



**A short excursion into the world of
Sports Manipulation**

Different Types of Manipulation in Sport

Introduction

Increased money inflow into sports and its globalisation have triggered a number of dysfunctions, manipulations and corrupt practices over the last four decades or so, creating a so-called dark side of sport¹ and its industry. Nowadays, such behaviours spread over an increasing set of sport disciplines worldwide; first they simply breach sport rules; then they infringe the sport ethics and jeopardise sport integrity.

To delineate clearly what is meant by sport manipulation, corruption in sport is understood as any illegal, immoral or unethical activity that attempts at deliberately distorting the outcome of a sport contest for the personal material gain of one or more parties involved in that activity (Gorse and Chadwick, 2013). Various sport manipulations encompass corruption, but not all of them. Technological manipulations such as riding a motorised bike in the Tour de France do not have any corrupt dimension. Therefore sport manipulation covers a wider scope than corruption, while it is less extensive than sport dysfunctions which point at all actual facts denoting that sport is not functioning as it should or not according to accepted explicit or implicit rules. For instance, under sport dysfunctions are listed salary, racial, linguistic and gender discrimination (Andreff, 2011), forbidden international transfers of teenage football players², weak governance of sport clubs and sport governing bodies; *per se* none of these involves either sport manipulation or corruption; none threatens sport in terms of its very existence, ethics and integrity. Sabotage – such as goading to provoke illegal responses from competitors on the pitch or attempting to persuade the referee that opponents have engaged in illegal acts (Preston and Szymanski, 2003) – is on the border line between dysfunctions and manipulations; it will not be covered either even though it dampens the fans' enthusiasm.

Sport manipulation is a modern way of cheating sport rules and/or the common law in the era of the Internet, economic globalisation, flourishing tax havens and offshore shadow banking, asset grabbing, fake accounting, and spreading financial greed-led strategies (Andreff, 2013).

¹ On the dark side of sport, see the special issue of *European Sport Management Quarterly*, 9 (4), 2009.

² Though these transfers involve a dimension of human trafficking, they are not directly distorting sporting outcomes on purpose and have not attracted criminals into sport - only unscrupulous and unregistered players' agents - so far (Andreff, 2010); they will not be covered here as a sport manipulation.

Thus it is not confined to either cheating or sport corruption though, just like corruption, it requires opacity. Sport manipulation encompasses various means of getting benefits from a sport contest distorted on purpose for winning (doping, technology) or losing (match fixing, fraudulent betting) against the sport rules, or for attaining non-sporting outcomes (embezzlement, tax evasion, money laundering) by means of sport distortions. Repeatedly breaching the sport rules, manipulation destroys sport ethics, ruins sport integrity, undermines spectator and sponsor interests and, eventually, may shrink the market of the sports industry in the long run.

The Council of Europe Convention on the Manipulation of Sports Competitions (CECMSC) adopted in 2014, with a focus on conflicts of interest involving sports betting operators and sports organisations, fraudulent and illegal sport bets and corruption, has defined manipulation of sports competitions as: “an intentional arrangement act or omission aimed at an improper alteration of the result or the course of a sports competition in order to remove all or part of the unpredictable nature of the aforementioned sports competition with a view to obtaining an undue advantage for oneself or for others”. This definition is now the guideline of Interpol’s inquiries and chasing criminals (Interpol and IOC, 2016).

This chapter ranks manipulations according to their increasing threats for sport. Starting with ‘minor’ sport manipulations which are at odds with the sporting ethics but do not endanger the very existence of sport, then it turns to those sport manipulations which are associated with – or require the participation of – corrupts and corruptors. Finally, it deals with two major types of manipulation, doping and on-line betting-related match fixing, that put sport at risk since they are likely to cut it from its ethical roots, compromise its integrity in the long term, and urgently need action from sport governing bodies and/or governments. Some policy considerations are reviewed in regards to these last two types of manipulation.

1. “Minor” manipulations in sport

The most simple and common manipulation in sport – as ancient as the first sport contests dating back to centuries B.C. – consists in cheating to win a sport contest by infringing the rules of a given sport with a view to obtaining the monetary or non-monetary reward offered to the winner. Normally such behaviour is detected by referees and umpires on the pitch and punished accordingly. Since cheating tactics have become increasingly sophisticated these days, some technological innovations can help detection such as cameras, video replays or phonic communication between the referees, and can be used in the latter’s decision-making (punishment or not). Or simply the number of referees can be increased as has happened, from

one to five, in soccer over the years; similarly, since 1998-99, the NHL has experimented with two instead of one on-ice referee.

Often violations of sport rules committed by athletes and the penalties assessed for those violations are analysed in terms of costs and benefits (Allen, 2002) in line with the economic model of crime. However guilty players are not criminals in the eyes of the law. Moreover sport contests have survived such cheating for two millennia; of course, the latter must always be under the spotlight of detection and refrained by punishment but there is no way in which ongoing cheating will kill sport competition and ethics. Cheating is often part of the game ... and fun. Combating cheating in sport contests relies on technologically innovating to detect it, adapting sport rules, sanctions, and incentives to win through a more appropriate reward (prize) scheme and a better designed tournament structure.

