *mlogit*). We notice also the data in four years nested in given countries, so we organize the sample as multilevel data. By means of multilevel logistical regression (Stata command *xtmelogit*), we recode type II error as "0" and Type I error as "1" respectively, and then generate a new variable to predict the change of acceptance on Type I error. And we recode Type II error as "0" again and Cannot Choose as "1", and generate another new variable to test the trend of acceptance on Cannot Choose. The odds ratio of multilevel logistic regression lends support for the general trend of the acceptable worst

Table 4
Relative risk ratio of multinomial logistic regression on predicting preference trend regarding worst type of judicial error (1985—2006, 38 country).

Base (Free Guilty)									
Country	Referred Year	1990		1996		2006		LR χ^2	Pseudo R2
		CIN	CNC	CIN	CNC	CIN	CNC		
Australia	1985	0.93	2.04***	0.88	1.78***	0.67***	1.49***	96.43***	0.0061
Germany-West	1985	0.61***	1.07	0.81**	1.50***	0.56***	1.20	71.66***	0.0057
Germany-East	1990			1.01	0.98	0.74**	0.68	7.43	0.0015
Great Britain	1985	0.98	1.58***	0.64***	0.97	0.54***	1.00	77.77***	0.0089
United States	1985	0.93	1.37**	0.88	0.87	0.79**	0.16***	274.43***	0.0315
Italy	1985	0.74***	0.32***	0.86	0.62**			28.58***	0.0058
Hungary	1990			1.44***	3.24***	0.97	1.57***	92.38***	0.0133
Ireland	1990			0.78**	0.76	0.78**	1.16	13.90***	0.0031
Norway	1990			1.03	1.02	0.72**	0.64**	9.69**	0.0023
Israel-Jews	1990			1.09	1.10	0.82*	0.80	6.98	0.0013
Israel-Arabs	1996					1.19	0.49***	15.34***	0.0099
Sweden	1996					1.04	1.12	0.48	0.0001
Czech Republic	1996					1.56***	1.13	18.21***	0.0050
Slovenia	1996					1.34**	1.11	7.19**	0.0020
Poland	1996					1.40***	0.36***	191.25***	0.0377
Russia	1996					1.01	2.05***	85.26***	0.0109
New Zealand	1996					0.79**	0.91	6.24**	0.0013
Canada	1996					0.74***	0.69***	9.04*	0.0023
Philippines	1996					1.03	0.92	1.50	0.0003
Japan	1996					1.22**	1.19	4.30	0.0009
Spain	1996					0.90	1.84***	63.34***	0.0072
Latvia	1996					1.08	1.05	0.49	0.0001
France	1996					1.12	0.96	2.31	0.0005
General Trend (38 country)									
mlogit	1985	0.90***	1.18	0.77***	1.22***	0.63***	0.84***	580.21***	0.0031
xtmelogit	1985	0.80***		0.76***		0.70***		78.66***	
xtmelogit	1985		1.14**		1.09		0.95	31.85***	

Note: Dependent variable is the preference of worst error type, Type II error was regarded as reference.
*$p \leq 0.1$, **$p \leq 0.05$, ***$p \leq 0.01$.
Source: ISSP, 1986, 1992, 1999, 2008.

type of error with consideration to the aggregating effect on country. Although we report the analytical outcomes in a very simple way, we still report the Likelihood Ratio of Chi-square and Pseudo R^2 for multinomial logistic regression, and Wald Chi-square for multilevel logistic regression to confirm our modeling analysis.

As described in Table 4, our findings are largely consistent with Table 3. For the general trend, both the *mlogit* and *xtmelogit* analysis confirm that the likelihood supporting Type I was gradually decreased year by year. In other words, citizens around the world were increasingly worried about the detriment of erroneously freeing guilty persons. Specifically, most of the countries experienced a significant decreasing tendency to accept of Type I error over Type II error, since the relative risk ratios are less than 1. Unlike the increasing tendency in Table 3 for United States, the relative risk ratio 0.79 ($p = 0.041$) in 2006 indicates a completely different decreasing tendency in support Type I error as compared to 1985. The reason for this change can be attributed to our methodology in Table 3, in which we include all responses to compute the percentages, rather than using a dichotomous analysis including only false positives and false negatives. In contrast, multinomial logistical in Table 4 is a bivariate analysis of Type I error and refers to the base of Type II error, and excludes samples of Cannot Choose in this procedure. As the dichotomous analysis in Table 5 derived from the GSS demonstrates, approximately 4.58% of the sample changed their preference regarding which is worse from false positives to false negatives.

Although we consider the aggregating effect of country, the regional differences don't eliminate the decreasing acceptance of Type I error in general. On the contrary, this different outcome on significant levels between *mlogit* and *xtmelogit* indicates that the regional variance regarding Cannot Choose exists in 1996 and 2006 as compared to 1985. But such regional differences do not impact the increase from 1985 to 1990 (Odds ratio = 1.136, $p = 0.036$). It may explain the increasing trend in 1996 and the decreasing trend in 2006 of Cannot Choose at a general level. This implies again that the increasing preference for Cannot Choose in some countries is part of the reason for the decreasing acceptance of Type I error, though not every country experiences the same trend.

Despite the fact that the model identifies the effect of year in the acceptance disparity between false positive and false negative, the year variable explains little variation among countries, since the Pseudo R^2 is too trivial (0.0031 in general) to be ignored, with an exception of United States (0.0315) and Poland (0.0377). Research on why public opinion regarding the preference for the worst type of judicial error changed in last decades, and how social factors influenced decisions, is an area for future research. In addition, future research should specify the type of crime (including terrorism or mass casualty crimes) when posing the Type I or II preference questions, or inquiring about respondents' views as to what the error ratio should be.

5. Discussion

As legal scholars and academicians have noted, we do not live in an error-free world, and thus cannot possibly ever have a criminal justice system where the factually guilty are always convicted, and the factually innocent are always acquitted (Acker, 2011: 1067). The problem of wrongful convictions exists worldwide (Huff, 2004). There are many reasons for wrongful convictions (Garrett, 2005, 2012), and juries are often compelled to render decisions while there still may be uncertainty (de Keijser et al., 2014: 33).

The criminal justice system, comprising individuals who are imperfect, must acknowledge and adapt to these inevitable miscarriages of justice (Acker, 2011; Westervelt and Cook, 2012; Rosenbaum, 1990). It is virtually impossible to know how many wrongful convictions or erroneous acquittals occur every year (Gross and O'Brien, 2008; Huff, 2002), and thus we cannot compare the respective harms flowing from each in order to empirically determine which outcome is worse. We have philosophers (Lippke, 2010), economists (Garoupa and Rizzolli, 2012), criminologists (Acker, 2011; Zalman et al., 2012), statisticians (Friedman, 1972), law professors (Volokh, 1997; Garrett, 2005, 2012), and practicing attorneys (Sorochan, 2008) to debate this question.

This study is not concerned with abstract philosophical arguments that have and continue to be made regarding the meaning of, and justification for the Blackstone ratio. Nor are we interested in the development of quantitative models that have been proposed for measuring error rates in criminal trials (Bushway, 2011; Allen and Laudan, 2008; Risinger, 2007), or explaining and testing the ratio (Sommer et al., 1991; Volokh, 1997; de Keijser et al., 2014) and its underlying assumptions with respect to the interactions of standards of proof, errors, and jury accuracy (Dekay, 1996). We know that the Blackstone ratio has been an unquestioned principle of the rule of law since Roman times (Bentham, 1825). Yet, the data presented here

Table 5
American citizen Attitudes toward judicial error, general social survey.

Year	Type I Error		Type II Error		Sum. Sample	
	%	N	%	N	Dichotomous	All Response
1985	75.22	419	24.78	138	557	677
1990	73.79	684	26.21	243	927	1217
1996	72.85	805	27.15	300	1105	1332
2006	70.64	1030	29.36	428	1458	1518
Mean	72.60	2938	27.40	1109	4047	4744
Change	−4.58		4.58			

Source: NORC, GSS Data Explorer.

reveal a gradual weakening of the public's attitude toward the principle. What accounts for this shift in the opinion of the sacred principle, and what are the policy implications that flow from it?