Technological manipulation is common practice since sport contests are used as testing grounds for technical innovations (Andreff, 1985). Doping is a case in point. However, Ken Read, the 1979 Avoriaz-Morzine downhill-race winner was eventually disqualified because he was wearing an innovative though outlawed 'fastest' ski-suit. Winning Brabham and Williams cars were excluded from the 1982 Brazilian F1 Grand Prix ranking for having cheated on the cars' weight by adding water tanks which were poured out on the circuit immediately after the starter signal. The most recent issue in this respect is the utilisation of micro-engines integrated into riders' bikes. Suspicions had emerged with Fabian Cancellara's wins in the Tour des Flandres and Paris-Roubaix in 2010. Since then the Union Cycliste Internationale has developed a new technique of magnetic scanner detection. Femke Van den Driessche, the 2016 winner of the women's cyclo-cross world championship was detected as having ridden a motorised bike and disqualified. In the 2015 Tour de France, motorised bikes seemed to have been used during some mountain stages; so, in 2016, with the help of the French Commissariat for Atomic Energy, distant infrared cameras were placed at some strategic points of mountain stages.

Technological fraud is obviously a manipulation that breaches the sport rules and must be sanctioned as such, and further combated with the same tools as for cheating though riding a motorised bike *per se* is not a crime under common law and is used by many people outside cycling contests.

Another category of sport manipulations not only breaches the rule of fair play and sporting values but infringes the law as regard business accounting, commercial and financial transactions. As long as such practices are more the exception than the rule in sport and those accountable for them are cracked down on by the police and sued in court, they can be ranked as minor (or marginal) sport manipulations that do not prejudice the foundations of sport.

Unfortunately they grow in number. Means of embezzlement in sport are false invoices, fake ticketing, fake accounting, fictional purchases of players, hidden honoraria, and intermediate payments regarding transfers with unregistered players' agents, creating offshore fiduciary companies, and transfer of funds to tax havens (Pons, 2006). Some clubs have been convicted of fake accounting, fake invoicing and holding secret funds, whose chairmen have been sentenced for abusing social benefits in French football with those chairmen of AS Saint-Etienne, Girondins de Bordeaux, RC Toulon, Olympique de Marseille, and Paris-Saint-Germain (Andreff, 2000). In 2004, 51 Italian football clubs were suspected of fake accounting; in 2005, a dozen were relegated to a lower division for not paying taxes and two were sequestered due to their tight relationships with the Camorra (Andreff, 2006). Players' transfers (some of them fictitious) and secret transfers of funds are sometimes used to move money in an opaque way from one club to another or to star players' accounts domiciled in tax havens or tax friendly countries, such as Luxembourg and Switzerland (as in the case of Paris-Saint-Germain fictitious contracts with Nike and some players from 1998 to 2005).

More recently, 64 club managers in Italian football's *Serie A* and *Serie B* were sued in the Naples court in January 2016 for fake accounting and tax evasion while in November 2015 Zdravko Mamic, the Dinamo Zagreb's boss had been sentenced to jail for embezzlement and tax evasion. In 2016, the investment fund Doyen Sports was suspected to have used third-party ownership for transferring €11 million of fees to tax havens. Since the Lux-leaks and Panama-Papers disclosures, superstar players including Lionel Messi (already sentenced to a €3.7 million fine) and Cristiano Ronaldo, a number of football managers (such as Dmitri Rybolovlev, AS Monaco) and coaches (José Mourinho) have been suspected of tax evasion. Such practices are crimes punished by law though not specific to sport. They must be chased and combated everywhere in the society, including in sport, otherwise the sport ethics would definitely be undermined.

Of more concern is that sport is utilised by mafias and money launderers. Sport lends itself particularly well to trafficking in different currencies to launder the money from criminal activities. A sentence against Olympique de Marseille in 1992 revealed a system of laundering money comprising international circulation of commissions deposited in cash in open accounts by intermediaries, nourished by the settlement of fictitious loans, and inflated as withdrawals from Swiss banks in Swiss francs (Bourg, 1994). In its 1996-7 report the Financial Group for Action on Laundering Capital indicated that illegal gaming – including rigged sport betting – and criminal financing were clearly expanding. In some countries, mafia interference in sport is widespread. The Italian cycling team Roslotto was used in the 1990s for capital flight and

laundering dirty money from Russia (Dupuis, 1998). Sport manipulation can lead to assassinations of sport chairmen and managers as in Russian football and ice hockey in 1997-1999. In Colombia in the 2000s, 12 football clubs were closely connected with drug-trafficking, a situation which had drifted into match fixing, illicit bets, and eventually murders; average attendance in the Colombian first division has fallen from 23,000 down to 5,000 spectators per match over fifteen years. Then sport ethics, integrity and the market sink together, dragged down by no longer “minor” manipulations.

2. Multi-faceted sport manipulations involving corruption ³

A typology of corrupt sport starts with petty corruption, operating sometimes without money (barter corruption) and goes up to global on-line fraudulent sport betting, with a special occurrence that is corrupting sport governing bodies.

Petty corruption pertains to on-the-spot corruption between sport insiders. It is the most ancient type of corrupt sport emerging during the course of a sporting contest between two competitors or two teams. One bribes the other to let him/her win or to help him/her winning in the face of opponents. Such on-the-spot corruption is not planned in advance and occurs when an opportunity of securing a win randomly appears in the progress of a sport contest. It distorts a sporting outcome without endangering anyone’s life or creating a huge societal issue. For instance, in long-distance cycling races like the Tour de France, in some circumstances winning a stage happens to be bargained between two riders who finish ahead of the peloton, one rider bribing the other (Andreff, 2015b).

With barter corruption, an athlete or a team A on the brink of being relegated downward in the sporting hierarchy, and thus in absolute need of a win, offers an athlete or team B to let it win; the bribe is not paid in cash but later on with some planned losses accepted by A in further matches against B. Barter corruption is difficult to detect since there is no money flow or material indices⁴. A fascinating methodology consisted in creative use of existing data sources (Duggan and Levitt, 2002) to detect corruption in Japanese professional sumo wrestling. The authors showed that wrestlers win a disproportionate share of the matches when they are on the margin but wrestlers who are victorious when on the bubble lose more frequently than would be expected the next time they meet that opponent, suggesting that part of the payment for

³ A more detailed analysis of different types of corruption in sport is available in Andreff (2015a).

⁴ Collusion is a variant of barter corruption. In response to vote trading scandals in the 1998 and 2002 Olympics, the International Skating Union introduced a number of changes in its former judging system, obscuring which judge issues which mark. The intent was to disrupt collusion by groups of judges (Zitzewitz, 2014).

throwing a match is a future payment in-kind. In 2000, the Japanese press published articles where two former sumo wrestlers have made public the names of 29 wrestlers whom they allege to be corrupt and 14 wrestlers whom they claim refuse to rig matches. The Japanese Sumo Association attempted to eliminate the economic basis of match rigging by changing the incentive structure of wrestlers on the margin; moreover the level of public scrutiny increased. Both changes led to a significantly lower number of rigged matches until 2003 (Dietl *et al.*, 2010). However, after the period of publication process, from 2003 to 2006, the abnormally high winning probabilities of wrestlers on the margin in bubble matches reappeared as well as their loss in the next match with the same opponent with an abnormally high probability.

In a same vein, Jetter and Walker (2017) assumed that an opportunity for collusion can emerge with players on the bubble of direct qualification to upcoming tennis Grand Slam events facing higher stakes than opponents. They analysed tennis results among players on the cusp of qualifying for the next week Grand Slam by gaining ranking points, and found evidence that is consistent with the hypothesis since, on the men's tour, bubble players are 5.1 percentage points more likely to beat better ranked opponents than in comparable non-bubble matches. The statistical results become stronger after the 2013 season when monetary incentives were increased. However, same evidence does not show up in women's tennis.

Comparable corrupt behaviour is tanking in US college basketball (Balsdon *et al.*, 2007) or in closed leagues with a rookie draft system based on reverse-order-of-finish picks for new players entering the league. At a moment in the sporting season, some teams are no longer in contention for the play-offs; they prefer deliberately to underperform and unexpectedly lose games to go down the ranking and therefore improve their pick position on the reverse-order-of-finish draft. As long as players are pressured to throw games without monetary bribes, this tanking strategy is also barter corruption.

Corrupting sport insiders belonging to governing bodies has been alleged or suspected for instance as regard the allocation of FIFA World Cup to Russia 2018 and Qatar 2022 and of the IAAF Mundial to China 2015 and (unsuccessfully) Qatar 2017 (London got it). In 2010, FIFA suspended two executive members suspected to have sold their votes for allocating the 2022 World Cup to Qatar and the Qatari president of AFC under fraud presumption. Later on FIFA itself has been under fire with investigations about embezzlement regarding its highest staff members (Blatter, Platini, Valcke and others).

Allocating mega-sporting events or appointing someone to honorary VIP position in sport governing bodies are often surrounded with creeping rumours of corruption that are difficult to verify empirically (Maennig, 2005). Sticking to unveiled evidence, a complaint introduced to

the court in 2002 accused the FIFA president of corruption and embezzlement by diverting funds toward some FIFA members, namely the incumbent presidents of CONMEBOL and CAF. The head of the 2000 Sydney candidature committee openly admitted various questionable aspects of lobbying, including the use of “agents” in charge of obtaining votes or grants to African National Olympic committees awarded on the eve of the IOC vote. The further Sheridan report published in 1999 established that Sydney 2000 bribed VIPs to become the Olympics host city. A peak of corruption was reached in the allocation of the 2002 Winter Games to Salt Lake City to such an extent that it triggered a whole reform of the IOC, and the exclusion of six IOC executive committee members in 1999 while four resigned of their own accord and ten were officially reprimanded with varying degrees of severity. Executive members of sport governing bodies and government ministers were revealed to have participated in betting scandals in Taiwanese baseball (Lee, 2008).