On the causation issue, additional studies are warranted using more data, and the utilization of multiple methods. One likely and substantial reason for the shift is the public's perception of an increasing crime rate, frequent acts of global terrorism, and a decrease in public security. For certain countries, like China, attitudes toward criminal justice issues, such as the death penalty, are also influenced by cultural and historical traditions in addition to increases in the crime rate (Liang et al., 2006: 121).[1] So, while crime in fact is not increasing, and terrorism is relatively rare, the media does influence public opinion. In addition, media coverage of celebrated trials in which the defendant appears to be guilty but eludes punishment further enhances the public's dissatisfaction with the legal process. Public outrage from scenes of horrific tragedies and mass casualties from violent, terrorist acts and other serious crimes may prompt changes to well-established and cherished legal principles.

One policy response to changing citizen attitudes may be to change the standard of proof for crimes. This will impact both Type I and Type II errors. Thus, increasing the standard of proof would likely result in fewer wrongful convictions, but would also allow many more erroneous acquittals. But, what if the public were informed of a proposal to diminish the standard of proof? Would they support it? Perhaps not if applied to all crimes, given the long-standing application of the beyond a reasonable doubt standard in common law systems. However, if it were proposed, public support may be there for lowering the standard of proof for the most serious of crimes. While this is purely speculative and not supported by the data, as such, the observed decline in public support for the Blackstone ratio may signal the public's willingness to consider such a proposal.

Just as surveys of attitudes toward the death penalty are limited by (among other things) "the nature and specificity of the questions posed (e.g., asking about specific types of criminal offenses, rather than crime in general)" (Liang et al., 2006: 121), so too may be the public's response to the previously-described social surveys where respondents were not informed of the nature of the crime charged in the hypothetical trials leading to convictions or acquittals. This is one factor that could account for the high proportions of respondents who were unable to select between Type I and II errors. Surely, the results might differ had they been told that the charges against the hypothetical defendants were terrorism resulting in mass casualties or mass murder, as distinguished from other felonies or misdemeanors. Likewise, a question asking the public's opinion in future surveys regarding the suggestion to lower the standard of proof would require a reference to the worst forms of crime and terrorism.

We can conceive of a proposal that would separate crimes into the following broad categories (and related crimes within each category): 1) terrorism; 2) intentional murder; 3) crimes of violence and manslaughter (i.e., unintentional killing); 4) property crimes; and 5) misdemeanors. Taking these in order, we believe that the public, given its decreasing acceptance of the Blackstone ratio, would support a proposal that lowers the standard of proof for acts of terrorism and mass murders. These crimes are considered by citizens to be the most heinous because of their grave danger to peace and security, and are offense for which acquittals are undesirable.

Would the public accept a clear-and-convincing standard, or even a preponderance-of-the-evidence standard, for terrorists or mass murderers (the latter standard being used for civil cases in common law countries)? Judges and juries daily determine liability (including the defendants' state of mind) using these standards in numerous civil actions involving not only negligence, but also intentional or reckless acts (e.g., intentional torts, including wrongful death), just as they do in criminal cases when they weigh a defendant's affirmative defenses. Adoption of one of these standards of proof would likely reduce erroneous acquittals, and make it easier for prosecutors to convict defendants in the most extreme cases of public harm.

The beyond-a-reasonable-doubt standard would not disappear altogether. It could still be applied to felonies, minor property crimes, and misdemeanors because erroneous acquittals of defendants in these kinds of cases are not as detrimental as erroneous acquittals of defendants charged with terrorism and mass murder.

One normative objection to this proposal might be that in criminal cases the sanction of loss of liberty is significantly greater than in civil cases, and, therefore, nothing less than the current standard should be acceptable — given the high value society places on liberty. This raises the question: to which value do we as a society place greater weight, liberty or security? No one would dispute that we cannot have liberty without security, and *vice versa*; both are fundamentally essential. The full philosophical discussion of this issue is beyond the scope of this paper. But, would it really matter to a legislator or the public that legal philosophers disagree about the ratio, or whether quantitative studies indicate that this matter is not so simple, and other factors (e.g., empirically-determined error ratios and jury decision-making accuracy) drive Type I or Type II errors in the justice system? We think not, and that — assuming the changes in standards or proof for certain crimes are explained — the public and law makers will find them justified and are likely to adopt them. At a minimum, pilot tests applying the lowering of the standard of proof for the most serious cases of public harm might be conducted, which will eventually be assessed for their constitutionally in the courts.