Before globalization of the sport economy and on-line betting, a major occurrence of corrupt sport was already found in sport gambling which provides an opportunity for fraud since it creates an incentive to lose a sport contest through match fixing. This requires co-operation between sport insiders (players, referees, managers) and outsiders (cronies, occasional bribers, criminals). The 1964 betting scandal in British football is a front running case. The Italian black market for football bets – *Totonero* – developed alongside with the official and controlled *Totocalcio*; matches were often rigged in relation to *Totonero* betting. The AS Roma club was found to have corrupted referees in 1999. The *Calciopoli* case in the 2000s revealed significant referee corruption. In 2006 some officials at Juventus Turin were convinced of rigging 18 matches through corrupting referees, and the club was relegated for that (Boeri and Severgnini, 2008). In Spanish and Portuguese football in 2004 and in Brazilian football in 2005, several club managers and referees were arrested and sued for organising fix-related bets. The Japanese *yakuzas* which control the baseball betting system are known to fix matches. Even in the German *Bundesliga*, a referee, Robert Hoyzer, was sentenced to jail for having rigged matches in 2004 on the results of which he was betting himself and in collaboration with Croatian punters and criminals. All this planted the seeds for global betting networks connected through the Internet to match fixing that emerged in recent years.

In North America, point-shaving is a specific corrupt practice in which an athlete is promised money in exchange for an assurance that his/her team will not cover the point spread. The corruptor then bets on that team's opponent and pays the corrupt player with proceeds from a winning wager. Point-shaving has been found to be widespread in National Collegiate Athletic Association basketball by comparing bet and game outcomes with those in professional sports.

Borghesi's results suggest that unusual patterns previously suspected to be indicators of point-shaving are ubiquitous throughout sports and unlikely to be caused only by corruption. An alternative explanation of the anomalies in the distribution of outcomes may be line shading by sports bookmakers.

Legal and illegal gambling markets are intertwined because illicit bookmakers often balance their positions by placing bets at legitimate sports bookmakers. This type of sport corruption is often unveiled only by chance. Referee assignment is the weakest link in the sport chain which is targeted by corruptors. Players are not that strong a link either. Sport insiders must always be involved for this kind of sport corruption to operate smoothly. Thus the cure, if any, must be applied first within the sport movement itself.

3. Sport integrity under threat: major manipulations

Nowadays two sport manipulations are major in that they actually threaten the whole sport ethics and integrity and significantly attract criminal outsiders into the sports industry: doping and on-line betting related match fixing.

Athletics⁵ and cycling are often in the headlines for unveiled doping scandals though over time doping seems to have spread through much of elite sport. Mass industrialised doping penetrated cycling in the 1990s with the introduction of blood congealing and self-transfusion techniques, testosterone, and erythropoietin (EPO) in doping protocols. The 1998 Festina doping scandal in the Tour de France triggered the process which led to the creation of a World Anti-Doping Agency (WADA) in November 1999 that strengthened the fight against doping. The number of revealed doping cases increased during the 2000s. From 2007, athletes were subjected to having to have a biological passport, a longitudinal anti-doping follow-up and geo-location. The apparent increase in reported doping cases in 2007-2009 may have resulted from this more stringent anti-doping fight followed by a decline in doping sanctions in the 2010s; an optimistic interpretation is that WADA and national anti-doping agencies have become increasingly efficient. From 1999 to 2010, the Tour de France has lost nine out of its twelve yellow jersey winners with Armstrong, Landis and Contador ex post disqualifications. It is obvious that doping has heavily distorted sporting outcomes and this may be damaging for the credibility of sport in the long run.

⁵ In November 2015, the Russian Athletics Federation has been suspended for a state-organised doping system of athletes selected in the national squad for the athletics world championships. Further investigations have found that this system was extended to Russian participants to London and Sochi Olympics.

The fight against doping relies on a traditional approach claiming that it is a fraudulent behaviour and as such must be analysed through the lenses of the economics of crime (Becker, 1968) as adapted to sports (Maennig, 2002). In the model:

$$E(G_d) = E(R_w) - C_d - E(S) > 0 \quad (1)$$

$$E(G_d) > D \quad (2)$$

where $E(G_d)$ stands for the value of the expected net gain derived from doping, $E(R_w)$ for expected revenues earned thanks to doping, C_d for the actual cost of a doping programme and $E(S)$ for the expected cost of sanctions if tested positive and caught. An athlete makes the decision to dope if the expected net gain is positive. As assumed by Becker, anyone has some personal ethical values, including those athletes intending to dope, so that the latter transgress to some point their own values when undertaking a doping action; there is a non monetary disutility D of doping to the athlete. A second condition for him/her to go on doping is that profitability must be bigger than this disutility.