---

[1] Liang et al. (2006: 123) note that in three surveys conducted in 2001—2003 by the National Bureau of Statistics of China on public security and safety (N > 100 K), one-third of the respondents identified crime as a public issue that was the most troubling, a view that has increased over time. In another study of the reasons for Chinese citizens' support for the death penalty, the authors note that awareness of the fact of wrongful convictions did not affect their attitudes, suggesting that they believed the chance of wrongful convictions was very small: "They believed that it was the price, possibly an unavoidable one, for serving social justice and maintaining law and order. This may be a cultural legacy of collectivism. That is, 'willingness to sacrifice a few for the interest of a whole community'," (Jiang et al., 2009: 230, citing Lu and Miethe, 2007: 22).

The recent terror events worldwide could prompt such a change in standards of proof, just as it has done in another legal sphere: American First Amendment jurisprudence. Legal analysts are now re-thinking the long-standing constitutional requirement that there be a "clear and present danger" before criminal charges may be brought for terrorist-related conduct implicating First Amendment rights (Eckholm, 2015). Current American constitutional law requires that defendants be proven beyond a reasonable doubt to be engaged in an imminent, actual threat of lawless action before they can be criminally convicted; mere inflammatory speech is insufficient under the clear-and-present-danger test (*see* Brandenburg v. Ohio, 1969). The recently-proposed changes to First Amendment law is prompted by the fact that jihadists and terrorists of all stripes are known to utilize the internet, chat rooms, encrypted messaging, and social media to transmit their communications planning attacks on civilians, which are almost impossible to prevent or predict, and for their recruitment campaigns. Such deviation from bedrock justice principles may in fact be necessary as the public's sense of security diminishes.

It will surely be argued that we have left out the morality which undergirds the Blackstone ratio, not to mention the presumption of innocence, and that we heretically wish to tamper with the sacrosanct beyond-a-reasonable-doubt standard. Reasonable people can differ over the morality of any criminal justice policy, as well as the question of the price of liberty versus the benefits of a lower rate of (and punishment of perpetrators who commit) terrorism and other such crimes. We recognize that, as one reviewer said, our speculations regarding modifying the burden of proof might be "incendiary," suggestion, but we are not the first to suggest it. [2]

We are sensitive to this argument, but suggest that the public's need to eliminate as much as possible, and to punish terrorist acts and the like, suggests that it may be the proper time to discuss a change in our approach to these cases, or else we may not be alive to engage in moral debates. The times we live in now are different than they were when Blackstone's ratio (and its predecessors) was formulated. Terrorism as we know it didn't exist. There were no weapons of mass destruction. The Blackstone principle was formulated at a time of almost no forensic methods, which have now greatly enhanced the reliability of criminal prosecutions. In addition, the principle was proposed when governments often used imprisonment for political repression. Modernly, democratic countries and their governments instead use imprisonment for punishment of criminal offenders.

If the data we report reflect a trend, it may not matter that a change in standard-of-proof policy is implemented, because a growing number of citizens called for jury duty may decide to convict some defendants in terrorism or mass murder cases on less than evidence beyond a reasonable doubt anyway (something many jurors have no doubt done already), a form of reverse jury nullification.

It may also be argued that a lowering of the standard of proof in terrorism and mass casualty cases would be especially immoral in capital cases. Democratic and other countries however provide appellate procedures to remedy wrongful convictions, which may take years to reach finality, thus making swift executions unlikely. Nevertheless, it must be stressed that, concurrently with consideration of ours or any other criminal justice reform suggested to address new threats to society, maximum efforts must be undertaken to prevent — and promptly remedy — wrongful convictions.