Policy recommendations are straightforward: lengthen the list of forbidden substances to raise the cost of doping, increase the cost of sanctions by heavier penalties, and push up the disutility of doping through athletes' ethical education. The 1988 anti-doping international chart is based on a list of methods and substances forbidden by the IOC medical commission. WADA has not changed this approach: an athlete is tested positive when a forbidden substance is found in his/her body beyond a pre-defined quantitative threshold. The efficiency of anti-doping has remained unevenly efficient due to the following flaws (Andreff, 2015c):

- 1/ a list of forbidden doping substances and techniques triggers an incentive to innovate in pharmaceutical products and blood treatment protocols;
- 2/ innovation supplies new performance-enhancing substances that will be off the list;
- 3/ all that not forbidden by the list is supposed to be allowed;
- 4/ for a while the new doping products remain either off the forbidden list or undetectable until ensuing technical progress emerges in anti-doping testing techniques⁶;
- 5/ the existence of an allowed quantitative threshold for forbidden substances (some human bodies naturally create more EPO than others) is an incentive for all riders to dope at least up to the threshold (Frick, 2008).

⁶ Moreover the list of forbidden substances is always updated with delay compared to the emergence of new products; the last significant update of the WADA list dates back to 2011. Moreover, the publication of doping tests is delayed as well; for instance, during the Rio Olympics in 2016 it was published that 98 athletes were doped ... at the Beijing 2008 and London 2012 Games, seven of which ex post lost their medals. It would probably take about ten years to know the "genuine" podiums at the Rio Games after some ex post disqualifications.

In the past two decades, a renewed analytical approach to doping has been rooted in game theory. A paper written in the wake of the Festina scandal (Eber and Thépot, 1999) had analysed doping as a prisoner's dilemma. Imagine a two-rider balanced cycling contest. Then if:

- a/ the two riders are not doped, they each have a 0.50 probability of winning each race of the contest, and eventually they will share 50/50 all the wins;
- b/ rider A is doped and rider B is not doped, then A wins 100% races (and the reverse if B doped, A not doped);
- c/ the two riders are both doped, then again they share 50/50 all the wins;
- d/ each doped rider is absolutely certain that the other one will not denounce him/her as doped (prisoner's dilemma).

Then both riders' interest is to dope whatever the other rider's behaviour. Doping is a dominant strategy that spreads throughout the whole peloton⁷.

The game theory literature has pushed forward several new anti-doping policy recommendations (Berentsen, 2002; Eber, 2008; Haugen, 2004; Kirstein, 2014). Most focus on how to set incentives such that athletes comply with anti-doping rules. However, as long as rules are the wrong ones (sanctions linked to a list of forbidden substances), efficiency will not be at a corner solution. The required incentives should be such that riders will willingly choose not to dope, as in a new recipe to combat doping presented in 4 below.

Globalisation has brought about increased economic competition in the sport betting market due to both the Internet and market deregulation. The volume of sporting bets has skyrocketed, the opportunity for frauds as well (Forrest *et al.*, 2008). Alongside globalisation sprung up product differentiation of newly offered bets such as live betting (now more than 60% sports betting volume), handicap betting, spread betting, proposition betting, and betting exchanges, all of which bring in new rigging opportunities and risks. Now, as a result, fraudulent fixes often materialise in spot-fixing instead of match-outcome fixes. Increasing evidence of a fast growing fraudulent on-line betting related to match fixing in different sports has been reported in the recent years (Boniface *et al.*, 2012; Hill, 2010; Sorbonne-ICSS, 2014). Match fixing has become the most widespread form of corrupt sport. Fraudulent networks of punters and criminals rig matches through bribing players or referees whereas bets are placed on the fix through the Internet.

⁷ When it is so, as pointed out by Bourg and Gouguet (2015), the sporting outcome is unchanged but all the athletes have put their health and even their life in jeopardy. And here we are since the number of doped athletes in 2010 was assessed to be in the range of 7-8 million people in the world (Bourg, 2016).

Exemplary of the globalisation of betting-related match fixing is the Bochum case which encompassed 50 corrupts and corruptors, and 320 fixed football matches in 13 countries of which nine were European countries. Rigged bets in dozens of millions of Euros were placed on fixes of which €32.4 million was with a single Asian operator Samvo, licensed in the UK. The major instigator of this betting scandal eventually was sentenced to five years jail in 2011 by the German court ([Abbott and Sheehan, 2013](#); [Europol, 2013](#)). A large number of other football cases came to light in just a few years. The most recent and comprehensive coverage of rigged sports betting is going to be published in Forrest (2017).