Finally, we acknowledge that our proposal may not be popular to the legal community, and may not be altogether effective. While reducing the standard of proof for the most serious crimes is likely to lower the frequency of erroneous acquittals and increase the net of social control, it may ironically result in more wrongful convictions. Thus, it could be argued, we are back to where we started: trying to figure out how to reduce erroneous acquittals and wrongful convictions (Loewy, 2007: 139). Given the fact that we can never determine whether a judge or jury are factually correct, we cannot predict whether adoption of lowered standards of proof would result in any change in the frequency of Type I or Type II errors (Dekay, 1996; Halvorsen, 2004). The most that can be said is that this proposal merits further consideration by law makers in light of the global society's growing sense of insecurity.

6. Conclusion

The raison d' etre of our paper is to examine attitudes of people in various nations around the world regarding what they consider worse: wrongful convictions or erroneous acquittals? There are several limitations to our study. As an exploratory study we failed to perform sophisticated statistical analyses on *why* respondents selected different types of errors. There are numerous relevant and complicated variables that must be included, such as crime rates, economics, politics and other factors. Future researchers should explore the rationale of the respondents, which may involve qualitative research (e.g., focus groups) and also employ multivariate analysis, controlling for demographic and situational variables, such as race, social class, gender, education, income, crime rates, etc. In conclusion, we offer three recommendations concerning the results of our research.

First, there is a dire need for legal scholars and criminologists to focus more on the problem of judicial errors. In reviewing the previous research, we have discovered a trend toward the greater acceptance of false positives. Is it still better to let X number of guilty individuals go free if it means not condemning an innocent person? Does Blackstone's ratio theory still apply today after hundreds of years? According to Alschuler (1996: 54) "Blackstone recognized that human beings make law and the law must adapt to changing circumstances."

---

[2] Reiman and Haag (1990: 227) made this suggestion fifteen years ago: "if we came to believe that punishing the innocent was no worse than acquitting the guilty, our criminal justice policies should change in important ways. For example, we might lower the standard of proof of guilt in criminal cases."

Second, in view of an absence of empirical evidence, Blackstone emphasized the problem and seriousness of wrongful convictions and the need for their prevention. However, based on several justice systems around the globe, false positives are common, particularly for the poor and those with inadequate counsel (Cross, 2001; Epps, 2015; Liebman et al., 2000). Thus, demographic factors and lack of effectiveness of defense counsel should be considered for additional empirical study.

Third, the methods by which criminal justice systems across the world cope with Type I and Type II errors will vary greatly. Given the regularity of long incarceration for many innocents, policymakers and lawmakers must, on the one hand, foster the protection of the potentially innocent with wider availability of DNA testing post-conviction. On the other hand, given the increasing public concern about the detriment of freeing the guilty, the criminal justice system must continue aggressive and effective crime control. Perhaps, at the end of the day, the best way to deal with these offenses is to retain the current standard. In any event, legal professionals (e.g., judges, prosecutors, public defenders) should acknowledge judicial errors and do all they can to prevent wrongful convictions (Epps, 2015), while at the same time enhancing the likelihood of convicting terrorists and other mass murderers.