In addition to the Internet, two preconditions have facilitated the emergence of match fixing that interacts with rigged betting. For one, fraudulent punters need to network internationally in order to be able to gather a large amount of money to place on a fix. In most cases in court, several (connected) people from different countries have been judged and sentenced together. The second precondition is that fraudulent punters, or their agents, handle a complex match-fixing technology (Hill, 2009): they have to employ agents, known as runners, to approach players or referees, create a counterfeit intimacy with a targeted referee or player, then find his weakness, find out the spread and place the bet that will ensure the greatest profit with a fixed match, and eventually pay (often in cash) the corrupt players and referees after they have performed the desired outcome. In practice, a corruptor cannot operate alone with such technology. Consequently, corruptors act within hidden networks that are not easy to detect. Combating this type of sport corruption therefore requires a complex technology both (automated surveillance of betting markets to detect unusual patterns in the odds) and strong coordination between different international organisations. Increasing cooperation has been witnessed in the fight against betting-related match fixing between UNESCO, the Council of Europe, the European Union, Interpol, and Sport Accord. Practically the fix cannot materialise without an active participation from inside sport. Thus, combating match fixing first and foremost must come from the sport governing bodies.

Until the emergence of globalised on-line betting, standard economic analysis of sport corruption, just like for doping, relied on the economics of crime. A criminal activity in sports is supposed to be triggered by an individual cost-benefit analysis such as the one expressed in equations (1) and (2). For instance, investing in match fixing to derive significant monetary gains through fix-related bets is worth it, if and only if this appears to be profitable, *i.e.*, if those gains obtained in the sport betting market are much bigger than monetary and non-monetary costs of bribing players, referees, and of being sanctioned if detected. In a Beckerian train of thought, all individuals have the same perfectly rational behaviour so that overall demand of

fixes in the whole economy grows with an increase in the expected value of the net benefit derived from sport corruption, *i.e.*, when “crime does pay back”. However, one limitation of this kind of approach is that supply of corruption by sports insiders basically does not show up anywhere.

Forrest *et al.* (2008) following Ehrlich (1996), as revisited by Forrest and Simmons (2003) presented a model in which a risk-neutral athlete accepts being corrupted and then offers to fix a match outcome if:

$$qGf > pFf + V(Df) + V(Cf) \quad (3)$$

with Gf : the value of monetary gains derived from betting on a fix f ; q : the probability that the fix would be both successful and undetected; p : the probability that the fix would be detected and sanctioned; Ff : the financial cost (such as a fine) of the sanction if the fix is detected; $V(Df)$: the loss of utility associated with the underperformance needed to execute the fix, for example from blame from teammates or loss of reputation; $V(Cf)$: the monetary value of organising a fix. Potential fraudulent match fixers assess both sides of (3) and, if gains are higher than costs, they invest in a fix.

In Forrest *et al.* (2008) a supply side approach to match fixing is evidence-based on detected fixes undertaken by corrupt athletes for bribes and, in a sense, is complementary to the demand-oriented analysis of corruption in typical Beckerian models. Forrest (2012) contains interesting details about the modus operandi of match fixers, innovation and new techniques for supplying punters with rigged sporting bets. The idea of a supply-demand model in a market for fixes is sketched in Forrest (2013) where fixes appear to be sold and purchased. On the supply side, the corrupt ones are sport insiders. On the demand side, corruptors are criminals in a Beckerian sense, those who request some matches to be fixed in order to inflate their gains in the sport betting market. Such is the launch pad for a new (slightly) more complex model with two different and interacting markets, a sport betting market and a market for fixes (Andreff, 2017). In a nutshell, the match-fixing market is analysed as upstream (or supplier) to the betting market. On the one hand, if the former does not supply any fix, then the sport betting market functions like any financial market. On the other hand, if the upstream market supplies some quantity of fixes, this heavily affects how the downstream sport betting market functions. When criminal match fixers demand more fixes, such demand increase is an incentive for sport insiders to augment their supply of fixes. The more fixes, the more the gain distribution in the market for sporting bets is distorted between those gains of regular punters - those not involved in fixes - and the gains of corruptors, the more the latter invest again and again in fixes, and collect more distorted and huge gains on rigged bets, and so on and so forth. The two markets

are interacting. This boils down to considering sport insiders as factors of production and suppliers of fixes; consequently fixes are to be treated as inputs delivered in relation with some sporting bets⁸ placed by match fixers acting as punters in the downstream market for sport betting.

4. What is to be done?

Globalisation of doping and fraudulent online betting-related match fixing together with their potential to poison the whole structure of sport, perhaps even fatally, obviously call for global solutions, recipes and regulations (Andreff, 2015c).

Given the rather low efficiency of current anti-doping regulation, radically innovative devices to combat doping should be considered. The one suggested in Andreff (2016) is as follows⁹:

1/ At the dawn of each cycling season, all riders must compulsorily register the list of all pharmaceutical substances and medical protocols which they are going to use over the whole season including those aimed at enhancing their sporting performances; such doping diary is kept secret from other riders and is absolutely binding: it is a commitment to stick to the declared list of doping products, definitely no more (but possibly less).

2/ If in the course of the season a rider is tested positive only with products actually listed in his diary, no sanction applies.