Acknowledgements

References

Acker, J.R., 2011. Foreword. Alb. L. Rev. 74 (3), 1067–1070.
Allen, R.J., Laudan, L., 2008. Deadly dilemmas. Tex. Tech. L. Rev. 41 (1), 65–92.
Alschuler, A., 1996. Rediscovering blackstone. U. Pa. L. Rev. 145 (1), 1–55.
Becker, G.S., 1968. Crime and punishment: an economic approach. J. Polit. Econ. 76 (2), 169–217.
Beckford, M., 2012. DNA of Thousands of Innocent People Still Being Collected by Police. The Telegraph. June 5. Available at: http://www.telegraph.co.uk/news/uknews/law-and-order/9310728/DNA-of-thousands-of-innocent-people-still-being-collected-by-police.html.
Bentham, J.A., 1825. Treatise on Judicial Evidence. J.W. Paget, London.
Blackstone, W., 1765. Commentaries on the Laws of England. Clarendon Press, Oxford.
Brandenburg v. Ohio, 1969. 395 U.S. 444.
Bushway, S., 2011. Estimating empirical Blackstone ratios in two setting: murder cases and hiring. Alb. L. Rev. 74 (3), 1087–1104.
Clark, S.E., 2011. Blackstone and the balance of eyewitness identification evidence. Alb. L. Rev. 74 (3), 1105–1156.
Cohen, L.J., 1981. Subjective probability and the paradox of the gatecrasher. Ariz. St. L. J. 1981 (2), 627–634.
Cross, F.B., 2001. The error of positive rights. UCLA L. Rev. 48 (4), 857–924.
Dekay, M.L., 1996. The difference between Blackstone-like error ratios and probabilistic standards of proof. Law Soc. Inq. 21 (1), 95–132.
de Keijser, J.W., de Lange, E.G., van Wilsem, J.A., 2014. Wrongful convictions and the Blackstone ratio: an empirical analysis of public attitudes. Punish. Soc. 16 (1), 32–49.
Dhami, M.K., 2008. On measuring quantitative interpretations of reasonable doubt. J. Exp. Psychol. Appl. 14 (4), 353–363.
Eckholm, E., 2015. ISIS Incitement on Internet Raises Second Thoughts about First Amendment. New York Times, p. A6. December 28.
Epps, D., 2015. The consequences of error in criminal justice. Harv. L. Rev. 128 (4), 1065–1151.
Feinberg, W.E., 1971. Teaching the type I and type II errors: the judicial process. Am. Stat. 25 (3), 30–32.
Findley, K.A., 2008. Toward a new paradigm of criminal justice: how the innocence movement mergers crime control and due process. Tex. Tech. L. Rev. 41 (1), 133–173.
Friedman, H., 1972. Trial by jury: criteria for convictions, jury size and type I and type II errors. Am. Stat. 26 (2), 21–23.
Garoupa, N., Rizzolli, M., 2012. Wrongful convictions do lower deterrence. J. Inst. Theor. Econ. 168 (2), 224–231.
Garrett, B.L., 2005. Innocence, harmless error, and federal wrongful conviction law. Wis. L. Rev. 2005 (1), 35–114.
Garrett, B.L., 2012. Convicting the Innocent: Where Criminal Prosecutions Go Wrong. Harvard University Press, Cambridge, MA.
Gastwirth, J.L., Sinclair, M.D., 1998. Diagnostic test methodology in the design and analysis of judge-jury agreement studies. Jurimetrics J. 39 (1), 59–78.
Givati, Y., 2011. The Comparative Law and Economics of Plea Bargaining: Theory and Evidence. Available at: http://law.huji.ac.il/upload/Givati_PleaBargaining.pdf.
Givelber, D., 1997. Meaningless acquittals, meaningful convictions: do we reliably acquit the innocent. Rutgers L. Rev. 49 (4), 1317–1396.
Givelber, D., 2005. Lost innocence: speculation and data about the acquitted. Am. Crim. L. Rev. 42 (4), 1167–1199.
Godsey, M., 2013. For the First Time Ever, a Prosecutor Will Go to Jail for Wrongfully Convicting an Innocent Man. Available at: http://www.huffingtonpost.com/mark-godsey/for-the-first-time-ever-.a_b_4221000.html.
Goodin, R.E., 1985. Erring on the side of kindness in social welfare policy. Policy Sci. 18 (2), 141–156.
Gorman, A., 2002. For Some, It's Too Late to Overturn Convictions. Los Angeles Times. May 19. Available at: http://articles.latimes.com/print/2002/may/19/local/me-con.vict19.
Gross, S.R., O'Brien, B., 2008. Frequency and predictors of false conviction: why we know so little, and new data on capital cases. J. Empir. Leg. Stud. 5 (4), 927–962.
Halvorsen, V., 2004. Is it better that ten guilty persons go free than one innocent person be convicted? Crim. Justice Ethics 23 (2), 3–13.
Huff, C.R., 2002. Wrongful convictions and public policy: the American society of criminology, 2001 presidential address. Criminology 40 (1), 1–18.
Huff, C.R., 2004. Wrongful conviction: the American experience. Can. J. Criminol. Crim. 46 (2), 107–120.
Huff, C.R., Killias, M., 2008. Wrongful Conviction: International Perspectives on Miscarriages of Justice. Temple University Press, Philadelphia.
Jiang, S., Lambert, E.G., Nathan, V.M., 2009. Reasons for death penalty attitudes among Chinese citizens: retributive or instrumental? J. Crim. Just. 37 (3), 225–233.
Jonakait, R.N., 1983. When blood is their argument: probabilities in criminal cases, genetic markers, and, once again, Bayes' theorem. U. Ill. L. Rev. 1983 (2), 369–421.
Kaye, D., 1979. The paradox of the Gatecrasher and other stories. Ariz. St. L. J. 1979 (1), 101–109.
Kornstein, D.J., 1976. A Bayesian model of harmless error. J. Leg. Stud. 5 (1), 121–145.
Krieger, S.A., 2011. Why our justice system convicts innocent people, and the challenges faced by innocence projects trying to exonerate them. New Crim. L. Rev. 14 (3), 333–402.
Lando, H., 2006. Does wrongful conviction lower deterrence? J. Leg. Stud. 35 (2), 327–337.
Liang, B., Lu, H., Miethe, T.D., Zhang, L., 2006. Sources of variation in pro-death penalty attitudes in China: an exploratory study of Chinese students at home and abroad. Brit. J. Criminol. 46 (1), 119–130.