3/ If a rider is tested positive for having taken products off his own list, the sanction is a life ban from professional cycling, because not only he has over-doped but also veiled information, denied his commitment, and blurred the transparency required for the new regulation device to be efficient; nobody will further share the wins and prizes with him.

4/ Assume now that rider A is winning all or too many races over the season, then other riders in the peloton – any of them under the precondition that they are at least two – are allowed to ask A to unveil his doping diary in order to check whether he complies with it.

5/ If it appears that the suspected rider A does not comply with his own doping diary, he is life-banned from professional cycling.

⁸ Forrest (2006) and Dietl and Weingärtner (2012) have pointed out that the outcome of a sporting event is an input used by sport bets' suppliers in a regular bet - without upstream match fixing. A fixed sporting outcome obviously is also an input though it is not the one expected (wished) by regular punters, bookmakers and betting operators.

⁹ In line with first intuitions formulated in Bird and Wagner (1997) and Breivik (1992).

6/ If rider A has stuck to his doping diary (no over-doping), he is not sanctioned and the two or more claiming riders have to admit that rider A uses a more efficient doping diary than their own.

7/ Resulting from 6/ other riders would have the incentive to copy the unveiled doping diary of the winner, which would trigger three beneficial effects: a/ step by step the same doping norm will come to prevail in the whole peloton – a typical story of social norm formation; b/ all riders applying the same most efficient doping diary, they will swiftly become aware that doping is useless since everyone following the same doping diary does not provide any differential competitive advantage to anyone in the peloton; c/ the *omerta* ('no one denounce') system will vanish of its own death since the best doping diary will be known to everyone and openly used by all riders.

8/ Once aware that doping is not worthwhile as soon as it is not differentiated between riders, it would be easy to convince them that 'the more doped the better' is not the best doping programme. Step by step, an 'optimal' doping programme could be reached with the riders' consent which would encompass only the safest stimulating products required by a hard stamina-demanding sport such as cycling.

As demonstrated in Andreff (2016), in such a theoretical game, the incentive device works in the good direction: each rider becomes unwilling to over-dope and cheat whatever the others do and benefits in terms of wins from the wrong over-doping strategy possibly adopted by competitors. Non-overdoping is a dominant strategy because non-cheaters capture the cheaters' share in total wins. Doping appears to be a self-defeating strategy and will be rejected by most riders after some time.

Turning now to match fixing, since a regulator, a bookmaker or a government is not able to obtain the required transparency for scrutinising the very existence of transactions in the market for match fixing, they cannot straightforwardly intervene, regulate, sanction, fine or tax these kinds of underground transactions. If one wishes to phase out or diminish the current volume of bet-related match fixing the only way to proceed, for governments, sport governing bodies or bookmakers' professional unions, is to act on the market for sport betting. Given that a drastic money withdrawal from sport, however nice a solution, is unrealistic with the current sport economic globalisation, other options are prohibition, sanctions, regulation, betting rights, and taxation.

Some countries have opted for definitely prohibiting sporting bets: the US, Brazil, Cuba, Indonesia, India, Malaysia and several CIS countries (Sorbonne-ICSS, 2014). More precisely, the US has banned sports betting in all states but Oregon, Montana, Delaware, and Nevada, of

which only Nevada offers full sports books. Another group still maintains a state monopoly over sport betting such as Canada, Chile, China, Colombia, Japan, South Korea, Singapore, and a few European countries. The great bulk of irregular fix-related sport bets emanate from these first two groups of countries. National prohibition or a state-owned betting system, facing a global demand for sport betting, generates a worldwide black market primarily based in those countries where punters have to - and are used to - circumventing a legal impossibility to bet or a legal possibility to bet only under state control.

As regard sanctions, criminalisation of corrupts, corruptors and corrupt activities is conceived as the major tool for combating match fixing and illegal or irregular betting (UNODC & IOC, 2013). Maennig (2008) advocates severe sanctions that would maximally worsen the bad reputation of corrupt sport insiders and by the same token would increase ex post non-monetary costs of corruption; corruptors and corrupt insiders would have to be more cautious to avoid detection and sanction if the expected value of direct monetary costs of corruption were to increase. Sanctions may be taken not only on a legal basis but also from within sport by enforcing sport federations' rules. However, it is precisely because sanctions against corrupt sport participants coming from sport governing bodies were much too few in the past that sport is facing a skyrocketing trend of corruption; therefore there is a need for governmental sanctions as well, despite the sport's claim for autonomy.