Liebman, J.S., Fagan, J., West, V., Lloyd, J., 2000. Capital attrition: error rates in capital cases, 1973—1995. Tex. L. Rev. 78 (7), 1839—1865.
Lippke, R.L., 2010. Punishing the guilty, not punishing the innocent. J. Moral Philos. 7 (4), 462—488.
Loewy, A.H., 2007. Systemic changes that could reduce the conviction of the innocent. Crim. L. Forum 18 (1), 137—149.
Lu, H., Miethe, T.D., 2007. China's Death Penalty: History, Law, and Contemporary Practices. Routledge, New York.
Miceli, T.J., 1990. Optimal prosecution of defendants whose guilt is uncertain. J. L. Econ. Org. 6 (1), 189—201.
Moravec, E.R., Weber, P.J., 2015. Prosecutor in Texas Execution Case Accused of Misconduct. Daily News. March 18. Available at. http://www.nydailynews.com/.news/national/prosecutor-texas-exec ution-case-accused-misconduct-article-1.2154794.
Newman, A., 2013. First Prosecutor Jailed for Deliberately Convicting Innocent Man. New American. November 23. Available at. http://www.thenewamerican.com/us.news/crime/item/17018-first-pro secutor-jailed-for-deliberately-convicting-innocent-man.
O'Dell, L., 2011. Virginia justices Reject Innocence Claim by Former Navy SEAL in 1995 Slaying. Daily Press. September 16. Available at. http://articles.dailypress.com/2011-09-16/news/dp-nws.-navy-seals-killing-20110916_1_innocence-claim-turner-claims-virginia-court.
Persson, M., Siven, C.H., 2007. The Becker paradox and type I versus type II in the economics of crime. Int. Econ. Rev. 48 (1), 211—233.
Png, P.L., 1986. Optimal subsidies and damage in the presence of judicial error. Int. Rev. Law Econ. 6 (1), 101—105.
Polinsky, A.M., Shavell, S., 1989. Legal error, litigation, and the incentive to obey the law. Int. Rev. Law Econ. 5 (1), 99—108.
Posner, R.A., 1973. An economic approach to legal procedure and judicial administration. J. Leg. Stud. 2 (2), 399—458.
Posner, R.A., 1999. An economic approach to the law of evidence. Stan. L. Rev. 51 (6), 1477—1546.
Posner, R.A., 2007. Economic Analysis of Law. Aspen Publishers, New York.
Radford, R.S., 1988. Statistical error and legal error: type one and type two errors and the law. Loy. L.A. L. Rev. 21 (3), 843—881.
Reiman, J., Haag, E.V.D., 1990. On the common saying that it is better that ten guilty persons escape than that one innocent suffer: pro and con. Soc. Philos. Policy 7 (2), 226—248.
Ricciardelli, R., Bell, J.G., Clow, K.A., 2009. Student attitudes toward wrongful conviction. Can. J. Criminol. Crim. 51 (3), 411—427.
Risinger, D.M., 2007. Innocents convicted: an empirically justified factual wrongful conviction rate. J. Crim. L. Criminol. 97 (3), 761—806.
Rizzolli, M., Saraceno, M., 2013. Better that ten guilty persons escape: punishment costs explain the standard of evidence. Public Choice 155 (3), 395—411.
Roach, K., 2012. Wrongful convictions in Canada. U. Cin. L. Rev. 80 (4), 1465—1526.
Rosenbaum, M.I., 1990. Inevitable error: wrongful New York state homicide convictions, 1965—1988. N.Y.U. Rev. L. Soc. Change 18 (3), 807—830.
Scurich, N., 2015. Criminal justice policy preferences: Blackstone ratios and the veil of ignorance. Stan. L. Pol'y Rev. 26, 23—35.
Sommer, R., Sommer, B.A., Heidmets, M., 1991. Release of the guilty to protect the innocent. Crim. Justice Behav. 18 (4), 480—490.
Sorochan, D.J., 2008. Wrongful convictions: preventing miscarriages of justice some case studies. Tex. Tech. L. Rev. 41 (1), 93—116.
Starkie, T., 1824. A Practical Treatise on the Law of Evidence. John Fairburn, London.
Stith, K., 1990. The risk of legal error in criminal cases: some consequences of the asymmetry in the right to appeal. U. Chi. L. Rev. 57 (1), 1—61.
Tullock, G., 1994. Court errors. Eur. J. Law Econ. 1 (1), 9—21.
Volokh, A., 1997. N guilty men. U. Pa. L. Rev. 146 (1), 173—216.
Voltaire, 1749. Zadig or, the Book of Fate. The Floating Press, Auckland (Reprint 2009).
Wade, J.W., 1979. Uniform fault comparative act. Forum 14 (3), 379—405.
Weathered, L., 2012. Wrongful conviction in Australia. U. Cin. L. Rev. 80 (4), 1391—1414.
Westervelt, S.D., Cook, K.J., 2012. Forward. Alb. L. Rev. 75 (3), 1223—1227.
Wright, D.B., Strubler, K.A., Vallano, J.P., 2011. Statistical techniques for juror and jury research. Leg. Criminol. Psych. 16 (1), 90—125.
Zalman, M., Smith, B., Kiger, A., 2008. Officials estimates of the incidence of "actual innocence" convictions. Justice Q. 25 (1), 72—100.
Zalman, M., Larson, M.J., Smith, B., 2012. Citizens' attitudes toward wrongful convictions. Crim. Justice Rev. 37 (1), 51—69.