The target of regulation may be either the price or the volume of sport corruption. Appropriate regulation maintains some ex ante control over potential corrupt activities as, about sport betting, delivering licenses to gambling operators (several European countries). In some countries, gambling operators are required to pay property rights to offer sport bets (1% to 2.5% of bets); the rights are paid to organising sport associations. In other countries, some sorts of bets are forbidden like handicap betting – betting on whether the favourite will win by more than a specified margin - that favours match fixing. Another option for public regulation would be to fix a very high minimum [take-out rate on sport bet operators](#) that would put a ceiling on and worsen the rate of return to punters which, at the end of the day, would deflate the volume of bets and thus the probability of match fixing. However, domestic regulation against sport corruption and match fixing enforced on a national base crowd corruptors and match fixers out to those countries without regulation or where regulation is usually circumvented. The more significant is the regulation the more crucial the issues of enforcing it and avoiding regulators themselves to be attracted into corrupt sport business. [Moreover, even with no switch of bets from the regulated to the unregulated market, domestic regulation may be ineffective when only the pettiest fixes use regulated markets for associated bets.](#)

Dietl and Weingärtner (2012) do not trust regulation as the best solution. A total elimination of betting scandals would require that football institutions stop selling any property rights to the gambling industry. Such a radical solution is not realistic because football (sport) institutions are not likely to deprive themselves from attracting money into their industry through sport betting. Would they cut themselves from the betting godsend simply to clean up betting scandals? Another option suggested by Dietl and Weingärtner is that sporting entities could request betting rights - in the same vein as broadcasting rights - to be paid to them directly by betting operators and by the same token would privatise both property rights on public goods (fixtures, outcomes) and their negative external effects (fraudulent bets). Betting rights should compensate each sporting entity for the cost of combating frauds generated by rigged sporting bets. The problem is that information about sport fixtures and outcomes is accessible to anyone, be they fans, TV viewers or illegal betting operators. Moreover betting rights might not be a solution since some governments do not recognise an intellectual property over sporting events and consequently do not allow sporting entities to request the payment of betting rights. In countries where betting rights are recognised, paying them increases the costs of legal betting operators and improves the relative competitiveness of illegal operators which would take an increased market share.

Domestic taxation in a national betting market would not be efficient in the face of a global fix-related sport betting market. Consequently a new tool to combat fix-related sporting bets has been suggested, a so-called global 'Sportbet-Tobin' tax (Andreff, 2015 a & c) with a variable tax rate, inspired from the famous Tobin tax (Tobin, 1978) initially designed with a 1% flat rate. To adapt the concept to sport betting, one has first to sketch the threshold over which the Sportbet-Tobin tax should be levied, *i.e.*, the amount of betting gains that triggers taxation at the lowest 1% rate. A low tax rate may have a sort of moralising impact on punters and must target a low threshold of gains above which levying the tax. However, one cannot expect to actually slowdown sport betting on fixes only with such moralising effect. It would be more efficient to put a brake on fix-related sport betting with a variable tax rate growing with the amount of betting gains. This would be likely to dissuade a number of bets placed by match fixers and crowd out criminals from sport corruption to some other criminal activity. If the highest rate of taxation is fixed high enough, the worst of fix-related sport betting would vanish since the tax would confiscate the great bulk of gains and lower match fixing profitability down enough to dry it up.

One problem with the suggested Sportbet-Tobin tax is, on the one hand, that it could be enforced only under the prerequisite of an international agreement passed between a non negligible

numbers of nations; the very lengthy and non converging process of a low-rate Tobin tax enforcement on financial transfers in EU countries shows how the way to go would be long. On the other hand, this international tax would apply only in those legal markets covered by the international agreement; it is doubtful that most Asian and Caribbean markets – a significant part of the global market - would join the latter unless some more coercive or retaliation measures were adopted in line with the inception of the current fight against tax havens. Whatever the implemented policy among all the above-listed ones, it would take time to eliminate or simply reduce fixer's activities.

A multi-faceted law on sport ethics was passed in the French Parliament on February 15, 2017 which aims at protecting sporting ethics and reinforcing the regulation and transparency of professional sport. It is motivated by the emergence of new forms and techniques of cheating and sport manipulation that erode sport deontology and integrity. In its article 1 the law states that sports leagues and federations must create an independent committee in charge of enforcing the French charter of sport ethics and taking over all questions about deontology and the prevention of conflicts of interest. Article 2 requires that sports federations actually enforce their rules and sanction those who do not comply with them – putting a micro-engine on racing bikes is explicitly mentioned with adapted controls such as heat cameras to check all the bikes used in the Tour de France. Article 3 strictly forbids any sport competitor from betting on his/her own competition and on other competitions in the same sport discipline. Article 10 extends the alignment of French legislation with the WADA code as regards the biological profile of athletes (with a longitudinal follow up of their biological variables), and widens the scope of sanctions falling on those who do not comply with these rules.

This law is a step forward on the path toward combating sport manipulations efficiently but the enforcement is confined to France while doping and on-line rigged betting require international responses. A further step, in line with the CECMSC, would be to introduce a new article in the French Penal Code that treats any sport manipulation as a criminal offence; this article would replace the two existing Penal Code articles dealing with corruption in relation to sport bets (SCPC, 2016).

Conclusion

From the Council of Europe Convention on, the manipulation of sport contests has definitely become a subject of international public law (Vilotte and Killy, 2014). As soon as possible it should be the subject of an efficient international set of economic regulation, taxation and

sanctions whatever difficulties this would involve. And, for sure, it would be even more difficult to enforce it.

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