Data source

ISSP Research Group, 1986. International Social Survey Programme: Role of Government I-ISSP 1985. GESIS Data Archive, ZA1490 Data File Version 1.0.0. http://dx.doi.org/10.4232/1.1490.
ISSP Research Group, 1992. International Social Survey Programme: Role of Government II-ISSP 1990. GESIS Data Archive, ZA1950 Data File Version 1.0.0. http://dx.doi.org/10.4232/1.1950.
ISSP Research Group, 1996. International Social Survey Programme: Role of Government III-ISSP 1996. GESIS Data Archive, ZA2900 Data File Version 1.0.0. http://dx.doi.org/10.4232/1.2900.
ISSP Research Group, 2008. International Social Survey Programme: Role of Government IV-ISSP 2006. GESIS Data Archive, ZA4700 Data File Version 1.0.0. http://dx.doi.org/10.4232/1.4700.
European Social Survey, 2010. Integrated File, ed.3.2 Round 5. Available at. http://www.europeansocia.lsurvey.org/download.html?file=ESS5e03_2&y=2010.
British Social Attitudes, 1985-2006. British Social Attitudes Information System. Available at. http://www.britsocat.com.
Chinese National Survey Data Archive, 2005. China general Social Survey. Available at. http://www.cnsda.org/index.php?r=projects/view&id=19389978.
National Opinion Research Center. GSS Data Explorer/Worse Type of Judicial Mistake. Available at: https://gssdataexplorer.norc.org/variables/4002/vshow.